BMJ Open

Ku-gaa-gii pimitizi-win, the COVID-19 cohort study of people experiencing homelessness in Toronto, Canada: a study protocol

Lucie Richard ,[1] Rosane Nisenbaum,[1,2] Michael Liu ,[1,3] Allison McGeer,[4] Sharmistha Mishra,[1,5,6] Anne-Claude Gingras,[7] Jennifer L Gommerman,[8] Ruby Sniderman,[9] Cheryl Pedersen,[1] Olivia Spandier,[1] Jesse I R Jenkinson ,[1] Stefan Baral,[10] Cilia Mejia-Lancheros ,[1] Arnav Agarwal ,[11] Alainna J Jamal,[4,5] Mario Ostrowski,[12] Irfan Dhalla,[5,13,14] Suzanne Stewart,[2] Mikaela Gabriel,[2] Michael Brown,[2] Joe Hester,[15] Stephen W Hwang[1,2,13,14]

To cite: Richard L, Nisenbaum R, Liu M, *et al*. *Ku-gaa-gii pimitizi-win*, the COVID-19 cohort study of people experiencing homelessness in Toronto, Canada: a study protocol. *BMJ Open* 2022;**12**:e063234. doi:10.1136/bmjopen-2022-063234

► Prepublication history and additional supplemental material for this paper are available online. To view these files, please visit the journal online (http://dx.doi.org/10.1136/bmjopen-2022-063234).

Received 05 April 2022
Accepted 27 June 2022

Check for updates

© Author(s) (or their employer(s)) 2022. Re-use permitted under CC BY-NC. No commercial re-use. See rights and permissions. Published by BMJ.

For numbered affiliations see end of article.

Correspondence to
Lucie Richard;
Lucie.Richard@unityhealth.to

ABSTRACT

Introduction Initial reports suggest people experiencing homelessness (PEH) are at high risk for SARS-CoV-2 infection and associated morbidity and mortality. However, there have been few longitudinal evaluations of the spread and impact of COVID-19 among PEH. This study will estimate the prevalence and incidence of COVID-19 infections in a cohort of PEH followed prospectively in Toronto, Canada. It will also examine associations between individual-level and shelter-level characteristics with COVID-19 infection, adverse health outcomes related to infection and vaccination. Finally, the data will be used to develop and parameterise a mathematical model to characterise SARS-CoV-2 transmission dynamics, and the transmission impact of interventions serving PEH.

Design, methods and analysis *Ku-gaa-gii pimitizi-win* will follow a random sample of PEH from across Toronto (Canada) for 12 months. 736 participants were enrolled between June and September 2021, and will be followed up at 3-month intervals. At each interval, specimens (saliva, capillary blood) will be collected to determine active SARS-CoV-2 infection and serologic evidence of past infection and/or vaccination, and a detailed survey will gather self-reported information, including a detailed housing history. To examine the association between individual-level and shelter-level characteristics on COVID-19-related infection, adverse outcomes, and vaccination, shelter and healthcare administrative data will be linked to participant study data. Healthcare administrative data will also be used to examine long-term (up to 5 years) COVID-19-related outcomes among participants.

Ethics and dissemination Ethical approval was obtained from the Unity Health Toronto and University of Toronto Health Sciences Research Ethics Boards (# 20-272). *Ku-gaa-gii pimitizi-win* was designed in collaboration with community and service provider partners and people having lived experience of homelessness. Findings will be reported to groups supporting *Ku-gaa-gii pimitizi-win*, Indigenous and other community partners and service providers, funding bodies, public health agencies and all levels of government to inform policy and public health programs.

STRENGTHS AND LIMITATIONS OF THIS STUDY

⇒ *Ku-gaa-gii pimitizi-win* is a large, randomly sampled cohort of people experiencing homelessness (PEH) followed over 12-months during the COVID-19 pandemic.
⇒ Key variables such as infection and vaccination are collected using multiple sources (self-report, saliva and serological testing, linkage with administrative data sources) to minimise vulnerability to biases stemming from self-reported data.
⇒ Because recruitment was not possible at most encampments or on the street, and individuals in these locations represent about 10% of PEH in Toronto, our sample closely approximates, but is not fully representative of, the homeless population in Toronto.
⇒ Cultural safety and Indigenous-specific ethics and protocols were incorporated into the study after data collection and were more reactionary than embedded.
⇒ As anti-SARS-CoV-2 antibodies decline over time, we may underestimate true prevalence of past SARS-CoV-2 infection in our cohort at baseline.

BACKGROUND AND RATIONALE

More than 235 000 people experience homelessness in Canada every year.[1] Homelessness places people at high risk of contracting SARS-CoV-2,[2] as shared living spaces, crowding, difficulty achieving physical distancing and high population turnover typical of homeless shelters all promote transmission.[3 4] Moreover, people experiencing homelessness (PEH) have disproportionate intersecting physical, mental and social burdens that greatly increase morbidity and mortality relative to the general population,[5–8] including physical and mental health conditions

BMJ Open: first published as 10.1136/bmjopen-2022-063234 on 5 August 2022. Downloaded from http://bmjopen.bmj.com/ on June 13, 2025 at Agence Bibliographique de l Enseignement Superieur (ABES) . Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

associated with adverse outcomes following COVID-19 infection.[8–12]

To date, most studies describing incidence or prevalence of COVID-19 among PEH have been cross-sectional in design, many focussing on a convenience sample of shelters during the first or second waves (from March to December 2020). As a result, estimates from these studies vary widely depending on setting, timing and preventive measures in place,[13–25] with variability primarily determined by whether the settings, in most cases emergency shelters, were experiencing an outbreak.[13 15 16 19 26] One study using a longitudinal design estimated 6% prevalence in summer 2020, increasing to 18.9% within 90 days (coinciding with the early part of the second wave).[27] Generally, PEH are more likely to be infected than a reference general population.[28 29]

Specific settings, including emergency shelters and those with overcrowding or communal sleeping arrangements, are associated with increased risk of infection, presumably due to greater exposure during outbreaks compared with PEH living outdoors or in private and/or well distanced accommodations.[15–18 24–27] In Wales, where PEH were comprehensively housed in private settings during the pandemic, COVID-19 prevalence was lower than in the general population.[30] Similarly, shelters implementing physical distancing practices have been shown to have lower infection rates.[15] Evidence for other individual-level or shelter-level factors associated with COVID-19 infection remains to be established, and effectiveness of most interventions remain to be evaluated.

Finally, the few studies to date that have investigated vaccine coverage among PEH report low coverage compared with the general population. US-based estimates place coverage among PEH 11.0%–37.2% lower than the general US population.[31 32] Another recent Canadian study suggests vaccination rates among Ontario PEH who use healthcare are 25% lower than that of adult Ontarians.[33]

This prospective cohort study has five broad objectives:

1. Determine the incidence and prevalence of COVID-19 infection, related complications and vaccination status among PEH in Toronto over a 12-month observation period.
2. Examine the association between housing history and individual-level and shelter-level characteristics (including shelter-level interventions) with incident COVID-19 infection among PEH over a 12-month observation period.
3. Investigate associations between individual-level and shelter-level characteristics and adverse outcomes among PEH diagnosed with COVID-19 over a 12-month observation period and over long-term follow-up (up to 5 years after recruitment).
4. Assess vaccination uptake among PEH and factors associated with vaccination.
5. Develop a novel transmission model for COVID-19 among PEH living in urban settings.

Ku-gaa-gii pimitizi-win, formerly known as the COVENANT study, has two associated studies not described in this protocol: (1) a genomics study aiming to evaluate the phylogenetics of SARS-CoV-2-positive samples among PEH in Toronto, to determine the utility of viral sequencing in outbreak assignment and (2) a qualitative study focusing on the pandemic experiences of PEH and drivers of vaccine uptake and hesitancy, to develop strategies to reduce barriers and improve confidence in vaccination and other protective strategies.

METHODS AND ANALYSIS

Design and setting

To guide this work, a spirit name was given to the study in ceremony by Elder Dylan Courchene from Anishnawbe Health Toronto. *Ku-gaa-gii pimitizi-win*, which translates in English to *life is always/forever moving*, reflects and honours the movement of homeless individuals across the land, the spirit and growth of the land we are on, and the force that connects us all to the future.

Ku-gaa-gii pimitizi-win is an ongoing prospective, longitudinal study being conducted between June 2021 and approximately December 2022 in Toronto, a city on Treaty 13 territory in Canada. Toronto is the country's largest city, and has the largest group of PEH in Canada.[34] A recent point-in-time count estimated 7347 PEH were in Toronto on a single night, with approximately 90% staying indoors (eg, at shelters) and 10% staying outdoors on the street or in encampments.[35] Approximately 15% self-identified as Indigenous.[35] In Toronto, numerous community and service organisations, such as Anishnawbe Health Toronto and the Inner City Health Associates, provide PEH with targeted health and social services. The Shelter, Support & Shelter, Support & Housing Administration (SSHA) Division manages housing and homelessness services across the city, and policies and strategies related to containment and mitigation of COVID-19, including testing and vaccination, are guided by public health authorities at provincial and regional levels.[36]

Throughout the pandemic, PEH have been identified as being at higher risk for infection and related complications.[37] As a result, they received priority testing status when diagnostic tests were limited and prioritisation for vaccination, and funding has been made available to establish physical distancing hotels.[38 39]

Data from Indigenous participants in this study are possessed and owned by Anishnawbe Health Toronto (AHT), a fully accredited health centre, which serves Indigenous clients with a model of care based on Indigenous culture and traditions using both western and traditional approaches. Research focused on Indigenous study participants will be led by AHT and Waakebiness-Bryce Institute for Indigenous Health.

Eligibility criteria

To be eligible, participants had to be aged 16 years or older, experiencing homelessness at the time of recruitment,[40]

BMJ Open: first published as 10.1136/bmjopen-2022-063234 on 5 August 2022. Downloaded from http://bmjopen.bmj.com/ on June 13, 2025 at Agence Bibliographique de l Enseignement Superieur (ABES) . Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

able to provide informed consent, willing to provide a finger-prick blood sample at baseline and each follow-up encounter, and to be contacted for follow-up encounters.

Recruitment and consent

We obtained a representative sample of PEH living in emergency and provisionally sheltered settings using field-tested methods used successfully in two previous studies.[41 42] Recruitment, data collection and follow-up were conducted by the Survey Research Unit of the MAP Centre for Urban Health Solutions, which has extensive expertise in research involving PEH. Recruitment occurred from June 2021 to September 2021 at 61 physical distancing hotels and shelter sites for youth (16–24 years), adults and families experiencing homelessness in Toronto. Recruitment at major encampment sites was planned; however, because municipal authorities enforced a series of encampment clearances during the recruitment period,[43–45] only one encampment recruitment visit could be completed. Due to prohibitive logistical considerations, we were unable to recruit individuals living on the street.

A random number schedule was assigned to randomly select beds or rooms at each shelter or hotel site. Staff approached each potential participant from eligible beds/rooms to confirm study eligibility. Once confirmed, staff explained the purpose, process, risks and benefits of the study. Participants chose to participate by providing written informed consent (online supplemental file 1). For encampments, research staff worked with outreach workers to approach and invite encampment residents to participate. Due to the small number of encampment residents, all residents were approached and invited, if eligible.

Most potential participants were able to understand and participate fully in the consent process. Where doubts existed, an Additional Consent Measures Checklist (online supplemental file 2) was used to confirm understanding of key aspects of the letter of information and consent form. Additionally, we offered access to an on-the-spot interpretation service to prevent language barriers to participation.

Participants can withdraw from the study at any time. If a participant withdraws, research staff will cease further data collection, and will not recontact the participant. Because interim analyses will be performed throughout the follow-up period, participants are unable to retroactively withdraw data that have already been collected.

Sample size

We used the exact Clopper-Pearson CI formula to calculate the sample size required to estimate a 95% CI with half width (precision) of 5% or less for the primary outcome (incidence of SARS-CoV-2 infection over 12 months). A sample size of 402 achieves this goal under incidence scenarios between 10% and 90%. Assuming a follow-up rate of 80% at the end of the 12-month period, the initial sample size required is 503. This sample size is further inflated to account for participants with past infection at baseline who must be excluded from the calculation of incidence. Assuming 75% of participants are uninfected at baseline, the sample size required is 503/0.75=670. Thus, we conservatively planned for a sample size of 700, achieved by sampling among a fraction (20%) of beds available at each participating site.

We recruited a total of 736 participants between June and September 2021.

Promotion of continued participation

Longitudinal studies with PEH face special challenges with follow-up. To minimise attrition, we will be using methods effective in tracking and retaining study participants living in homeless or marginalised housing situations.[46–50] At each interval and during recruitment, interviewers endeavour to establish trust and rapport with participants. Participants will receive a $C40 honorarium at each interview as compensation for their time. Participants will also be asked to provide detailed contact information as well as contact information of family, friends and other service providers who we may contact if research staff are unable to reach the participant. Finally, participants will be asked to call research staff at a toll-free study number between interviews to provide updates about contact information and location. Participants who do this will receive an additional $C10 honorarium at the next follow-up encounter.

Data collection

Baseline

At the time of recruitment, research staff conducted a 60–90 min baseline interview (online supplemental file 3). Telephone interpretation service was used as needed. The interview asked participants about their sociodemographic information (age, sex, gender identity, race, Indigenous identity, immigration/refugee status, education, weight, height and duration of current period of homelessness), health information, housing history, prior COVID-19 infection history, current COVID-19 symptoms, vaccination history and activities and behaviours related to COVID-19.

Participants also provided two self-collected saliva samples and one finger-prick blood sample at baseline. Saliva specimens for the detection of SARS-CoV-2 have been shown to be sensitive, safe and less invasive to obtain compared with nasopharyngeal specimens.[51 52] One saliva sample was obtained using the mouth swish-and-gargle technique.[53] The second saliva sample, used for parallel detection of antibodies against SARS-CoV-2, was collected using Salivette tubes, for which participants kept a swab in their cheek for 2 min or until the swab was saturated.[51] Approximately 250 µL of capillary blood was collected into a plasma tube (BD365985). If collection of blood into a plasma tube was unsuccessful, blood was blotted onto filter paper (Whatman 903) as a dried blood spot.

BMJ Open: first published as 10.1136/bmjopen-2022-063234 on 5 August 2022. Downloaded from http://bmjopen.bmj.com/ on June 13, 2025 at Agence Bibliographique de l Enseignement Superieur (ABES) . Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

Table 1 Summary of intervals and associated domains and specific instruments/methods for data collected

Interval	Domain	Method/instrument	Purpose
Baseline	Sociodemographics		To describe the participant
	Health		To describe the participant
	Prior COVID-19		To describe the participant
	Activities and behaviours related to COVID-19		To describe the participant
	Housing		To describe the participant
	Biological samples	Saliva sample (Swish and gargle method)	Detection of current SARS-CoV-2 infection
		Saliva sample (Salivette tube method)	Detection of past antibodies against SARS-CoV-2
		Finger-prick capillary blood sample (500 µL) and/or dried blood spot	Detection of past antibodies against SARS-CoV-2
Follow-up (3, 6, 9 and 12 months)	Health		To describe the participant since last interview
	Prior COVID-19		To describe the participant since last interview
	Activities and behaviours related to COVID-19		To describe the participant since last interview
	Housing		To describe the participant
	Biological samples	Saliva sample (Swish and gargle method)	Detection of current SARS-CoV-2 infection since last interview
		Finger-prick capillary blood sample (500 µL) and/or dried blood spot	Detection of past antibodies against SARS-CoV-2 since last interview

Follow-up

Follow-up interviews will occur approximately every 3 months after the baseline interview, and must occur between 45 and 135 days after the previous interview. If this time window is missed, the interview will be skipped and participants will be contacted for the subsequent interview. If the research team cannot recontact the participant, they will contact the shelter programme where the participant is currently registered according to Shelter, Support & Housing Administration (SSHA) databases, or their last known location if not registered in the databases, to locate them.

Follow-up interviews will take approximately 30 min, and may take place at the site of recruitment, another shelter programme, or another location in the community convenient to the participant. One saliva sample (swish and gargle method) and one finger-prick blood sample will be acquired, and updated information regarding housing history, prior COVID-19, vaccination history and behaviours related to COVID-19 will be recorded.

Research staff will use personal protective equipment during all interviews, including face masks, face shields, gowns and gloves, and participants will be required to wear face masks during the interviews. Table 1 shows the full schedule of interviews and biological specimens collected each interval.

Data recording and processing

Survey information will be entered onto tablets during the interview, removing the need for secondary data entry. An original copy of the data will be kept separate from a master copy, which will undergo quality control assessments by two research team members independently to identify invalid or suspect data. Any inconsistent information will undergo further evaluation, and the team will collaboratively decide if and how to correct the master dataset. Decisions about corrections will be recorded.

Current COVID-19 infection will be determined by quantitative reverse transcription PCR (RT-qPCR) for SARS-CoV-2 in saliva. Samples will be processed in a clinical microbiology lab with standard methods.[51 54] Evidence of past COVID-19 infection and/or response to vaccination will be determined by ELISA for anti-SARS-CoV-2 IgG antibodies against the spike protein trimer, the spike protein receptor-binding domain, and the nucleocapsid antigen in capillary blood, or in dried blood spot samples obtained when capillary blood cannot be obtained. These assays are validated; details of the assays are reported elsewhere.[55]

Linkage

Participants having provincial healthcare coverage will have their data linked to Ontario health administrative data holdings at ICES[56] (formerly known as the Institute for Clinical Evaluative Sciences) to access historical (up to 10 years back) and on going (up to 5 years forward) information on COVID-19 testing, health conditions relevant to COVID-19, emergency department visits, hospitalisations and deaths. This linkage will be accomplished using name, date of birth and health card number (a unique identifier permanently assigned to each individual covered by Ontario's single-payer universal health insurance system). ICES is an independent, not-for-profit research institute that hosts Ontario's health administrative data, and has provided extensive reporting related to COVID-19 in Ontario.[57]

BMJ Open: first published as 10.1136/bmjopen-2022-063234 on 5 August 2022. Downloaded from http://bmjopen.bmj.com/ on June 13, 2025 at Agence Bibliographique de l Enseignement Superieur (ABES) . Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

In addition, aggregate shelter-level data and participant use of physical distancing hotels or shelter programmes in Toronto, as well as site-specific information (eg, gender mix, bed capacity, shelter layout, documented COVID-19 infections among residents and staff) will be obtained from the SSHA Division of the City of Toronto for 1 year prior to the start of recruitment, and up to 2 years following recruitment.

Outcomes

The main outcomes of interest will be incidence of COVID-19 infection over 12 months, and prevalence of COVID-19 infection at 12-month follow-up. At each time point, incident infection will be defined as: (1) positive saliva PCR test in an individual without previously positive saliva PCR or blood serology tests or (2) positive blood serology test in an individual without previously positive serology. As certain antibodies are present with both vaccination and infection,[58] final infection and vaccination statuses will be adjudicated following a decision tree (online supplemental file 4), which uses biological sample results and self-reported infection and vaccination information.

Secondary outcomes of interest will include: (1) COVID-19 vaccination status, determined by self-report, serology tests or ICES confirmation in its provincial vaccination database (COVAXON) and (2) health complications arising from COVID-19 infection, as determined by self-report and health administrative databases at ICES, both over the shorter (within 1 year) and longer term (within 5 years).

Statistical analyses

Unless otherwise indicated in the manuscript, we will estimate prevalence of past COVID-19 infection as the proportion of participants who had a positive PCR or adjudicated serology result at any point during the 12-month observation period.[59] Incidence will be calculated as incidence proportion (number of participants with incident COVID-19 infection during a time point divided by uninfected participants at baseline) and incidence rate (number of participants with incident COVID-19 infection during a time point divided by total person-months of observation) at all time points. Where infection date information is unavailable, it will be imputed assuming that new infections occur at a random time between the last negative and first positive PCR or adjudicated serology result available.[60]

To explore factors associated with infection incidence, we will fit Poisson regression models to estimate rate ratios and 95% CIs, or time-to-event models to estimate HRs and 95% CIs, as appropriate. Infection incidence will be the dependent variable, and individual-level and shelter-level characteristics will be independent variables (either summarised for the period or as time-varying covariates). To explore factors associated with adverse outcomes and vaccination status, we will construct logistic regression models to estimate ORs and 95% CIs for COVID-19 hospitalisation, COVID-19 intensive care unit admission, COVID-19 death and COVID-19 vaccination, respectively. Housing state history and individual-level and shelter-level characteristics will be selected as covariates, as appropriate (either inferentially or where unadjusted associations are statistically significant).

Data may be missing for specific variables if participants decline to answer, or for entire intervals if participants are not found within the specific time frame for that interval. In these cases, we will perform multiple imputations, either for the main analysis or as sensitivity analyses as the situation dictates.[61] Individuals who cease participation or who die during follow-up may not be missing at random; as such, these individuals may be analysed separately if their model trajectories are found to differ substantially from the cohort as a whole.

For objective 5, we will simulate SARS-CoV-2 transmission using a modified, compartmental, Susceptible–Exposed–Infectious–Recovered mathematical model.[62–64] The model will include asymptomatic and presymptomatic states and strata for temporary housing, infection control, masking and vaccination. The network structure of the model will be specified as a patch (or meta-population) model, where shelters represent facility patches and surrounding neighbourhoods represent community patches. PEH, staff and volunteers will connect shelter patches. We will use *Ku-gaa-gii pimitizi-win* baseline COVID-19 prevalence with anonymised person-level characteristics (including contract rates and mixing (who contacts whom)), external COVID-19 surveillance data (person-level and outbreak data by shelter), shelter-level characteristics and data from the literature to parameterise and calibrate the transmission model.

We will use the transmission model to estimate SARS-CoV-2 incidence trends and the probability and size of future outbreaks and to conduct counterfactual modelling experiments. The latter will be used to evaluate the transmission impact of population-specific intervention strategies and programmes that were implemented in Toronto during the pandemic (such as physical distancing efforts at shelters and physical distancing hotels; COVID-19 isolation strategies; vaccination programmes; housing interventions; and to estimate the potential impact of future population-specific interventions and preparedness strategies focused on the needs of PEH).

Statistical analyses will be conducted using R, STATA and SAS Enterprise Guide v 7.1; the transmission model will be coded in R and C++. All statistical tests will be two sided and a p value of 0.05 or less will indicate statistical significance. Reporting will adhere to the Strengthening the Reporting of Observational Studies in Epidemiology guidelines[65]; transmission modelling reporting will follow the ISPOR Best Practices in Transmission Dynamics Modeling.[66]

Study limitations

The *Ku-gaa-gii pimitizi-win* study has several limitations to consider. First, this study is being conducted in a single city (Toronto, Canada). Findings may not be generalisable to other settings with different policies, social or healthcare settings or contexts, or homeless populations with markedly different characteristics. Second, due to logistical

BMJ Open: first published as 10.1136/bmjopen-2022-063234 on 5 August 2022. Downloaded from http://bmjopen.bmj.com/ on June 13, 2025 at Agence Bibliographique de l Enseignement Superieur (ABES) . Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

constraints, our study recruited no participants living on the street, and very few participants at encampments. The 2021 Street Needs Assessment indicates that, during a time of the year with moderate climatic conditions (spring), approximately 10% of PEH in Toronto were staying in settings not sampled.[35] Therefore, our sample will be close to, but not entirely representative of, the homeless population in Toronto. Third, many recent studies have found evidence that anti-SARS-CoV-2 antibodies decline over time.[67–69] This is an inherent limitation of all serological studies, and may lead us to underestimate the true SARS-CoV-2 prevalence in our cohort. Fourth, Indigenous ethics and protocols were incorporated into the study after data collection and were more reactionary than embedded. Ongoing research will include Indigenous community partnership as a framework for any Indigenous data sets.

Finally, and as with most other cohort studies, we rely on the collection of self-reported data from participants, which suffers from potential biases including social desirability and recall bias. We have, however, minimised the impact of these biases by also collecting key variables (eg, infection and vaccination) through saliva and blood samples, and will also cross-reference against information in health administrative data.

ETHICS AND DISSEMINATION

Ethics approval

The *Ku-gaa-gii pimitizi-win* study has been approved by the Unity Health Toronto Research Ethics Board (REB # 20-272). All changes to the protocol will be communicated to and receive approval from the REB before implementation. COVID-19 infection events will be obtained for modelling from the Case and Contact Management database made available from the Ontario Ministry of Health and Ontario COVID-19 Modelling Consensus Table, with approval from the University of Toronto Health Sciences REB. Ethical approval from the community partner (AHT) will be incorporated in an ongoing manner and they will continue to be consulted through the life of the project.

Participant safety

The main benefit to participants will be detection of active COVID-19 infection through RT-qPCR testing. Because the saliva test used in this study is not currently approved for clinical use, participants cannot be formally diagnosed with COVID-19 unless they subsequently undergo confirmatory testing. Until January 2022, we attempted to contact participants who had positive test results to assist with referral and transportation to a COVID-19 assessment centre for confirmatory testing. Beginning in January 2022, when confirmatory testing was no longer advised by provincial guidelines, we will continue to notify Toronto Public Health of positive test results and contact participants who test positive to ask them to self-isolate following their shelter or residence's usual procedure.

The main risk to participants will be the possibility that some may find certain interview questions challenging or uncomfortable. To mitigate this risk, the interview guide was pilot tested with several people having lived experience of homelessness and reviewed by partners at AHT before recruitment. Participants will also be told they may choose to not answer specific questions or stop the interview at any time. Also, cultural safety was identified as a potential issue for participants subsequent to data collection and has since been addressed by the incorporation of culturally safe Indigenous researchers to the research team.

A second, minor risk for participants will be the transient pain or discomfort caused by finger-prick blood sampling at each encounter.

Dissemination

With the help of the Canadian Alliance to End Homelessness, we will disseminate interim and final results through brief reports, presentations and meetings to our extensive network of researchers, clinicians, public health professionals, and community and political leaders in cities across North America. The transmission model code from objective 5 will also be shared as open-access code and thus comprise a tool for future use in Toronto, and for adaptation in other settings.

Anishnawbe Health will lead the dissemination plan for Indigenous data and results to ensure the minimisation of harm and to maximise benefits for Indigenous peoples.

Data protection and retention

The research team will make every effort to keep data confidential in accordance with all current local and provincial privacy legislation. Indigenous data will be possessed and owned by AHT according to OCAP principles.[70] Information and biological samples will only be linkable through a unique study identifier. Personally identifying information will be stored in a Master Linking Log, which will only be used by designated team members to contact participants and for administrative data linkage with participant consent. Contact information will be stored separately in a password-protected database. All study data will be stored at St. Michael's Hospital on a secure and password-protected computer server. Saliva samples for RT-qPCR, blood samples for ELISA and salivettes will be stored at Mount Sinai Hospital and the University of Toronto.

All study information and samples will be kept for a period of at least 10 years from the end of the study and then destroyed.

Author affiliations
[1]MAP Centre for Urban Health Solutions, St. Michael's Hospital, Toronto, Ontario, Canada
[2]Dalla Lana School of Public Health, University of Toronto, Toronto, Ontario, Canada
[3]Harvard Medical School, Boston, Massachusetts, USA
[4]Department of Microbiology, Mount Sinai Hospital, Toronto, Ontario, Canada
[5]Institute of Health Policy, Management and Evaluation, University of Toronto, Toronto, Ontario, Canada
[6]Department of Medicine and Institute of Medical Sciences, University of Toronto, Toronto, Ontario, Canada
[7]Lunenfeld-Tanenbaum Research Institute, Sinai Health System, Toronto, Ontario, Canada
[8]Department of Immunology, University of Toronto, Toronto, Ontario, Canada
[9]Centre de recherche du Centre hospitalier de l'Universite de Montreal, Universite de Montreal, Montreal, Quebec, Canada

BMJ Open: first published as 10.1136/bmjopen-2022-063234 on 5 August 2022. Downloaded from http://bmjopen.bmj.com/ on June 13, 2025 at Agence Bibliographique de l Enseignement Superieur (ABES) . Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

[10]Department of Epidemiology, John Hopkins University, Baltimore, Maryland, USA
[11]Department of Medicine, McMaster University, Hamilton, Ontario, Canada
[12]Department of Laboratory Medicine and Pathobiology, University of Toronto, Toronto, Ontario, Canada
[13]Department of General Internal Medicine, University of Toronto, Toronto, Ontario, Canada
[14]ICES, Toronto, Ontario, Canada
[15]Anishnawbe Health Toronto, Toronto, Ontario, Canada

Twitter Lucie Richard @_luciérichard, Michael Liu @LiuMichaelON, Jesse I R Jenkinson @JesseJenkinson and Stephen W Hwang @StephenHwang

Acknowledgements The authors thank *Ku-gaa-gii pimitizi-win's* research participants, who participated even while navigating numerous other priorities. The authors also wish to thank Survey Research Unit (SRU) staff, including Alexandra Carasco, Annika Khan and the entire SRU interview team, for undertaking recruitment and data collection. Finally, we thank shelter and physical distancing hotel staff for facilitating visits; Heath Priston and Ryan Nagelmakers from the City of Toronto SSHA for providing shelter reports; Dr. Karen Colwill and the Gingras Lab, Jessica Bourke and the Microbiology Lab at Mt. Sinai Hospital, and Gary Chao and the Gommerman Lab at the University of Toronto for processing the biological samples; and other staff at the MAP Centre for Urban Health Studies who contributed in numerous ways to the study.

Contributors SHW conceived of the study. SHW, RN, ML, SM, A-CG, JLG and SB assisted with study design. RN, ML, CP, OS and JH designed the survey instrument. CP, OS, RS, JH, RN and LR helped with data collection and/or processing. RN and LR provided statistical expertise and LR is writing the statistical analysis plans, conducted the primary statistical analyses and drafting study manuscripts. SM and SB designed and are leading the transmission modelling. All authors contributed to refinement of the study protocol. LR drafted the manuscript, and all authors reviewed and approved the final manuscript.

Funding This research was supported by the Canadian Institutes of Health Research (CIHR) (VR5-173211) in partnership with the Public Health Agency of Canada, through the COVID-19 Immunity Task Force (CITF). A-CG is supported by a Tier 1 Canada Research Chair in Functional Proteomics. JLG is supported by a Tier 1 Canada Research Chair in Tissue-Specific Immunity. SM is supported by a Tier 2 Canada Research Chair in Mathematical Modeling and Program Science. SWH is supported by the University of Toronto and St Michael's Hospital Chair in Homelessness, Housing & Health. SS is supported by the University of Toronto and the TCP Chair in Indigenous Health.

Disclaimer The funders had no role in the analysis and interpretation of the data or the preparation, review and approval of the manuscript. The views expressed in this publication are the views of the authors and do not necessarily reflect those of the funders.

Competing interests None declared.

Patient and public involvement Patients and/or the public were involved in the design, or conduct, or reporting, or dissemination plans of this research. Refer to the Methods section for further details.

Patient consent for publication Not applicable.

Provenance and peer review Not commissioned; peer reviewed for ethical and funding approval prior to submission.

Supplemental material This content has been supplied by the author(s). It has not been vetted by BMJ Publishing Group Limited (BMJ) and may not have been peer-reviewed. Any opinions or recommendations discussed are solely those of the author(s) and are not endorsed by BMJ. BMJ disclaims all liability and responsibility arising from any reliance placed on the content. Where the content includes any translated material, BMJ does not warrant the accuracy and reliability of the translations (including but not limited to local regulations, clinical guidelines, terminology, drug names and drug dosages), and is not responsible for any error and/or omissions arising from translation and adaptation or otherwise.

Open access This is an open access article distributed in accordance with the Creative Commons Attribution Non Commercial (CC BY-NC 4.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited, appropriate credit is given, any changes made indicated, and the use is non-commercial. See: http://creativecommons.org/licenses/by-nc/4.0/.

ORCID iDs
Lucie Richard http://orcid.org/0000-0001-6577-5067
Michael Liu http://orcid.org/0000-0003-2724-8797
Jesse I R Jenkinson http://orcid.org/0000-0002-3348-2080
Cilia Mejia-Lancheros http://orcid.org/0000-0003-1131-8439
Arnav Agarwal http://orcid.org/0000-0002-0931-7851

REFERENCES

1 Gaetz S, Gulliver T, Richter T. *The state of homelessness in Canada*, 2016.
2 Leung CS, Ho MM, Kiss A, *et al*. Homelessness and the response to emerging infectious disease outbreaks: lessons from SARS. *J Urban Health* 2008;85:402–10.
3 Perri M, Dosani N, Hwang SW. COVID-19 and people experiencing homelessness: challenges and mitigation strategies. *CMAJ* 2020;192:E716–9.
4 Tsai J, Wilson M. COVID-19: a potential public health problem for homeless populations. *Lancet Public Health* 2020;5:e186–7.
5 Hwang SW, Wilkins R, Tjepkema M, *et al*. Mortality among residents of shelters, rooming houses, and hotels in Canada: 11 year follow-up study. *BMJ* 2009;339:b4036.
6 Aldridge RW, Story A, Hwang SW, *et al*. Morbidity and mortality in homeless individuals, prisoners, sex workers, and individuals with substance use disorders in high-income countries: a systematic review and meta-analysis. *Lancet* 2018;391:241–50.
7 Hwang SW. Mortality among men using homeless shelters in Toronto, Ontario. *JAMA* 2000;283:2152–7.
8 Fazel S, Geddes JR, Kushel M. The health of homeless people in high-income countries: descriptive epidemiology, health consequences, and clinical and policy recommendations. *Lancet* 2014;384:1529–40.
9 Gutwinski S, Schreiter S, Deutscher K, *et al*. The prevalence of mental disorders among homeless people in high-income countries: an updated systematic review and meta-regression analysis. *PLoS Med* 2021;18:e1003750.
10 Zhou F, Yu T, Du R, *et al*. Clinical course and risk factors for mortality of adult inpatients with COVID-19 in Wuhan, China: a retrospective cohort study. *Lancet* 2020;395:1054–62.
11 Williamson EJ, Walker AJ, Bhaskaran K. OpenSAFELY: factors associated with COVID-19 death in 17 million patients. *Nature* 2020:1–11.
12 Lee SW, Yang JM, Moon SY, *et al*. Association between mental illness and COVID-19 susceptibility and clinical outcomes in South Korea: a nationwide cohort study. *Lancet Psychiatry* 2020;7:1025–31.
13 Mosites E, Parker EM, Clarke KEN, *et al*. Assessment of SARS-CoV-2 Infection Prevalence in Homeless Shelters - Four U.S. Cities, March 27-April 15, 2020. *MMWR Morb Mortal Wkly Rep* 2020;69:521–2.
14 Baggett TP, Keyes H, Sporn N, *et al*. Prevalence of SARS-CoV-2 infection in residents of a large homeless shelter in Boston. *JAMA* 2020;323:2191–2.
15 Karb R, Samuels E, Vanjani R, *et al*. Homeless shelter characteristics and prevalence of SARS-CoV-2. *West J Emerg Med* 2020;21:1048.
16 Rogers JH, Link AC, McCulloch D, *et al*. Characteristics of COVID-19 in Homeless Shelters : A Community-Based Surveillance Study. *Ann Intern Med* 2021;174:42–9.
17 Rowan SE, McCormick DW, Wendel KA, *et al*. Lower Prevalence of SARS-CoV-2 Infection Among People Experiencing Homelessness Tested in Outdoor Encampments Compared with Overnight Shelters - Denver, Colorado, June - July 2020. *Clin Infect Dis* 2022:ciac039.
18 Roederer T, Mollo B, Vincent C, *et al*. Seroprevalence and risk factors of exposure to COVID-19 in homeless people in Paris, France: a cross-sectional study. *Lancet Public Health* 2021;6:e202–9.
19 Roland M, Ben Abdelhafidh L, Déom V, *et al*. SARS-CoV-2 screening among people living in homeless shelters in Brussels, Belgium. *PLoS One* 2021;16:e0252886.
20 Beaumont A, Durand C, Ledrans M, *et al*. Seroprevalence of anti-SARS-CoV-2 antibodies after the first wave of the COVID-19 pandemic in a vulnerable population in France: a cross-sectional study. *BMJ Open* 2021;11:e053201.
21 do Couto AC, Kmetiuk LB, Delai RR, *et al*. High SARS-CoV-2 seroprevalence in persons experiencing homelessness and shelter workers from a day-shelter in São Paulo, Brazil. *PLoS Negl Trop Dis* 2021;15:e0009754.
22 Luong L, Beder M, Nisenbaum R, *et al*. Prevalence of SARS-CoV-2 infection among people experiencing homelessness in Toronto during the first wave of the COVID-19 pandemic. *Can J Public Health* 2022;113:1–9.

BMJ Open: first published as 10.1136/bmjopen-2022-063234 on 5 August 2022. Downloaded from http://bmjopen.bmj.com/ on June 13, 2025 at Agence Bibliographique de l Enseignement Superieur (ABES) . Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

23 Kiran T, Craig-Neil A, Das P, *et al*. Factors associated with SARS-CoV-2 positivity in 20 homeless shelters in Toronto, Canada, from April to July 2020: a repeated cross-sectional study. *CMAJ Open* 2021;9:E302–8.
24 Self JL, Montgomery MP, Toews K-A, *et al*. Shelter characteristics, infection prevention practices, and universal testing for SARS-CoV-2 at homeless shelters in 7 us urban areas. *Am J Public Health* 2021;111:854–9.
25 Oette M, Corpora S, Baron M. The prevalence of SARS-CoV-2 infection among homeless persons in Cologne, Germany: an epidemiological study at the height of the third wave. *Deutsches Ärzteblatt International* 2021;118.
26 Yoon JC, Montgomery MP, Buff AM. Coronavirus disease 2019 (COVID-19) prevalences among people experiencing homelessness and homelessness service staff during early community transmission in Atlanta, Georgia, April–May 2020. *Clinical Infectious Diseases* 2021;73:e2978–84.
27 Mosnier E, Loubiere S, Monfardini E. Cumulative incidence of SARS-CoV-2 infection within the homeless population: insights from a citywide longitudinal study. *Preprint, available at SSRN 3925478* 2021.
28 Wang L, Ma H, Yiu KC. Heterogeneity in risk, testing and outcome of COVID-19 across outbreak settings in the greater Toronto area, Canada: an observational study. *medRxiv* 2020.
29 Richard L, Booth R, Rayner J, *et al*. Testing, infection and complication rates of COVID-19 among people with a recent history of homelessness in Ontario, Canada: a retrospective cohort study. *CMAJ Open* 2021;9:E1–9.
30 Thomas I, Mackie P. A population level study of SARS-CoV-2 prevalence amongst people experiencing homelessness in Wales, UK. *Int J Popul Data Sci* 2020;5:1695.
31 Balut MD, Chu K, Gin JL, *et al*. Predictors of COVID-19 vaccination among Veterans experiencing homelessness. *Vaccines* 2021;9:1268.
32 Montgomery MP, Meehan AA, Cooper A, *et al*. Notes from the Field: COVID-19 Vaccination Coverage Among Persons Experiencing Homelessness - Six U.S. Jurisdictions, December 2020-August 2021. *MMWR Morb Mortal Wkly Rep* 2021;70:1676–8.
33 Shariff SZ, Richard L, Hwang SW. COVID-19 vaccine coverage and factors associated with vaccine uptake among 23247 adults with a recent history of homelessness in Ontario, Canada: a population-based cohort study. *Lancet Public Health* 2022.
34 The Homeless Hub. *Homeless hub community profiles*. Toronto, 2018. https://www.homelesshub.ca/community-profile/toronto
35 City of Toronto. Street needs assessment, 2021. Attachment 1. Available: https://www.toronto.ca/legdocs/mmis/2021/ec/bgrd/backgroundfile-171729.pdf
36 Detsky AS, Bogoch II. COVID-19 in Canada: experience and response. *JAMA* 2020;324:743–4.
37 City of Toronto. COVID-19 response for people experiencing homelessness (city of Toronto, Toronto). Available: www.toronto.ca/news/city-of-toronto-covid-19-response-for-people-experiencing-homelessness/ [Accessed 08 Jun 2020].
38 City of Toronto. Temporary COVID-19 shelter sites. Available: https://www.toronto.ca/community-people/community-partners/emergency-shelter-operators/about-torontos-shelter-system/new-shelter-locations/temporary-covid-19-shelter-sites/ [Accessed 31 Jan 2022].
39 Gray J. Toronto to lease hundreds of hotel rooms to ease crowding in homeless shelters, 2020. Globe and Mail. Available: https://www.theglobeandmail.com/canada/toronto/article-toronto-to-lease-hundreds-of-hotel-rooms-to-ease-crowding-in-homeless/
40 Canadian Observatory on Homelessness. *Canadian definition of homelessness*, 2012.
41 Hwang SW, Aubry T, Palepu A, *et al*. The health and housing in transition study: a longitudinal study of the health of homeless and vulnerably housed adults in three Canadian cities. *Int J Public Health* 2011;56:609–23.
42 Hwang SW, Chambers C, Chiu S, *et al*. A comprehensive assessment of health care utilization among homeless adults under a system of universal health insurance. *Am J Public Health* 2013;103 Suppl 2:S294–301.
43 CBC News Toronto. 26 arrested at Toronto's Lamport Stadium park as city, police clear encampment, 2021. Available: https://www.cbc.ca/news/canada/toronto/trinity-bellwoods-homeless-encampment-1.6074952
44 Westoll N. City of Toronto officials and police move to end Alexandra Park encampment, 9 arrested, 2021. Global News Toronto. Available: https://globalnews.ca/news/8042568/alexandra-park-toronto-homeless-encampment/
45 CBC News Toronto. Toronto's promise for permanent housing ends standoff in Trinity Bellwoods park, advocate says, 2021. Available: https://www.cbc.ca/news/canada/toronto/lamport-stadium-encampment-homelessness-toronto-1.6110697
46 Cohen EH, Mowbray CT, Bybee D, *et al*. Tracking and follow-up methods for research on homelessness. *Eval Rev* 1993;17:331–52.
47 Hough RL, Tarke H, Renker V, *et al*. Recruitment and retention of homeless mentally ill participants in research. *J Consult Clin Psychol* 1996;64:881–91.
48 McKenzie M, Tulsky JP, Long HL, *et al*. Tracking and follow-up of marginalized populations: a review. *J Health Care Poor Underserved* 1999;10:409–29.
49 Ribisl KM, Walton MA, Mowbray CT, *et al*. Minimizing participant attrition in panel studies through the use of effective retention and tracking strategies: review and recommendations. *Eval Program Plann* 1996;19:1–25.
50 Wright JD, Allen TL, Devine JA. Tracking non-traditional populations in longitudinal studies. *Eval Program Plann* 1995;18:267–77.
51 Wyllie AL, Fournier J, Casanovas-Massana A, *et al*. Saliva or nasopharyngeal swab specimens for detection of SARS-CoV-2. *N Engl J Med* 2020;383:1283–6.
52 Isho B, Abe KT, Zuo M, *et al*. Persistence of serum and saliva antibody responses to SARS-CoV-2 spike antigens in COVID-19 patients. *Sci Immunol* 2020;5.
53 Goldfarb DM, Tilley P, Al-Rawahi GN, *et al*. Self-collected saline gargle samples as an alternative to health care worker-collected nasopharyngeal swabs for COVID-19 diagnosis in outpatients. *J Clin Microbiol* 2021;59:e02427–20.
54 Jamal AJ, Mozafarihashjin M, Coomes E, *et al*. Sensitivity of nasopharyngeal swabs and saliva for the detection of severe acute respiratory syndrome coronavirus 2. *Clin Infect Dis* 2021;72:1064–6.
55 Colwill K, Galipeau Y, Stuible M. A "Made-in-Canada" serology solution for profiling humoral immune responses to SARS-CoV-2 infection and vaccination. *medRxiv* 2021.
56 Schull MJ, Azimaee M, Marra M. ICES: data, discovery, better health. *Int J Pop Data Science* 2019;4.
57 ICES. ICES COVID-19 Dashboard. Available: https://www.ices.on.ca/DAS/AHRQ/COVID-19-Dashboard
58 Duarte N, Yanes-Lane M, Arora RK, *et al*. Adapting serosurveys for the SARS-CoV-2 vaccine era. *Open Forum Infect Dis* 2022;9:ofab632.
59 Pollán M, Pérez-Gómez B, Pastor-Barriuso R, *et al*. Prevalence of SARS-CoV-2 in Spain (ENE-COVID): a nationwide, population-based seroepidemiological study. *Lancet* 2020;396:535–44.
60 Vandormael A, Dobra A, Bärnighausen T, *et al*. Incidence rate estimation, periodic testing and the limitations of the mid-point imputation approach. *Int J Epidemiol* 2018;47:236–45.
61 Jakobsen JC, Gluud C, Wetterslev J, *et al*. When and how should multiple imputation be used for handling missing data in randomised clinical trials - a practical guide with flowcharts. *BMC Med Res Methodol* 2017;17:162.
62 Prem K, Liu Y, Russell TW, *et al*. The effect of control strategies to reduce social mixing on outcomes of the COVID-19 epidemic in Wuhan, China: a modelling study. *Lancet Public Heal* 2020;5:e261–70.
63 Giordano G, Blanchini F, Bruno R, *et al*. Modelling the COVID-19 epidemic and implementation of population-wide interventions in Italy. *Nat Med* 2020;26:855–60.
64 Lewer D, Braithwaite I, Bullock M, *et al*. COVID-19 among people experiencing homelessness in England: a modelling study. *Lancet Respir Med* 2020;8:1181–91.
65 von Elm E, Altman DG, Egger M, *et al*. Strengthening the reporting of observational studies in epidemiology (STROBE) statement: guidelines for reporting observational studies. *BMJ* 2007;335:806–8.
66 Pitman R, Fisman D, Zaric GS. Dynamic transmission modeling: a report of the ISPOR-SMDM modeling good research practices task Force-5. *Value in Health* 2012;15:828–34.
67 Long Q-X, Tang X-J, Shi Q-L, *et al*. Clinical and immunological assessment of asymptomatic SARS-CoV-2 infections. *Nat Med* 2020;26:1200–4.
68 Patel MM, Thornburg NJ, Stubblefield WB, *et al*. Change in antibodies to SARS-CoV-2 over 60 days among health care personnel in Nashville, Tennessee. *JAMA* 2020;324:1781.
69 Gudbjartsson DF, Norddahl GL, Melsted P, *et al*. Humoral immune response to SARS-CoV-2 in Iceland. *N Engl J Med* 2020;383:1724–34.
70 First Nations Information Governance Centre. The first nations principles of OCAP. Available: https://fnigc.ca/ocap-training/

BMJ Open: first published as 10.1136/bmjopen-2022-063234 on 5 August 2022. Downloaded from http://bmjopen.bmj.com/ on June 13, 2025 at Agence Bibliographique de l Enseignement Superieur (ABES) . Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

Correction: *Ku-gaa-gii pimitizi-win, the COVID-19 cohort study of people experiencing homelessness in Toronto, Canada: a study protocol*

Richard L, Nisenbaum R, Liu M, *et al*. Ku-gaa-gii pimitizi-win, the COVID-19 cohort study of people experiencing homelessness in Toronto, Canada: a study protocol. *BMJ Open* 2022;12:e063234. doi: 10.1136/bmjopen-2022-063234

This article was previously published with an error.

The funding information in the published article was incomplete. The complete funding details are as follows:

This research was supported by the Canadian Institutes of Health Research (CIHR) (*VR5-173211*) in partnership with the Public Health Agency of Canada, through the COVID-19 Immunity Task Force (CITF). A-CG is supported by a Tier 1 Canada Research Chair in Functional Proteomics. JLG is supported by a Tier 1 Canada Research Chair in Tissue-Specific Immunity. SM is supported by a Tier 2 Canada Research Chair in Mathematical Modelling and Programme Science. SWH is supported by the University of Toronto and St Michael's Hospital Chair in Homelessness, Housing & Health. SS is supported by the University of Toronto and the TCP Chair in Indigenous Health.

Open access This is an open access article distributed in accordance with the Creative Commons Attribution Non Commercial (CC BY-NC 4.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited, appropriate credit is given, any changes made indicated, and the use is non-commercial. See: http://creativecommons.org/licenses/by-nc/4.0/.

© Author(s) (or their employer(s)) 2022. Re-use permitted under CC BY-NC. No commercial re-use. See rights and permissions. Published by BMJ.

BMJ Open 2022;**12**:e063234corr1. doi:10.1136/bmjopen-2022-063234corr1

Check for updates

Letter of Information and Consent to Participate in a Research Study

Title of Research Study:

The COVENANT Study: COVID-19 Cohort Study of People Experiencing Homelessness in Toronto

Principal Investigator **Dr. Stephen Hwang**
MAP Centre for Urban Health Solutions, St. Michael's Hospital
Tel: 416-864-5991

Study Coordinator **Olivia Spandier**
MAP Centre for Urban Health Solutions
St. Michael's Hospital, 209 Victoria Street, Toronto, M5B 1W8
Tel: 416-864-6060 x77440

Research Manager **Ruby Sniderman**
MAP Centre for Urban Health Solutions
St. Michael's Hospital, 209 Victoria Street, Toronto, M5B 1W8
Email: ruby.sniderman@unityhealth.to

Study personnel can be reached from Monday to Friday, 9:00 am – 5:00 pm.

Funding

This study is funded by the COVID-19 Immunity Task Force (CITF). The investigators have no conflicts of interest to disclose.

Introduction

You are being asked to consider taking part in a research study because you are currently experiencing homelessness. Before agreeing to take part in this research study, it is important that you read the information in this research consent form. It includes details we think you need to know in order to decide if you wish to take part in the study. If you have any questions after you read through this form, please ask the research team. You should not sign this form until you are sure you understand all the information on the form. Participation in this study is voluntary.

Purpose of the Research

The purpose of this study is to collect information on COVID-19 among people experiencing homelessness. Homelessness puts people at high risk during the COVID-19 pandemic. This study will provide important information on the spread of COVID-19 in the homeless population. This information may help support the health of people experiencing homelessness during the pandemic.

For this study, we will be recruiting 700 study participants from shelters, hotel programs and homeless encampments in Toronto, and then following-up with participants every 3 months for one year.

Description of the Research Activities

If you consent to participate in the study, you will be asked to participate in a total of 5 interviews: one interview today and then one interview every 3 months for the next year. We will ask you questions such as demographics, housing history, and questions about your thoughts and experiences with the COVID-19 vaccine. At the time of each interview you will also be asked to provide a saliva sample, where you will swish and gargle a solution for a period of time then spit into a cup, and a finger-prick blood sample (where we take a few drops of blood from your finger). At the interview today, you will also be asked to provide a second saliva sample by chewing on a swab. (Please note that using saliva samples to test for COVID-19 is not the standard method in Ontario. If you receive a positive test result, you will be asked to have a nasopharyngeal (NP) swab test to confirm the results.) The saliva and blood samples will be sent to research labs at Mt. Sinai Hospital and The University of Toronto, where scientists in the lab will test the saliva to see whether you currently have the COVID-19 virus, and will test the blood sample to see if you have antibodies to COVID-19, which would indicate if you have had COVID-19 in the past. These antibodies are substances that the body makes in response to infection with COVID-19. Please note, having antibodies does not necessarily mean you have developed immunity or are resistant to COVID-19. It simply means you were probably exposed to the virus at some point in the past. If you would like to receive the results of your antibody tests at the end of the study, we will call you after your last interview to give you the information. The interviews will take approximately 30-45 minutes to complete.

We also ask that you call a toll-free study number around 1 month before each interview to provide us with any updates to your contact information.

Other Research Activities

In addition to collecting information from you directly, with your permission, we would also like to collect additional information from the sources listed below and explained in detail at the end of this letter. You will be asked to consent specifically to each of these and may opt out if desired.

1) Health-related information from ICES
2) Shelter use information from the City of Toronto's Shelter Support & Housing Administration Division
3) Contact information of friends, family, and service providers
4) Permission to contact you for related research studies in the future
5) Permission to obtain any positive COVID-19 test swab from the laboratory and look at the COVID-19 virus's genetic fingerprint. We will only be looking at the genetic material of the COVID-19 virus, NOT your DNA.

Your health card number, name, date of birth, and gender/sex listed on government documents will be securely transferred from St. Michael's Hospital to the Institute for Clinical Evaluative Sciences (ICES) to help us gather information about your health, including any health conditions, COVID-19 testing, and hospital use. ICES is an organization where people's health information including health care use in Ontario is stored. The information will be securely

provided to the research team by ICES as coded information only for analysis. Any personal identifiers such as your health card number or name will be removed or replaced with a code that is not known to the research team.

Your name, date of birth, and gender/sex will be securely transferred from St. Michael's Hospital to the Shelter Support & Housing Administration Division to obtain information about your use of shelter programs in Toronto. For example, if you move to stay at a shelter program different from your current location, we will be notified of this information. These data will cover a period of one year before you join the study and will go up to two years after you have joined the study. Your name, date of birth, and gender/sex will also be used to help the research team locate you for upcoming interviews.

If you consent, we will obtain any positive COVID-19 test swabs from the laboratory and look at the COVID-19 virus's genetic fingerprint. Your sample will be transported from the original testing laboratory to the Sinai-UHN laboratory. A technician will extract genetic material from the virus that will be sent for sequencing at a CANCOGEN-partnered sequencing facility. The original sample will be stored for up to 10 years and then destroyed. We will only be looking at the genetic material of the COVID-19 virus, NOT your DNA. This allows us to examine the COVID-19 virus that infected you, test for variants, and track outbreak and infections patterns in different settings. This type of testing is routinely done by public health units to track the COVID-19 virus.

Potential Risks

Some of the interview questions may seem personal and may make you feel uncomfortable or may upset you. If this happens, you do not need to answer any question that you do not wish to, and you can let the interviewer know if you would like to take a break or stop the interview.

The main risk to participants is detection of active COVID-19 infection through study testing. Participants with a positive test will be contacted directly or by shelter staff to be informed of their status and offered temporary shelter, health monitoring, and supports at specially designated recovery shelters operated by the city of Toronto. Your name and results will be shared with the shelter staff for the purpose of notifying you of your results and connecting you to a service operated by the City of Toronto for people experiencing homelessness to recover from COVID-19. Your name and results will also be shared via email and Hypercare with the City of Toronto to facilitate transportation to a recovery site. You will be offered to have a driver meet you at the shelter you are residing at and take you to a COVID testing centre for confirmatory testing. They will then take you to a recovery site for you to stay at while you wait for your test results and/or recover from COVID-19. Given that COVID-19 is a condition of public health significance, positive results will be reported to the Medical Officer of Health (also known as Toronto Public Health), under the Health Protection and Promotion Act. Additionally, the Ontario government has passed a regulation authorizing first responders, such as police, firefighters and paramedics to access an individual's name, address, date of birth and whether the individual has had a positive test for COVID-19. It is unknown how long these regulations will be in place.

Potential Benefits

The main benefit to participants is the opportunity to find out about your COVID-19 status. If you do test positive, our research team will help you obtain referral and transportation to sites for confirmatory testing, temporary shelter, support, and health monitoring.

Protecting Your Health Information

All persons involved in the study are committed to respecting your privacy. No persons other than select members of the research team will have access to your personal health information without your consent, unless required by law. Study personnel will make every effort to keep your personal health information private and confidential in accordance with all applicable privacy legislation, including the Personal Health Information Protection Act (PHIPA) of Ontario.

To maintain your privacy, any personal information is kept separate from your study data and given a code. Your survey responses will not include any personally identifying information. Your survey data will be collected by trained interviewers using tablets and no data is saved on these tablets. Once collected, the data will be securely sent, stored, and kept at St. Michael's Hospital's on a secure computer server. All specimens, including saliva and finger-prick blood samples will be identified with a code. Our understanding of COVID-19 is changing rapidly. To allow for possible future research on COVID-19, all study data and samples will be kept for a period of 10 years following the end of the study and then destroyed.

Despite these protections, there remains a risk of unintentional release of information. However, the Principal Investigator will protect your records and keep your information confidential to the greatest extent possible. The chance that your personal information will be unintentionally released is very small.

Data Sharing with the COVID-19 Immunity Task Force (CITF)

The CITF is a national initiative funded by the Government of Canada to perform research related to COVID-19 immunity. Your study data related to COVID-19 infection status, demographic information, health, experience with COVID-19, activities and behaviors related to COVID-19, and housing history will be shared with the CITF. However, all of your study data will be labelled with a code and not with your personal information. No personally identifying information will be shared with the CITF.

Data provided to the CITF will be stored in the CITF database. The CITF database will be held under the custodianship of McGill University or one of its collaborators and will be shared via the cloud, both nationally and internationally. Data in the CITF database will be stored indefinitely, until it is no longer useful for research, or until an ethics committee decides otherwise. The data in the CITF database might be accessed by other researchers studying COVID-19 following approval by a Data Access Committee. This Committee will ensure that all use of data stored in the CITF database is in full compliance with Canadian law and research ethics.

Email and Text Message Communication

We may contact you by email or text message, if you indicate that you would like to be contacted this way when we collect your contact information. There is no obligation to text or email – you may always contact us by phone. Please note that email and texting may not be secure modes of communicating, since they may be viewed by others and kept indefinitely. For these reasons, we will use email and text messaging to set up appointments, but we will not include personal health information such as your full name, date of birth, or OHIP number in emails and text messages.

There are common risks of using email to communicate including:
• Information travels electronically and is not secure in the way a phone call or regular mail would be.
• If someone sees these messages they may know that you are a participant in this study or see the health information included in the message.
• Emails and text messages may be read or saved by your internet or phone provider (i.e. Rogers, your workplace, "free internet" providers).
• Copies of an email or a text message may continue to exist, even after efforts to delete the email have been made.
• There is always a chance with any unencrypted email or text message, however remote, that it could be intercepted or manipulated.

Please note: YOU MUST NOT USE EMAIL OR TEXT MESSAGES FOR MEDICAL EMERGENCIES. If you require immediate help, call your clinic or care provider, or seek emergency services.

Limits to Confidentiality
Any information that reveals your identity will not be released without your consent, unless required by law. COVID-19 is a reportable disease by law, so positive tests will be reported to Toronto Public Health. If you do have a positive test result, we will work with you, Toronto Public Health, and/or the place you are staying to help you get appropriate care and support. Positive tests are the only piece of data in this study that will be released to Toronto Public Health with your name.

Publication of Study Results
The results of this study may be presented at scientific conferences or published in scientific journals. If you are interested in obtaining the results of the study, you can contact the Principal Investigator or Research Coordinator by phone or email. You will never be personally identified in any publication, report, or presentation that may come from this study.

Potential Costs and Reimbursement
If you agree to participate in the study, you will receive $40 after each sample collection and interview (up to $200 for completing all 5 interviews) to compensate you for your time and help with transportation costs for follow-up interviews. In addition, you will have the opportunity to call the research team one month before each scheduled interview to update your contact information and confirm the timing of your next interview. You will receive $10 for each check-in call (up to $40 for completing all 4 check-ins). This additional $10 will be provided at your next interview.

Participation and Withdrawal
Participation in this study is completely voluntary. Even if you choose to participate, you may change your mind and stop participating in the study at any time without giving a reason. A researcher may ask you if you would like to re-join the study from time to time, but the decision is yours. You are not obligated to re-join the study. If you choose to withdraw from the study, the data and samples collected from you prior to your withdrawal will be retained and used in analyses.

Your decision to participate or not, or to withdraw from the study, will not impact the services you access from St. Michael's Hospital or any other service provider. If anything about the study changes that may impact your desire to participate, it will be communicated to you immediately.

Research Ethics Board Contact

If you have any questions regarding your rights as a research participant, you may contact the Unity Health Toronto Research Ethics Board Office at 416-864-6060 ext. 2557 during business hours (9:00am-5:00pm) Monday to Friday.

The study protocol and consent form have been reviewed by a committee called the Research Ethics Board. The Research Ethics Board is a group of scientists, medical staff, and individuals from other backgrounds (including law and ethics) as well as members from the community. The Board is established to review studies for their scientific and ethical merit. The Board pays special attention to the potential risks and benefits to the participant, as well as the potential benefit to society.

Study Contacts

If you have any questions about this study, contact Olivia Spandier, the study coordinator, at St. Michael's Hospital at 416-864-6060 ext. 77440. You may also contact Dr. Stephen Hwang, the Principal Investigator, at 416-864-5991.

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

Signature Pages: Documentation of Informed Consent
The COVENANT Study: COVID-19 Cohort Study of People Experiencing Homelessness in Toronto

By signing this consent form, I acknowledge that:

- I have received a copy of this letter of information and consent form.
- This research study and the information and samples to be collected from me have been explained to me, and my questions have been answered to my satisfaction.
- I know that I have the right not to participate and the right to withdraw from this study without affecting the services I receive at St. Michael's Hospital or any other service provider.
- The potential risks and benefits of participating in this research study have been explained to me.
- I have been told that I have not waived my legal rights nor released the investigator or involved institutions from their legal and professional responsibilities.
- I know that I may ask, now or in the future, any questions I have about this study.
- I have been told that information about me and my participation in this study will be kept confidential and that no personally identifying information will be disclosed without my permission unless required by law.
- I have been given sufficient time to read the information in this consent form.

I consent to participate in this study.

Participant Name (Print)	Participant Signature	Date

I have explained to the above-named participant the nature and purpose, the potential benefits, and possible risks of participation in this research study. All questions that have been raised about this study have been answered.

Name of Person Obtaining Consent (Print)	Position/Title of Person Obtaining Consent (Print)	Signature of Person Obtaining Consent	Date

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

CONSENT TO THE RELEASE OF INFORMATION FROM ICES

I consent to the research team linking my provincial health card number, my name, gender/sex, and date of birth to Ministry of Health files to obtain information about my health such as healthcare use, health conditions, and COVID-19 testing for the past 10 years and next 5 years.

☐ Yes _____ (initials) ☐ Declined

CONSENT TO THE RELEASE OF INFORMATION FROM THE CITY OF TORONTO

I consent to the transfer of my name, date of birth, and gender/sex to the City of Toronto's Shelter Support & Housing Administration Division in order for them to provide information to the research team about my use of the shelter system in Toronto and to locate and contact me for upcoming interviews.

☐ Yes _____ (initials) ☐ Declined

CONSENT TO THE RELEASE OF INFORMATION BY CONTACT PERSONS

I consent to the research team contacting the individuals I have listed as alternate contacts when attempting to contact me for the purpose of conducting follow-up interviews. This may include contacts at social services agencies I frequent or other people who might know where I am. I authorize these people to release information regarding my up-to-date contact information and location to the research team.

☐ Yes _____ (initials) ☐ Declined

CONSENT TO CONTACT FOR FUTURE RELATED RESEARCH STUDIES

The study team may wish to contact you regarding additional research related to this study. You are under no obligation to participate in additional research if contacted. I give permission for the research team to contact me regarding participation in additional research. Your contact information will be kept on a secure server at St. Michael's Hospital.

☐ Yes _____ (initials) ☐ Declined

CONSENT TO SHARE COVID TEST SAMPLES

If you have had COVID-19 or if you get it in the future, do you give the study team permission to obtain your positive test swab from the laboratory and look at the COVID-19 virus's genetic fingerprint. We will only be looking at the genetic material of the COVID-19 virus, NOT your DNA.

☐ Yes _____ (initials) ☐ Declined

INTEREST IN RECEIVING BLOOD TEST RESULTS AFTER THE STUDY

I would like the research team to contact me by phone to let me know the results of my blood tests after the study has ended.

☐ Yes _____ (initials) ☐ Declined

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

If participant is not able to read independently for any reason:

Declaration of Assistance – Witness to Consent Process

Study Participant's Name (Print): _____

ASSISTANCE DECLARATION AND SIGNATURE:
I have provided assistance during the consent discussion between the potential participant and the person obtaining consent by (please check one):

- ☐ Acting as a witness to the consent discussion
- ☐ Assisting in delivery of consent discussion (reading/oral), including communication of questions and responses
- ☐ Other: _____

I attest that the information was accurately explained, and the participant has freely given consent to participate in the research study.

Name of Person Assisting Consent (Print)	Signature of Person Assisting Consent	Date	Time

Relationship to Study Participant: _____

Contact Information of Person Assisting Consent: _____

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

If participant has limited proficiency in English:

Declaration of Assistance – Interpreter

Study Participant's Name (Print): _____

INTERPRETER DECLARATION AND SIGNATURE:
I am competent in the English language and in the preferred language of the potential participant: _____ (name of language)

I am not involved in the research study or related to the participant. I agree to keep confidential all personally identifying information of the participant. I have faithfully interpreted the consent discussion and provided a sight translation of the written informed consent form as directed by the research staff obtaining consent.

_____	_____	_____	_____
Name of Interpreter (Print)	Signature of Interpreter	Date	Time

Contact Information of Interpreter: _____

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

Additional Consent Measures Checklist

If the study team is uncertain about the potential participant's capacity to consent, this form will be reviewed with the potential participant prior to signing the consent form.

Participant ID: _____

Voluntary Participation	***Check One***
Do you have to participate in this research study?	❑ Clear ❑ Re-Explained
Once you have signed the consent form, do you have to stay in the study until the very end?	❑ Clear ❑ Re-Explained
Risks and Benefits	***Check One***
What are the risks of being in the study?	❑ Clear ❑ Re-Explained
What are the benefits of being in the study?	❑ Clear ❑ Re-Explained
Confidentiality	***Check One***
Will the information you provide to us be kept absolutely confidential?	❑ Clear ❑ Re-Explained
Samples Required	***Check One***
What samples will be required from you?	❑ Clear ❑ Re-Explained
Time Required	***Check One***
How long will you be enrolled in the study?	❑ Clear ❑ Re-Explained
How many interviews will you have to do?	❑ Clear ❑ Re-Explained
What will you need to do during each interview?	❑ Clear ❑ Re-Explained
Reimbursement	***Check One***
Will you be paid for participating in the study?	❑ Clear ❑ Re-Explained
COVID-19 Testing	***Check One***
What happens if you test positive for COVID-19?	❑ Clear ❑ Re-Explained
Questions	***Check One***
If you have questions about the study, who should you ask?	❑ Clear ❑ Re-Explained

CONSENT STATEMENT

I have administered the above additional consent measures to ensure that the potential participant understands the nature and purpose, the potential benefits, and possible risks associated with participation in this research study. I have answered all questions that have been raised.

X_____ _____ _____

Signature of Study Person Explaining Study | Name (Printed) | Date

COVENANT: COVID-19 Cohort Study of People Experiencing Homelessness in Toronto

SURVEY INSTRUMENT

Collected every 3 months

Face-to-Face Survey Administered by

MAP Survey Research Unit

St. Michael's Hospital

Principal Investigator

Dr. Stephen Hwang

Version

January 14, 2022

INSTRUCTIONS FOR INTERVIEWERS

Always read the instructions for the paper and web survey **carefully** as they may differ. You will find several symbols, reminders, and skip patterns throughout the survey. They appear in the survey as seen below:

1	*"Interviewer:"* or any *italicized* words are meant to be instructions for the interviewer and are not to be read aloud.
2	**Bolded texts** are the questions that are to be read aloud to participants. The only exceptions are grid style questions.
3	**(Go to 8.1)/→** If 18yrs/older: **Skip to 1.2.**: This shows a skip pattern in the question(s). Pay attention to *instructions* for interviewers as they may contain instructions for skip patterns.
4	If you see (round brackets) within question text, this can be used as a probe. For example: "**Have you received the flu shot this fall or winter (October 2020 or later)?"** Note that it may appear bolded/not bolded depending on whether the question is within a grid or not.
5	Underlined words are intended to a) be emphasized in the question. This could be related to a time period, descriptor, etc., or b) point out important instructions for the interviewer.
6	***[Bolded, italicized text in rectangle brackets]*:** This is an instruction for the interviewer to insert information to be said to the participant (e.g. a date).
7	Response boxes: ❑ - Used for "check all that apply" questions. ❍ - Used for single response questions.
8	Please use a "✓" or fill in the ❑ or ❍ next to the response options for close ended questions.
9	Writing qualitative, open-ended answers: You will notice a solid line that will instruct you to document qualitative text. Please make sure your printing is clearly legible.
10	Dates should be recorded as follows: e.g. 01-Aug-2020.
11	-1 (Not applicable); -2 (Refused); -3 (Don't know): Do not present these as options for respondents. Only use if the closest response to the question is not possible. Please note that N/A (Not applicable) should only be selected if the question does not apply to the respondent.
12	Section titles (e.g. **SECTION 1 – CONTACT INFORMATION**) are NOT to be read aloud to respondents. 'Bridging' sentences are provided as appropriate at the beginning of each new section or set of questions to introduce the section to respondents. **Subheadings** are bolded and underlined and, sub-subheadings are underlined.

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

Table of Contents

Section	Instrument	Page
1	Demographic Information	4
2	Health	6
3	Experience With COVID-19	8
4	Activities And Behaviours Related To COVID-19	22
5	Housing History	23

COVENANT Study

Interview ID | # | # | # | # | - | # | # |

Interview Date | D | D | - | M | M | M | - | Y | Y | Y | Y |

Interviewer Initials | | | |

Recruitment Details (Baseline Only):

Site _____

Program _____

Room #/Bed # _____

Interview ID Format

DIGIT	NAME	CODE
1 - 4	Participant Number	Starting at 0001
5 - 6	Period	i.e.: **00** = Baseline; **03** = 3 months; **06** = 6 months; **09** = 9 months; **12** = 12 months

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

Introduction

Interviewer: If baseline interview say: **We will now begin the main survey. This first set of questions will help us get to know you better. Remember that this survey is voluntary, and you do not have to answer any questions you do not want to. If you feel uncomfortable at any time during this interview, you can skip a question, or stop the interview.**

If this is a follow-up interview, ***skip to 2.4****. Questions 1.1 to 2.3 are only asked at baseline.*

SECTION 1 – DEMOGRAPHIC INFORMATION

1.1	**What is your gender? Do you identify as:** ❍ Male ❍ Female ❍ Non-Binary, Gender Queer, Agender, or a Similar Identity ❍ Two-Spirit ❍ Other (Please specify)_____ ❍ Refused ❍ Don't know
1.2	**What was your assigned sex at birth?** ❍ Male ❍ Female ❍ Other (Please specify)_____ ❍ Refused ❍ Don't know
1.3	**Were you born in Canada?** ❍ Yes **(Skip to 1.5)** ❍ No ❍ Refused **(Skip to 1.4)** ❍ Don't know **(Skip to 1.4)**
1.3a	*Interviewer: Ask this question if answered, "No" to 1.3. Otherwise,* ***skip to 1.5*** *if "Yes" to 1.3 or,* ***go to 1.4*** *if Ref/DK selected for 1.3.* **What year or how many years ago did you arrive in Canada? An estimate is fine.** *Interviewer: Record year or years ago.* Arrived in year Y Y Y Y Arrived in years ago # # ❍ Refused ❍ Don't know
1.4	**What is your current status in Canada?** ❍ Citizen ❍ Landed Immigrant ❍ Refugee Claimant ❍ Temporary Status/Visitor/Student ❍ Other (Please specify)_____ ❍ Refused ❍ Don't know

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

1.5	**We know that people of different races do not have significantly different genetics. But our race still has important consequences, including how we are treated by different individuals and institutions. Which race category best describes you?** *Interviewer: Do not read list. If more than one race/mixed,* ***go to 1.5a****. All others,* ***skip to 1.6****.* ❍ White (examples: English, Greek, Italian, Portuguese, Russian, Slovakian) ❍ Black (examples: African, African-Canadian descent, Afro-Caribbean) ❍ Indigenous (First Nations, Métis, Inuit) ❍ Arab, Middle Eastern or West Asian (examples: Afghan, Armenian, Iranian, Lebanese, Persian, Turkish) ❍ Latin American (examples: Brazilian, Colombian, Cuban, Mexican, Peruvian) ❍ East/Southeast Asian (examples: Chinese, Japanese, Korean, Filipino, Malaysian, Singaporean, Thai, Vietnamese) ❍ South Asian or Indo-Caribbean (examples: Indian, Indo-Guyanese, Indo-Trinidadian, Pakistani, Sri Lankan, Bangladeshi) ❍ More than one race category or mixed race **(Go to 1.5a)** ❍ Not listed (Please specify)_____ ❍ Refused ❍ Don't know
1.5a	*Interviewer: Ask this question if answered, "More than one race category or mixed race" to 1.5. Otherwise,* ***go to 1.6****.* **Which race categories best describe you?** *Interviewer: Select all that apply* ❑ White ❑ Black ❑ Indigenous ❑ Arab, Middle Eastern or West Asian ❑ Latin American ❑ East/Southeast Asian ❑ South Asian or Indo-Caribbean ❑ Other (Please specify)_____ ❍ Refused ❍ Don't know
1.6	**Do you identify as First Nations, Métis and/or Inuk/Inuit?** ❍ Yes ❍ No **(Skip to 1.7)** ❍ Refused **(Skip to 1.7)** ❍ Don't know **(Skip to 1.7)**
1.6a	*Interviewer: Ask this question if answered, "Yes" to 1.6. Otherwise,* ***go to 1.7****.* **Do you identify as:** ❑ First Nations ❑ Inuit ❑ Métis ❑ Not listed (Please specify)_____ ❍ Refused ❍ Don't know
1.7	**What is the highest level of education you have completed?** ❍ Have not completed High School ❍ High School or Secondary School ❍ Vocational/Technical School ❍ College/University ❍ Graduate/Professional School ❍ Other (Please specify)_____ ❍ Refused ❍ Don't know

SECTION 2 – HEALTH

In this next part, I would like to ask about your general health.

2.1	**Have you ever been diagnosed by a physician with any of the following chronic medical conditions?**	**Yes**	**No**	Ref	DK
A	Hypertension (high blood pressure)	1	2	-2	-3
B	Diabetes	1	2	-2	-3
C	Asthma	1	2	-2	-3
D	Chronic Lung Disease (such as chronic obstructive pulmonary disease, emphysema, or chronic bronchitis)	1	2	-2	-3
E	Chronic Heart Disease (such as heart attack, heart failure, or coronary artery disease)	1	2	-2	-3
F	Stroke	1	2	-2	-3
G	Chronic Kidney Disease	1	2	-2	-3
H	Chronic Neurological Disorder	1	2	-2	-3
I	Liver Disease	1	2	-2	-3
J	Cancer	1	2	-2	-3
K	HIV/AIDS	1	2	-2	-3
L	Immune Suppressed (other than HIV/AIDS)	1	2	-2	-3
M	Sickle Cell Disease	1	2	-2	-3
2.2	**What is your current weight? An estimate is fine.** *Interviewer: Record in kilograms or pounds.* # # # Kg # # # Lbs ❍ Refused ❍ Don't know				
2.3	**What is your current height? An estimate is fine.** *Interviewer: Record in meters or feet and inches. Record full inches only - round up/down to nearest inch.* # . # # # m. # # ft. # # in. ❍ Refused ❍ Don't know				

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

*Interviewer: If this is a **follow-up** interview, start here and say:* **We will now begin the follow-up survey. Many of these questions will be similar to what we asked you during our first interview. Remember that this survey is voluntary, and you do not have to answer any questions you do not want to. If you feel uncomfortable at any time during this interview, you can skip a question, or stop the interview. I will start by asking about your health.**

2.4	**Have you received the flu shot this fall or winter (October 2021 or later)?** ❍ Yes ❍ No ❍ Refused ❍ Don't know
2.5	**Have you smoked tobacco since March 1, 2020** *(if baseline)/***since** ***[DATE]*** *(if follow-up, insert last interview date from 'Interview Information' printout)***?** ❍ Yes ❍ No **(Skip to 2.6)** ❍ Refused **(Skip to 2.6)** ❍ Don't know **(Skip to 2.6)**
2.5a	*Interviewer: Ask this question if answered "Yes" to 2.5. Otherwise,* ***go to 2.6****.* **How often do you smoke tobacco?** ❍ Daily ❍ Less than daily ❍ Refused ❍ Don't know
2.6	**Have you vaped or used e-cigarettes since March 1, 2020** *(if baseline)/***since** ***[DATE]*** *(if follow-up, insert last interview date from 'Interview Information' printout)***?** ❍ Yes ❍ No **(Skip to 2.7)** ❍ Refused **(Skip to 2.7)** ❍ Don't know **(Skip to 2.7)**
2.6a	*Interviewer: Ask this question if answered "Yes" to 2.6. Otherwise,* ***go to 2.7****.* **How often do you vape or use e-cigarettes?** ❍ Daily ❍ Less than daily ❍ Refused ❍ Don't know
2.7	**How often did you have a drink containing alcohol since March 1, 2020** *(if baseline)/***since** ***[DATE]*** *(if follow-up, insert last interview date from 'Interview Information' printout)***?** *Interviewer: Read all options before asking participant to select an option.* ❍ Never ❍ Monthly or less ❍ 2 to 4 times a month ❍ 2 to 3 times a week ❍ 4 or more times a week ❍ Refused ❍ Don't know

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

2.8	**How many times since March 1, 2020** *(if baseline)/***since *[DATE]*** *(if follow-up, insert last interview date from 'Interview Information' printout)* **have you used an illegal drug or used a prescription medication for non-medical reasons?** *Interviewer: If asked to clarify the meaning of "nonmedical reasons" say:* **For instance, because of the experience or feeling it caused**. *If asked to clarify the meaning of "illegal drug" say:* **For instance, drugs bought on the street, not including marijuana.** *If they have not used then, enter "0".* # of times | # | # | # | ❍ Refused ❍ Don't know

SECTION 3 – EXPERIENCE WITH COVID-19

For the next few questions, I want to ask you about your experience with COVID-19.

3.1	*If baseline say:* **Have you ever been tested for COVID-19?** *If follow-up say:* **Have you been tested for COVID-19 since *[DATE]*** *(insert last interview date from 'Interview Information' printout)***?** ❍ Yes ❍ No **(Skip to 3.2)** ❍ Refused **(Skip to 3.1f)** ❍ Don't know **(Skip to 3.1f)**
3.1a	*Interviewer: Ask this question if answered, "Yes" to 3.1. Otherwise,* ***skip to 3.2*** *if "No" to 3.1 or* ***skip to 3.1f*** *if Ref/DK selected for 3.1.* *If baseline say:* **Have you ever been told by a healthcare provider that you tested positive for COVID-19?** *If follow-up say:* **Since *[DATE]*** *(insert last interview date from 'Interview Information' printout)***, have you been told by a healthcare provider that you tested positive for COVID-19?** ❍ Yes ❍ No **(Skip to 3.1e3)** ❍ Refused **(Skip to 3.1e3)** ❍ Don't know **(Skip to 3.1e3)**
3.1b	*Interviewer: Ask this question if answered, "Yes" to 3.1a. Otherwise,* ***skip to 3.1e3*** *if "No"/Ref/DK is selected for 3.1a.* *If baseline say:* **How many positive tests did you have?** *If follow-up say:* **Since *[DATE]*** *(insert last interview date from 'Interview Information' printout)***, how many positive tests did you have?** *We will record up to 3 positive tests. Record tests from newest to oldest below.* # of positive tests | # | ❍ Refused **(Skip to 3.1e3)** ❍ Don't know **(Skip to 3.1e3)**

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

Positive Test 1 - *Interviewer: Ask these questions if participant had a first positive test. Otherwise,* ***skip to 3.1e3****.*

3.1c	**What was the date of or how long ago was this positive test?** *Interviewer: Record date if known and leave the "how long ago fields" blank. If date is not known, leave the date field blank and then fill out how long ago. If filling out how long ago, any fields that aren't used should have "0" entered (e.g. Days ago: 2, Weeks ago: 0, Months ago: 0).* Date D D - M M M - Y Y Y Y OR Days ago # # # Weeks ago # # # Months ago # # # ❍ Refused ❍ Don't know
3.1c1	**Where did you have the positive test done? (e.g., shelter name, COVID Assessment Centre name, Emergency Department name; encampment site location)** _____ ❍ Refused ❍ Don't know
3.1c2	**Where were you staying the night before you had the positive test?** _____ ❍ Refused ❍ Don't know

Positive Test 2 - *Interviewer: Ask these questions if participant had a second positive test. Otherwise,* ***skip to 3.1e3****.*

3.1d	**What was the date of or how long ago was this positive test?** *Interviewer: Record date if known and leave the "how long ago fields" blank. If date is not known, leave the date field blank and then fill out how long ago. If filling out how long ago, any fields that aren't used should have "0" entered (e.g. Days ago: 2, Weeks ago: 0, Months ago: 0).* Date D D - M M M - Y Y Y Y OR Days ago # # # Weeks ago # # # Months ago # # # ❍ Refused ❍ Don't know
3.1d1	**Where did you have the positive test done? (e.g., shelter name, COVID Assessment Centre name, Emergency Department name; encampment site location)** _____ ❍ Refused ❍ Don't know
3.1d2	**Where were you staying the night before you had the positive test?** _____ ❍ Refused ❍ Don't know

Positive Test 3 - *Interviewer: Ask these questions if participant had a third positive test. Otherwise,* ***skip to 3.1e3****.*

3.1e	**What was the date of or how long ago was this positive test?** *Interviewer: Record date if known and leave the "how long ago fields" blank. If date is not known, leave the date field blank and then fill out how long ago. If filling out how long ago, any fields that aren't used should have "0" entered (e.g. Days ago: 2, Weeks ago: 0, Months ago: 0).* Date D D - M M M - Y Y Y Y OR Days ago # # # Weeks ago # # # Months ago # # # ❍ Refused ❍ Don't know

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

3.1e1	**Where did you have the positive test done? (e.g., shelter name, COVID Assessment Centre name, Emergency Department name; encampment site location)** _____ ❍ Refused ❍ Don't know
3.1e2	**Where were you staying the night before you had the positive test?** _____ ❍ Refused ❍ Don't know
3.1e3	**Since *[DATE]*** *(insert last interview date from 'Interview Information' printout)***, have you had a positive rapid antigen test for COVID-19? This includes a positive rapid antigen test done by shelter staff, other staff person, or one you did yourself. This doesn't include a positive test done by a health care provider.** ❍ Yes ❍ No **(Skip to 3.1f** *if "Yes" to 3.1a* **OR 3.2** *if "No" to 3.1a***)** ❍ Refused **(Skip to 3.1f)** ❍ Don't know **(Skip to 3.1f)**
3.1e4	*Interviewer: Ask this question if answered, "Yes" to 3.1e3. Otherwise,* ***skip to 3.2*** *if "No" to 3.1e3 or* ***skip to 3.1f*** *if Ref/DK selected for 3.1e3.* **Since *[DATE]*** *(insert last interview date from 'Interview Information' printout)***, how many positive rapid antigen tests did you have?** *We will record up to 3 positive rapid antigen tests. Record tests from newest to oldest below.* # of positive rapid antigen tests | # | ❍ Refused **(Skip to 3.1f)** ❍ Don't know **(Skip to 3.1f)**

Positive Rapid Antigen Test 1 - *Interviewer: Ask these questions if participant had a first positive rapid antigen test. Otherwise,* ***skip to 3.1f****.*

3.1e5	**What was the date of or how long ago was this positive rapid antigen test?** *Interviewer: Record date if known and leave the "how long ago fields" blank. If date is not known, leave the date field blank and then fill out how long ago. If filling out how long ago, any fields that aren't used should have "0" entered (e.g. Days ago: 2, Weeks ago: 0, Months ago: 0).* Date | D | D | - | M | M | M | - | Y | Y | Y | Y | OR Days ago | # | # | # | Weeks ago | # | # | # | Months ago | # | # | # ❍ Refused ❍ Don't know

Positive Rapid Antigen Test 2 - *Interviewer: Ask these questions if participant had a second positive rapid antigen test. Otherwise,* ***skip to 3.1f****.*

3.1e6	**What was the date of or how long ago was this positive rapid antigen test?** *Interviewer: Record date if known and leave the "how long ago fields" blank. If date is not known, leave the date field blank and then fill out how long ago. If filling out how long ago, any fields that aren't used should have "0" entered (e.g. Days ago: 2, Weeks ago: 0, Months ago: 0).* Date | D | D | - | M | M | M | - | Y | Y | Y | Y | OR Days ago | # | # | # | Weeks ago | # | # | # | Months ago | # | # | # ❍ Refused ❍ Don't know

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

Positive Rapid Antigen Test 3 - *Interviewer: Ask these questions if participant had a third positive rapid antigen test. Otherwise,* ***skip to 3.1f****.*

3.1e7	**What was the date of or how long ago was this positive rapid antigen test?** *Interviewer: Record date if known and leave the "how long ago fields" blank. If date is not known, leave the date field blank and then fill out how long ago. If filling out how long ago, any fields that aren't used should have "0" entered (e.g. Days ago: 2, Weeks ago: 0, Months ago: 0).* Date D D - M M M - Y Y Y Y OR ❍ Refused ❍ Don't know Days ago # # # Weeks ago # # # Months ago # # #
3.1f	*Interviewer: Ask this question if answered, Ref or DK to 3.1 OR "Yes", Ref or DK to either 3.1a OR 3.1e3. Otherwise,* ***skip to 3.2****.* *If baseline say:* **Have you ever been hospitalized for COVID-19?** *If follow-up say:* **Since *[DATE]*** *(insert last interview date from 'Interview Information' printout),* **have you been hospitalized for COVID-19?** ❍ Yes ❍ No **(Skip to 3.2)** ❍ Refused **(Skip to 3.2)** ❍ Don't know **(Skip to 3.2)**
3.1g	*Interviewer: Ask this question if answered, "Yes" to 3.1f. Otherwise,* ***skip to 3.2****.* **What were the dates of or how long ago were you hospitalized for COVID-19? And where were you hospitalized?** *Interviewer: Record hospitalizations from newest to oldest. Record date if known and leave the "how long ago fields" blank. If date is not known, leave the date field blank and then fill out how long ago. If filling out how long ago, any fields that aren't used should have "0" entered (e.g. Days ago: 2, Weeks ago: 0, Months ago: 0). Don't forget to record the name of the hospital.* First Hospitalization: Date D D - M M M - Y Y Y Y OR ❍ Refused ❍ Don't know Days ago # # # Weeks ago # # # Months ago # # # Hospital _____ Second Hospitalization: Date D D - M M M - Y Y Y Y OR ❍ Refused ❍ Don't know Days ago # # # Weeks ago # # # Months ago # # # Hospital _____ Third Hospitalization: Date D D - M M M - Y Y Y Y OR ❍ Refused ❍ Don't know Days ago # # # Weeks ago # # # Months ago # # # Hospital _____

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

3.2	*If baseline say:* **Have you ever stayed at a COVID-19 isolation or recovery hotel?** *If follow-up say:* **Have you stayed at a COVID-19 isolation or recovery hotel since *[DATE]*** *(insert last interview date from 'Interview Information' printout)***?** **These are sites where people stay if they are positive for COVID-19 or were a close contact of someone with COVID-19.** *Interviewer: Probe to ensure they stayed at the following eligible site during the specified time:* *-Four Points in Etobicoke (April 2020 to Present)* ❍ Yes ❍ No **(Skip to 3.3)** ❍ Refused **(Skip to 3.3)** ❍ Don't know **(Skip to 3.3)**
3.2a	*Interviewer: Ask this question if answered, "Yes" to 3.2. Otherwise, **go to 3.3**.* **What were the dates of or how long ago were these stays?** *Interviewer: Record stays from newest to oldest. Record date if known and leave the "how long ago fields" blank. If date is not known, leave the date field blank and then fill out how long ago. If filling out how long ago, any fields that aren't used should have "0" entered (e.g. Days ago: 2, Weeks ago: 0, Months ago: 0).* First Stay: Date D D - M M M - Y Y Y Y OR ❍ Refused ❍ Don't know Days ago # # # Weeks ago # # # Months ago # # # Second Stay: Date D D - M M M - Y Y Y Y OR ❍ Refused ❍ Don't know Days ago # # # Weeks ago # # # Months ago # # # Third Stay: Date D D - M M M - Y Y Y Y OR ❍ Refused ❍ Don't know Days ago # # # Weeks ago # # # Months ago # # #
3.3	**On average, every day: how many people were you in close contact with (for more than 15 minutes and less than 2 metres apart) inside your living space since March 1, 2020** *(if baseline)/***since *[DATE]*** *(if follow-up, insert last interview date from 'Interview Information' printout)***?** ❍ Nobody ❍ 1 person ❍ 2 to 4 people ❍ 5 to 10 people ❍ 11 to 20 people ❍ 20+ people ❍ Refused ❍ Don't know
3.4	**On average, every day: how many people were you in close contact with (for more than 15 minutes and less than 2 metres apart) outside your living space since March 1, 2020** *(if baseline)/***since *[DATE]*** *(if follow-up, insert last interview date from 'Interview Information' printout)***?** ❍ Nobody ❍ 1 person ❍ 2 to 4 people ❍ 5 to 10 people ❍ 11 to 20 people ❍ 20+ people ❍ Refused ❍ Don't know

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

We will now ask you to remember who you have been in contact with yesterday – from 5am yesterday to 5am this morning. By contacts, we mean 'direct' contacts – so someone you met in person and with whom you exchanged at least a few words or with whom you had physical contact (e.g. a hug, handshake, etc.). If you only spoke to them on the phone or internet, do not include them in this count.

3.5	**How many people was that?** *Interviewer: If they haven't had direct contacts, enter "0" and then **skip to 3.12**.* # of people | # | # | # ❍ Refused **(Skip to 3.12)** ❍ Don't know **(Skip to 3.12)**
3.6	*Interviewer: Ask this question if had 1 or more contacts in 3.5. Otherwise, **skip to 3.12**.* **How many of those *[NUMBER]* are using shelters or do not have housing?** *Interviewer: If none, enter "0".* # of people | # | # | # ❍ Refused ❍ Don't know
3.7	**Can you list the first names or give each person a nickname and answer some questions about them?** *Interviewer: Record up to 5 names/nicknames.* 1. _____ 4. _____ 2. _____ 5. _____ 3. _____ ❍ Refused **(Skip to 3.12)** ❍ Don't know **(Skip to 3.12)**

Contact 1 - *Interviewer: Ask these questions if provided a first contact. Otherwise, **skip to 3.12**.*

3.7a	**About how old is *[NAME/NICKNAME]*?** ❍ 19 and under ❍ 40-49 ❍ 70-79 ❍ 20-29 ❍ 50-59 ❍ 80 and older ❍ 30-39 ❍ 60-69 ❍ Refused ❍ Don't know
3.7b	**What is *[NAME/NICKNAME'S]* relationship to you?** *Interviewer: Check all that apply.* ❑ Someone I hang out with outside the shelter ❑ A family member ❑ Someone who uses same shelter as me ❑ Someone I share/use drugs with ❑ Works at the shelter I use ❑ Someone I drink with ❑ Caseworker/Social worker ❑ Other (Please specify) _____ ❑ Someone I work with ❑ A friend ❍ Refused ❍ Don't know
3.7c	**Is *[NAME/NICKNAME]* underhoused or a client of the shelters?** ❍ Yes ❍ No ❍ Refused ❍ Don't know

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

3.7d	**When you had direct contact with *[NAME/NICKNAME]* yesterday, did you have any:** *Interviewer: Check all that apply.* ❑ Physical contact (any sort of skin-to-skin contact, like shaking hands) ❑ Non-physical contact (did not touch the person) ❍ Refused **(Skip to 3.7e)** ❍ Don't know **(Skip to 3.7e)**
3.7d1	*Interviewer: Ask this question if answered, "Physical contact" or "Non-physical contact" in 3.7d. Otherwise, **go to 3.7e**.* **Was this contact:** ❍ Outside ❍ Inside ❍ Both outside and inside ❍ Refused ❍ Don't know
3.7e	**Did this person sleep/stay in same unit/room as you last night?** ❍ Yes ❍ No ❍ I did not sleep inside last night ❍ Refused ❍ Don't know
3.7f	**When you had direct contact, was the contact wearing a mask at the time?** ❍ Yes ❍ No ❍ Refused ❍ Don't know
3.7g	**When you had direct contact, were you wearing a mask at the time?** ❍ Yes ❍ No ❍ Refused ❍ Don't know

Contact 2 - *Interviewer: Ask these questions if provided a second contact. Otherwise, **skip to 3.12**.*

3.8a	**About how old is *[NAME/NICKNAME]*?** ❍ 19 and under ❍ 20-29 ❍ 30-39 ❍ 40-49 ❍ 50-59 ❍ 60-69 ❍ 70-79 ❍ 80 and older ❍ Refused ❍ Don't know
3.8b	**What is *[NAME/NICKNAME'S]* relationship to you?** *Interviewer: Check all that apply.* ❑ Someone I hang out with outside the shelter ❑ Someone who uses same shelter as me ❑ Works at the shelter I use ❑ Caseworker/Social worker ❑ Someone I work with ❑ A friend ❑ A family member ❑ Someone I share/use drugs with ❑ Someone I drink with ❑ Other (Please specify) _____ ❍ Refused ❍ Don't know
3.8c	**Is *[NAME/NICKNAME]* underhoused or a client of the shelters?** ❍ Yes ❍ No ❍ Refused ❍ Don't know

3.8d	**When you had direct contact with *[NAME/NICKNAME]* yesterday, did you have any:** *Interviewer: Check all that apply.* ❑ Physical contact (any sort of skin-to-skin contact, like shaking hands) ❑ Non-physical contact (did not touch the person) ❍ Refused **(Skip to 3.8e)** ❍ Don't know **(Skip to 3.8e)**
3.8d1	*Interviewer: Ask this question if answered, "Physical contact" or "Non-physical contact" in 3.7d. Otherwise, **go to 3.8e**.* **Was this contact:** ❍ Outside ❍ Inside ❍ Both outside and inside ❍ Refused ❍ Don't know
3.8e	**Did this person sleep/stay in same unit/room as you last night?** ❍ Yes ❍ No ❍ I did not sleep inside last night ❍ Refused ❍ Don't know
3.8f	**When you had direct contact, was the contact wearing a mask at the time?** ❍ Yes ❍ No ❍ Refused ❍ Don't know
3.8g	**When you had direct contact, were you wearing a mask at the time?** ❍ Yes ❍ No ❍ Refused ❍ Don't know

Contact 3 - *Interviewer: Ask these questions if provided a third contact. Otherwise, **skip to 3.12**.*

3.9a	**About how old is *[NAME/NICKNAME]*?** ❍ 19 and under ❍ 20-29 ❍ 30-39 ❍ 40-49 ❍ 50-59 ❍ 60-69 ❍ 70-79 ❍ 80 and older ❍ Refused ❍ Don't know
3.9b	**What is *[NAME/NICKNAME'S]* relationship to you?** *Interviewer: Check all that apply.* ❑ Someone I hang out with outside the shelter ❑ Someone who uses same shelter as me ❑ Works at the shelter I use ❑ Caseworker/Social worker ❑ Someone I work with ❑ A friend ❑ A family member ❑ Someone I share/use drugs with ❑ Someone I drink with ❑ Other (Please specify) _____ ❍ Refused ❍ Don't know
3.9c	**Is *[NAME/NICKNAME]* underhoused or a client of the shelters?** ❍ Yes ❍ No ❍ Refused ❍ Don't know

3.9d	**When you had direct contact with *[NAME/NICKNAME]* yesterday, did you have any:** *Interviewer: Check all that apply.* ❑ Physical contact (any sort of skin-to-skin contact, like shaking hands) ❑ Non-physical contact (did not touch the person) ❍ Refused **(Skip to 3.9e)** ❍ Don't know **(Skip to 3.9e)**
3.9d1	*Interviewer: Ask this question if answered, "Physical contact" or "Non-physical contact" in 3.7d. Otherwise, **go to 3.9e**.* **Was this contact:** ❍ Outside ❍ Inside ❍ Both outside and inside ❍ Refused ❍ Don't know
3.9e	**Did this person sleep/stay in same unit/room as you last night?** ❍ Yes ❍ No ❍ I did not sleep inside last night ❍ Refused ❍ Don't know
3.9f	**When you had direct contact, was the contact wearing a mask at the time?** ❍ Yes ❍ No ❍ Refused ❍ Don't know
3.9g	**When you had direct contact, were you wearing a mask at the time?** ❍ Yes ❍ No ❍ Refused ❍ Don't know

Contact 4 - *Interviewer: Ask these questions if provided a fourth contact. Otherwise, **skip to 3.12**.*

3.10a	**About how old is *[NAME/NICKNAME]*?** ❍ 19 and under ❍ 20-29 ❍ 30-39 ❍ 40-49 ❍ 50-59 ❍ 60-69 ❍ 70-79 ❍ 80 and older ❍ Refused ❍ Don't know
3.10b	**What is *[NAME/NICKNAME'S]* relationship to you?** *Interviewer: Check all that apply.* ❑ Someone I hang out with outside the shelter ❑ Someone who uses same shelter as me ❑ Works at the shelter I use ❑ Caseworker/Social worker ❑ Someone I work with ❑ A friend ❑ A family member ❑ Someone I share/use drugs with ❑ Someone I drink with ❑ Other (Please specify) _____ ❍ Refused ❍ Don't know
3.10c	**Is *[NAME/NICKNAME]* underhoused or a client of the shelters?** ❍ Yes ❍ No ❍ Refused ❍ Don't know

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

3.10d	**When you had direct contact with *[NAME/NICKNAME]* yesterday, did you have any:** *Interviewer: Check all that apply.* ❑ Physical contact (any sort of skin-to-skin contact, like shaking hands) ❑ Non-physical contact (did not touch the person) ❍ Refused **(Skip to 3.10e)** ❍ Don't know **(Skip to 3.10e)**
3.10d1	*Interviewer: Ask this question if answered, "Physical contact" or "Non-physical contact" in 3.7d. Otherwise, **go to 3.10e**.* **Was this contact:** ❍ Outside ❍ Inside ❍ Both outside and inside ❍ Refused ❍ Don't know
3.10e	**Did this person sleep/stay in same unit/room as you last night?** ❍ Yes ❍ No ❍ I did not sleep inside last night ❍ Refused ❍ Don't know
3.10f	**When you had direct contact, was the contact wearing a mask at the time?** ❍ Yes ❍ No ❍ Refused ❍ Don't know
3.10g	**When you had direct contact, were you wearing a mask at the time?** ❍ Yes ❍ No ❍ Refused ❍ Don't know

Contact 5 - *Interviewer: Ask these questions if provided a fifth contact. Otherwise, **skip to 3.12**.*

3.11a	**About how old is *[NAME/NICKNAME]*?** ❍ 19 and under ❍ 20-29 ❍ 30-39 ❍ 40-49 ❍ 50-59 ❍ 60-69 ❍ 70-79 ❍ 80 and older ❍ Refused ❍ Don't know
3.11b	**What is *[NAME/NICKNAME'S]* relationship to you?** *Interviewer: Check all that apply.* ❑ Someone I hang out with outside the shelter ❑ Someone who uses same shelter as me ❑ Works at the shelter I use ❑ Caseworker/Social worker ❑ Someone I work with ❑ A friend ❑ A family member ❑ Someone I share/use drugs with ❑ Someone I drink with ❑ Other (Please specify) _____ ❍ Refused ❍ Don't know
3.11c	**Is *[NAME/NICKNAME]* underhoused or a client of the shelters?** ❍ Yes ❍ No ❍ Refused ❍ Don't know

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

3.11d	**When you had direct contact with *[NAME/NICKNAME]* yesterday, did you have any:** *Interviewer: Check all that apply.* ❑ Physical contact (any sort of skin-to-skin contact, like shaking hands) ❑ Non-physical contact (did not touch the person) ❍ Refused **(Skip to 3.11e)** ❍ Don't know **(Skip to 3.11e)**
3.11d1	*Interviewer: Ask this question if answered, "Physical contact" or "Non-physical contact" in 3.7d. Otherwise, **go to 3.11e**.* **Was this contact:** ❍ Outside ❍ Inside ❍ Both outside and inside ❍ Refused ❍ Don't know
3.11e	**Did this person sleep/stay in same unit/room as you last night?** ❍ Yes ❍ No ❍ I did not sleep inside last night ❍ Refused ❍ Don't know
3.11f	**When you had direct contact, was the contact wearing a mask at the time?** ❍ Yes ❍ No ❍ Refused ❍ Don't know
3.11g	**When you had direct contact, were you wearing a mask at the time?** ❍ Yes ❍ No ❍ Refused ❍ Don't know
3.12	*If baseline say:* **Have you shared a living space or had close contact with someone who tested positive for COVID-19?** *If follow-up say:* **Have you shared a living space or had close contact with someone who tested positive for COVID-19 since *[DATE]* *(insert last interview date from 'Interview Information' printout)*?** ❍ Yes **(Go to 3.12a)** ❍ No ❍ Refused ❍ Don't know
3.12a	*Interviewer: Ask this question if answered, "Yes" to 3.12.* **If yes, how long ago did you share a living space or have close contact with someone who tested positive for COVID-19?** Days ago # # # Weeks ago # # # Months ago # # # ❍ Refused ❍ Don't know

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

Interviewer: At the last interview, what was the participant's COVID vaccine status? Refer to 'Interview Information' printout and select the most appropriate option below to continue.

- ❍ *One dose received* ***(Skip to 3.13c2)***
- ❍ *Two doses received* ***(Skip to 3.13e2)***
- ❍ *More than two doses received* ***(Skip to 3.15)***
- ❍ *Unvaccinated* ***(Go to 3.13)***
- ❍ *Refused or DK* ***(Go to 3.13)***

3.13	**Have you been vaccinated against COVID-19?** *Interviewer: Select "Yes" if participant has received at least one dose of the COVID-19 vaccine.* ❍ Yes **(Go to 3.13a)** ❍ No **(Skip to 3.14)** ❍ Refused **(Skip to 3.14)** ❍ Don't know **(Skip to 3.14)**
3.13a	*Interviewer: Ask this question if answered, "Yes" to 3.13. Otherwise,* ***skip to 3.14****.* **How many doses of the COVID-19 vaccine have you received so far?** ❍ One dose ❍ Two doses ❍ More than two doses ❍ Refused ❍ Don't know

One dose

3.13b	**When did you receive your first dose of the COVID-19 vaccine?** *Interviewer: Record date if known and leave the "how long ago fields" blank. If date is not known, leave the date field blank and then fill out how long ago. If filling out how long ago, any fields that aren't used should have "0" entered (e.g. Days ago: 2, Weeks ago: 0, Months ago: 0).* Date D D - M M M - Y Y Y Y OR Days ago # # # Weeks ago # # # Months ago # # # ❍ Refused ❍ Don't know
3.13c	**Which vaccine did you receive for your first dose?** ❍ Pfizer and BioNTech, mRNA vaccine ❍ Moderna, mRNA vaccine ❍ Astra Zeneca/COVISHIELD, viral vector vaccine ❍ Other (Please specify)_____ ❍ Refused ❍ Don't know

Two doses - *Interviewer: If baseline,* ***skip to 3.13d*** *if answered, "Two doses" or "More than two doses" to 3.13a. Otherwise, do not record a date and select the most appropriate option below for 3.13d and 3.13f and,* ***skip to 3.15****.*

If follow-up, ***go to 3.13c2*** *if the participant only had* ***one dose*** *at their last interview (refer to 'Interview Information' printout).*
If answered "Two doses" or "More than two doses" to 3.13a, ***skip to 3.13d.*** *Otherwise, do not record a date and select the most appropriate option below for 3.13d and 3.13f and,* ***skip to 3.15****.*

3.13c2	**During your last interview, you reported that you had one dose of the COVID-19 vaccine. Have you had a second dose now?** ❍ Yes **(Go to 3.13d)** ❍ No **(Skip to 3.15)** ❍ Refused **(Skip to 3.15)** ❍ Don't know **(Skip to 3.15)**

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

3.13d	**When did you receive your <u>second</u> dose of the COVID-19 vaccine?** *<u>Interviewer</u>: Record date if known and leave the "how long ago fields" blank. If date is not known, leave the date field blank and then fill out how long ago. If filling out how long ago, any fields that aren't used should have "0" entered (e.g. Days ago: 2, Weeks ago: 0, Months ago: 0).* Date D D - M M M - Y Y Y Y OR Days ago # # # Weeks ago # # # Months ago # # # ❍ Only first dose received so far ❍ N/A (one-dose vaccine received) ❍ Refused ❍ Don't know
3.13e	**Which vaccine did you receive for your <u>second</u> dose?** ❍ Pfizer and BioNTech, mRNA vaccine ❍ Moderna, mRNA vaccine ❍ Astra Zeneca/COVISHIELD, viral vector vaccine ❍ Other (Please specify)_____ ❍ Refused ❍ Don't know

<u>More than two doses</u> - *<u>Interviewer</u>: If baseline, **skip to 3.13f** if answered "More than two doses" to 3.13a. Otherwise, do not record a date and select the most appropriate option below for 3.13f and, **skip to 3.15**.*

*If <u>follow-up</u>, **go to 3.13e2** if the participant received **<u>two</u> doses** at their last interview (refer to 'Interview Information' printout).*
*If answered "More than two doses" to 3.13a, **skip to 3.13f.** Otherwise, do not record a date and select the most appropriate option below for 3.13f and, **skip to 3.15**.*

3.13e2	**Have you had a third dose of the COVID-19 vaccine?** ❍ Yes **(Go to 3.13f)** ❍ No **(Skip to 3.15)** ❍ Refused **(Skip to 3.15)** ❍ Don't know **(Skip to 3.15)**
3.13f	**When did you receive your <u>third</u> dose of the COVID-19 vaccine?** *<u>Interviewer</u>: Record date if known and leave the "how long ago fields" blank. If date is not known, leave the date field blank and then fill out how long ago. If filling out how long ago, any fields that aren't used should have "0" entered (e.g. Days ago: 2, Weeks ago: 0, Months ago: 0).* Date D D - M M M - Y Y Y Y OR Days ago # # # Weeks ago # # # Months ago # # # ❍ N/A ❍ Refused ❍ Don't know
3.13g	**Which vaccine did you receive for your <u>third</u> dose?** ❍ Pfizer and BioNTech, mRNA vaccine ❍ Moderna, mRNA vaccine ❍ Astra Zeneca/COVISHIELD, viral vector vaccine ❍ Other (Please specify)_____ ❍ Refused ❍ Don't know
3.14	*<u>Interviewer</u>: Ask this question if answered, "No" to 3.13. Otherwise, **skip to 3.15**.* **Have you been offered a COVID-19 vaccine?** ❍ Yes **(Skip to 3.14b)** ❍ No **(Go to 3.14a)** ❍ Refused **(Go to 3.14a)** ❍ Don't know **(Go to 3.14a)**

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

3.14a	**If offered a COVID-19 vaccine, how likely is it that you will choose to get it?** *Interviewer: If "Somewhat unlikely" or "Very unlikely", **go to 3.14b**. All others, **skip to 3.15**.* ❍ Very likely ❍ Somewhat likely ❍ Somewhat unlikely **(Go to 3.14b)** ❍ Very unlikely **(Go to 3.14b)** ❍ Refused ❍ Don't know
3.14b	*Interviewer: Ask this question if answered, "Somewhat unlikely" or "Very unlikely" to 3.14a. Otherwise, **go to 3.15**.* **Why did you/would you choose not to get the COVID-19 vaccine?** *Interviewer: Read all options before asking participant to select options. Select all that apply.* ❑ Not confident in the safety of the vaccine ❑ Concern about risks and side effects ❑ Will wait until it seems safe to get the vaccine ❑ Do not consider it necessary to get the vaccine ❑ Do not believe in vaccination ❑ Have a pre-existing medical condition ❑ Already had or think I have had COVID-19 ❑ Have not yet decided ❑ Don't know where to get it ❑ Vaccine wasn't available to me ❑ Not listed (Please specify)_____ ❍ Refused ❍ Don't know

3.15	**Now I am going to ask if you have had certain symptoms this past week. Thinking about the past week, have you had:**	**Yes**	**No**	Ref	DK
A	Fever	1	2	-2	-3
B	New or worsening cough	1	2	-2	-3
C	New or worsening shortness of breath	1	2	-2	-3
D	Sore throat/hoarse voice	1	2	-2	-3
E	Difficulty swallowing	1	2	-2	-3
F	Sore muscles or joints (without an underlying reason)	1	2	-2	-3
G	Headache	1	2	-2	-3
H	Fatigue	1	2	-2	-3
I	Nausea/vomiting, diarrhea, or abdominal pain	1	2	-2	-3
J	New or worsening runny nose or nasal congestion	1	2	-2	-3
K	Decreased sense of smell	1	2	-2	-3

3.15	*(Continued)* **Thinking about the <u>past week</u>, have you had:**	**Yes**	**No**	Ref	DK
L	Decreased sense of taste	1	2	-2	-3
M	Chills	1	2	-2	-3

SECTION 4 – ACTIVITIES AND BEHAVIOURS RELATED TO COVID-19

4.1	**Have you done any <u>paid</u> work since March 1, 2020** *(if baseline)/***since *[DATE]*** *(if follow-up, insert last interview date from 'Interview Information' printout)***?** ❍ Yes ❍ No **(Skip to 4.2)** ❍ Refused **(Skip to 4.2)** ❍ Don't know **(Skip to 4.2)**
4.1a	*<u>Interviewer</u>: Ask this question if answered, "Yes" to 4.1. Otherwise, **skip to 4.2**.* **Where do/did you work?** _____ _____ ❍ Refused ❍ Don't know
4.1b	*<u>Interviewer</u>: Ask this question if answered, "Yes" to 4.1. Otherwise, **go to 4.2**.* **What type of work do/did you do?** _____ _____ ❍ Refused ❍ Don't know
4.2	**Have you done any volunteer work since March 1, 2020** *(if baseline)/***since *[DATE]*** *(if follow-up, insert last interview date from 'Interview Information' printout)***?** ❍ Yes ❍ No **(Skip to 4.3)** ❍ Refused **(Skip to 4.3)** ❍ Don't know **(Skip to 4.3)**
4.2a	*<u>Interviewer</u>: Ask this question if answered, "Yes" to 4.2. Otherwise, **skip to 4.3**.* **Where do/did you volunteer?** _____ _____ ❍ Refused ❍ Don't know
4.2b	*<u>Interviewer</u>: Ask this question if answered, "Yes" to 4.2. Otherwise, **go to 4.3**.* **What type of volunteer work do/did you do?** _____ _____ ❍ Refused ❍ Don't know

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

4.3	**Since March 1, 2020** *(if baseline)/***since *[DATE]*** *(if follow-up, insert last interview date from 'Interview Information' printout)***, how often have you…**	**Never**	**Rarely**	**Occasionally**	**Often**	**Always**	Ref	DK
A	Worn a face mask in public places?	1	2	3	4	5	-2	-3
B	Practiced physical distancing in public places?	1	2	3	4	5	-2	-3
C	Avoided crowded places or gatherings?	1	2	3	4	5	-2	-3
D	Washed hands with soap or used hand sanitizer several times per day?	1	2	3	4	5	-2	-3

SECTION 5 – HOUSING HISTORY

The next set of questions are about your housing history.

Interviewer: Question 5.1 is only asked at baseline. If this is a follow-up interview, ***skip to Residential Timeline Follow-Back (RTLFB).***

Experience with Homelessness

5.1	**How long has your current period of homelessness lasted? In other words, how long has it been since you had a place of your own?** *Interviewer: If a value is filled out in one of the options below, the rest should be marked as "0". E.g. Number of years: 2, Number of months: 1, Number of days: 0.* *Own place is a place that is (1) not temporary (i.e. lasting 6 months or more OR expected to last 6 months or more) AND (2) where the person is paying rent. Exception: Staying with family/guardians on a permanent (non-temporary; see definition above) basis and not paying rent.* # of years # # # # of months # # # # of days # # # ❍ Refused ❍ Don't know

Residential Timeline Follow-Back (RTLFB)

Now I am going to ask you about where you have been living for the past 3 months *(if baseline)/***since *[DATE]*** *(if follow-up interview, insert last interview date from 'Interview Information' printout)***. Today is *[DATE]*, so the time we'll be talking about is between *[DATE]* and today. Let's look at this calendar together** *(refer to RTLFB Tool)* **and I'll make notes as you talk.**

Interviewer: Refer to the Adapted RTLFB Tool. Fill in the calendar with all moves first, then go on to ask the residence questions in this survey. Make sure you probe for all residences from current date to 3 months prior (if baseline)/since the last interview date (if follow-up). DO NOT leave gaps in the tool. Start on and record current date on the tool and work backwards ensuring there are no gaps. Once the calendar is complete say:

Now I need to go over specific information about each of the places that you have lived that were listed on the calendar. We will start with where you are living now and work backwards from there.

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

Residence 1

5.2	**What's the name of the place you are/were staying at?** *Interviewer: Record description according to what they tell you, prompt if necessary to get as specific as possible.* _____ ❍ Refused _____ ❍ Don't know
5.3	*Interviewer: Enter residence type code based on what you entered on the calendar. If code "A" (i.e. Homeless shelter),* ***go to 5.3a****. If code "B" (i.e. Physical Distancing Hotel),* ***go to 5.3b****. Otherwise,* ***skip to 5.4****.* *If need more information say:* **Where are/were you staying? What sort of residence is this** *(refer to coding list)***?** If other (Please specify) ❍ Refused _____ ❍ Don't know Type code [ ] _____
5.3a	*Interviewer: If residence type is code "A" in 5.3, enter the appropriate shelter code based on what you recorded on the calendar then* ***skip to 5.5****. Otherwise,* ***go to 5.3b*** *if residence type is code "B" or,* ***go to 5.4*** *for all other residence types.* *If need more information say:* **Which shelter are/were you staying at** *(refer to coding list)***?** If other (Please specify) ❍ Refused _____ ❍ Don't know Shelter code [ ][ ] _____
5.3b	*Interviewer: If residence type is code "B" in 5.3, enter the appropriate hotel code based on what you recorded on the calendar then* ***skip to 5.5****. Otherwise,* ***go to 5.4****.* *If need more information say:* **Which physical distancing hotel are/were you staying at** *(refer to coding list)***?** If other (Please specify) ❍ Refused _____ ❍ Don't know Hotel code [ ][ ] _____
5.4	*Interviewer: If residence type is code "A" or "B" (unless "Other" option is selected) in 5.3,* ***skip to 5.5****. Otherwise, ask:* **What is/was the address of the residence?** _____ ❍ Refused _____ ❍ Don't know
5.4a	**Do you know the closest major intersection?** *Interviewer: If outside of Toronto, indicate the city.* _____ ❍ Refused _____ ❍ Don't know

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

5.4b	**Do you know the neighbourhood where the site/building is located?** _____ _____ ❍ Refused ❍ Don't know
5.5	*Interviewer: Enter date based on what you entered on the calendar.* *If need more information say:* **What was the first night you stayed here?** Start Date D D - M M M - Y Y Y Y ❍ Refused ❍ Don't know
5.6	*Interviewer: If current residence select N/A and, **go to 5.7**. Enter date based on what you entered on the calendar.* *If need more information say:* **What was the last night you stayed here?** Stop Date D D - M M M - Y Y Y Y ❍ N/A (Current residence) ❍ Refused ❍ Don't know
5.7	*Interviewer: Does the participant use this place (Residence 1) as a "Split Residence"? Refers to stays where moving to and from this location are not considered true moves because the participant is splitting time between this place and 1 or more other locations. Refer to QxQ.* *If need more information say:* **Do/did you split your time between this residence and another residence?** ❍ Yes ❍ No **(Skip to 5.8)** ❍ Refused **(Skip to 5.8)** ❍ Don't know **(Skip to 5.8)**
5.7a	*Interviewer: Record answer if answered, "Yes" to 5.7. Otherwise, **skip to 5.8.*** *How many times has the participant moved into Residence 1 over the measurement period? Remember that the measurement period is past 3 months (if baseline)/since the last interview date (if follow-up).* # of times # # # Comments: _____ ❍ Refused ❍ Don't know
5.7b	*Interviewer: Record answer if answered, "Yes" to 5.7. Otherwise, **go to 5.8.*** *How many nights has the participant lived at Residence 1 over the measurement period? Remember that the measurement period is past 3 months (if baseline)/since the last interview date (if follow-up).* # of nights # # # Comments: _____ ❍ Refused ❍ Don't know
5.8	**Are/were you sharing a living space with anyone while staying here?** ❍ Alone **(Skip to Residence 2)** ❍ Shared ❍ Refused **(Skip to Residence 2)** ❍ Don't know **(Skip to Residence 2)**

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

5.8a	*Interviewer: Ask if answered, "Shared" to 5.8. Otherwise,* ***go to Residence 2.*** **If yes, how many people are/were you sharing your living space with?** # of people ☐☐☐ ❍ Refused ❍ Don't know

Residence 2

Interviewer: Select the most appropriate option below to continue.

- ❍ *Record another residence* ***(Go to 5.9)***
- ❍ *No other residences to record* ***(Skip to end of instrument)***

5.9	**What's the name of the place you are/were staying at?** *Interviewer: Record description according to what they tell you, prompt if necessary to get as specific as possible.* _____ _____ ❍ Refused ❍ Don't know
5.10	*Interviewer: Enter residence type code based on what you entered on the calendar. If code "A" (i.e. Homeless shelter),* ***go to 5.10a****. If code "B" (i.e. Physical Distancing Hotel),* ***go to 5.10b****. Otherwise,* ***skip to 5.11****.* *If need more information say:* **Where are/were you staying? What sort of residence is this** *(refer to coding list)***?** Type code ☐ If other (Please specify) _____ _____ ❍ Refused ❍ Don't know
5.10a	*Interviewer: If residence type is code "A" in 5.10, enter the appropriate shelter code based on what you recorded on the calendar then* ***skip to 5.12****. Otherwise,* ***go to 5.10b*** *if residence type is code "B" or,* ***go to 5.11*** *for all other residence types.* *If need more information say:* **Which shelter are/were you staying at** *(refer to coding list)***?** Shelter code ☐☐ If other (Please specify) _____ _____ ❍ Refused ❍ Don't know
5.10b	*Interviewer: If residence type is code "B" in 5.10, enter the appropriate hotel code based on what you recorded on the calendar then* ***skip to 5.12****. Otherwise,* ***go to 5.11****.* *If need more information say:* **Which physical distancing hotel are/were you staying at** *(refer to coding list)***?** Hotel code ☐☐ If other (Please specify) _____ _____ ❍ Refused ❍ Don't know

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

5.11	*Interviewer: If residence type is code "A" or "B" (unless "Other" option is selected) in 5.10,* ***skip to 5.12****. Otherwise, ask:* **What is/was the address of the residence?** _____ _____ ❍ Refused ❍ Don't know
5.11a	**Do you know the closest major intersection?** *Interviewer: If outside of Toronto, indicate the city.* _____ _____ ❍ Refused ❍ Don't know
5.11b	**Do you know the neighbourhood where the site/building is located?** _____ _____ ❍ Refused ❍ Don't know
5.12	*Interviewer: Enter date based on what you entered on the calendar.* *If need more information say:* **What was the first night you stayed here?** Start Date | D | D | - | M | M | M | - | Y | Y | Y | Y | ❍ Refused ❍ Don't know
5.13	*Interviewer: If current residence select N/A and,* ***go to 5.14****. Enter date based on what you entered on the calendar.* *If need more information say:* **What was the last night you stayed here?** Stop Date | D | D | - | M | M | M | - | Y | Y | Y | Y | ❍ N/A (Current residence) ❍ Refused ❍ Don't know
5.14	*Interviewer: Does the participant use this place (Residence 2) as a "Split Residence"? Refers to stays where moving to and from this location are not considered true moves because the participant is splitting time between this place and 1 or more other locations. Refer to QxQ.* *If need more information say:* **Do/did you split your time between this residence and another residence?** ❍ Yes ❍ No **(Skip to 5.15)** ❍ Refused **(Skip to 5.15)** ❍ Don't know **(Skip to 5.15)**
5.14a	*Interviewer: Record answer if answered, "Yes" to 5.14. Otherwise,* ***skip to 5.15.*** *How many times has the participant moved into Residence 2 over the measurement period? Remember that the measurement period is past 3 months (if baseline)/since the last interview date (if follow-up).* # of times | # | # | # Comments: _____ _____ ❍ Refused ❍ Don't know

5.14b	*Interviewer: Record answer if answered, "Yes" to 5.14. Otherwise,* ***go to 5.15.*** *How many nights has the participant lived at Residence 2 over the measurement period? Remember that the measurement period is past 3 months (if baseline)/since the last interview date (if follow-up).* # of nights | # | # | # | Comments: _____ _____ ❍ Refused ❍ Don't know
5.15	**Are/were you sharing a living space with anyone while staying here?** ❍ Alone **(Skip to Residence 3)** ❍ Shared ❍ Refused **(Skip to Residence 3)** ❍ Don't know **(Skip to Residence 3)**
5.15a	*Interviewer: Ask if answered, "Shared" to 5.15. Otherwise,* ***go to Residence 3.*** **If yes, how many people are/were you sharing your living space with?** # of people | # | # | # | ❍ Refused ❍ Don't know

Residence 3

Interviewer: Select the most appropriate option below to continue.

- ❍ *Record another residence* ***(Go to 5.16)***
- ❍ *No other residences to record* ***(Skip to end of instrument)***

5.16	**What's the name of the place you are/were staying at?** *Interviewer: Record description according to what they tell you, prompt if necessary to get as specific as possible.* _____ _____ ❍ Refused ❍ Don't know
5.17	*Interviewer: Enter residence type code based on what you entered on the calendar. If code "A" (i.e. Homeless shelter),* ***go to 5.17a****. If code "B" (i.e. Physical Distancing Hotel),* ***go to 5.17b****. Otherwise,* ***skip to 5.18****.* *If need more information say:* **Where are/were you staying? What sort of residence is this** *(refer to coding list)***?** Type code |_| If other (Please specify) _____ _____ ❍ Refused ❍ Don't know
5.17a	*Interviewer: If residence type is code "A" in 5.17, enter the appropriate shelter code based on what you recorded on the calendar then* ***skip to 5.19****. Otherwise,* ***go to 5.17b*** *if residence type is code "B" or,* ***go to 5.18*** *for all other residence types.* *If need more information say:* **Which shelter are/were you staying at** *(refer to coding list)***?** Shelter code |_|_| If other (Please specify) _____ _____ ❍ Refused ❍ Don't know

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

5.17b	*Interviewer: If residence type is code "B" in 5.17, enter the appropriate hotel code based on what you recorded on the calendar then **skip to 5.19**. Otherwise, **go to 5.18**.* *If need more information say:* **Which physical distancing hotel are/were you staying at** *(refer to coding list)***?** If other (Please specify) _____ Hotel code ☐☐ _____ ❍ Refused ❍ Don't know
5.18	*Interviewer: If residence type is code "A" or "B" (unless "Other" option is selected) in 5.17, **skip to 5.19**. Otherwise, ask:* **What is/was the address of the residence?** _____ _____ ❍ Refused ❍ Don't know
5.18a	**Do you know the closest major intersection?** *Interviewer: If outside of Toronto, indicate the city.* _____ _____ ❍ Refused ❍ Don't know
5.18b	**Do you know the neighbourhood where the site/building is located?** _____ _____ ❍ Refused ❍ Don't know
5.19	*Interviewer: Enter date based on what you entered on the calendar.* *If need more information say:* **What was the first night you stayed here?** Start Date D D - M M M - Y Y Y Y ❍ Refused ❍ Don't know
5.20	*Interviewer: If current residence select N/A and, **go to 5.21**. Enter date based on what you entered on the calendar.* *If need more information say:* **What was the last night you stayed here?** Stop Date D D - M M M - Y Y Y Y ❍ N/A (Current residence) ❍ Refused ❍ Don't know
5.21	*Interviewer: Does the participant use this place (Residence 3) as a "Split Residence"? Refers to stays where moving to and from this location are not considered true moves because the participant is splitting time between this place and 1 or more other locations. Refer to QxQ.* *If need more information say:* **Do/did you split your time between this residence and another residence?** ❍ Yes ❍ No **(Skip to 5.22)** ❍ Refused **(Skip to 5.22)** ❍ Don't know **(Skip to 5.22)**

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

5.21a	*Interviewer: Record answer if answered, "Yes" to 5.21. Otherwise,* ***skip to 5.22.*** *How many times has the participant moved into Residence 3 over the measurement period? Remember that the measurement period is past 3 months (if baseline)/since the last interview date (if follow-up).* # of times | # | # | # | Comments: _____ _____ ❍ Refused ❍ Don't know
5.21b	*Interviewer: Record answer if answered, "Yes" to 5.21. Otherwise,* ***go to 5.22.*** *How many nights has the participant lived at Residence 3 over the measurement period? Remember that the measurement period is past 3 months (if baseline)/since the last interview date (if follow-up).* # of nights | # | # | # | Comments: _____ _____ ❍ Refused ❍ Don't know
5.22	**Are/were you sharing a living space with anyone while staying here?** ❍ Alone **(Skip to Residence 4)** ❍ Shared ❍ Refused **(Skip to Residence 4)** ❍ Don't know **(Skip to Residence 4)**
5.22a	*Interviewer: Ask if answered, "Shared" to 5.22. Otherwise,* ***go to Residence 4.*** **If yes, how many people are/were you sharing your living space with?** # of people | # | # | # | ❍ Refused ❍ Don't know

Residence 4

Interviewer: Select the most appropriate option below to continue.

- ❍ *Record another residence* ***(Go to 5.23)***
- ❍ *No other residences to record* ***(Skip to end of instrument)***

5.23	**What's the name of the place you are/were staying at?** *Interviewer: Record description according to what they tell you, prompt if necessary to get as specific as possible.* _____ _____ ❍ Refused ❍ Don't know
5.24	*Interviewer: Enter residence type code based on what you entered on the calendar. If code "A" (i.e. Homeless shelter),* ***go to 5.24a****. If code "B" (i.e. Physical Distancing Hotel),* ***go to 5.24b****. Otherwise,* ***skip to 5.25****.* *If need more information say:* **Where are/were you staying? What sort of residence is this** *(refer to coding list)***?** Type code | | If other (Please specify) _____ _____ ❍ Refused ❍ Don't know

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

5.24a	*Interviewer: If residence type is code "A" in 5.24, enter the appropriate shelter code based on what you recorded on the calendar then **skip to 5.26**. Otherwise, **go to 5.24b** if residence type is code "B" or, **go to 5.25** for all other residence types.* *If need more information say:* **Which shelter are/were you staying at** *(refer to coding list)***?** Shelter code ____ If other (Please specify) ____ ❍ Refused ❍ Don't know
5.24b	*Interviewer: If residence type is code "B" in 5.24, enter the appropriate hotel code based on what you recorded on the calendar then **skip to 5.26**. Otherwise, **go to 5.25**.* *If need more information say:* **Which physical distancing hotel are/were you staying at** *(refer to coding list)***?** Hotel code ____ If other (Please specify) ____ ❍ Refused ❍ Don't know
5.25	*Interviewer: If residence type is code "A" or "B" (unless "Other" option is selected) in 5.24, **skip to 5.26**. Otherwise, ask:* **What is/was the address of the residence?** ____ ❍ Refused ❍ Don't know
5.25a	**Do you know the closest major intersection?** *Interviewer: If outside of Toronto, indicate the city.* ____ ❍ Refused ❍ Don't know
5.25b	**Do you know the neighbourhood where the site/building is located?** ____ ❍ Refused ❍ Don't know
5.26	*Interviewer: Enter date based on what you entered on the calendar.* *If need more information say:* **What was the first night you stayed here?** Start Date D D - M M M - Y Y Y Y ❍ Refused ❍ Don't know
5.27	*Interviewer: If current residence select N/A and, **go to 5.28**. Enter date based on what you entered on the calendar.* *If need more information say:* **What was the last night you stayed here?** Stop Date D D - M M M - Y Y Y Y ❍ N/A (Current residence) ❍ Refused ❍ Don't know

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

5.28	*Interviewer: Does the participant use this place (Residence 4) as a "Split Residence"? Refers to stays where moving to and from this location are not considered true moves because the participant is splitting time between this place and 1 or more other locations. Refer to QxQ.* *If need more information say:* **Do/did you split your time between this residence and another residence?** ❍ Yes ❍ No **(Skip to 5.29)** ❍ Refused **(Skip to 5.29)** ❍ Don't know **(Skip to 5.29)**
5.28a	*Interviewer: Record answer if answered, "Yes" to 5.28. Otherwise,* ***skip to 5.29.*** *How many times has the participant moved into Residence 4 over the measurement period? Remember that the measurement period is past 3 months (if baseline)/since the last interview date (if follow-up).* # of times # # # Comments: _____ ❍ Refused ❍ Don't know
5.28b	*Interviewer: Record answer if answered, "Yes" to 5.28. Otherwise,* ***go to 5.29.*** *How many nights has the participant lived at Residence 4 over the measurement period? Remember that the measurement period is past 3 months (if baseline)/since the last interview date (if follow-up).* # of nights # # # Comments: _____ ❍ Refused ❍ Don't know
5.29	**Are/were you sharing a living space with anyone while staying here?** ❍ Alone **(Skip to Residence 5)** ❍ Shared ❍ Refused **(Skip to Residence 5)** ❍ Don't know **(Skip to Residence 5)**
5.29a	*Interviewer: Ask if answered, "Shared" to 5.29. Otherwise,* ***go to Residence 5.*** **If yes, how many people are/were you sharing your living space with?** # of people # # # ❍ Refused ❍ Don't know

Residence 5

Interviewer: Select the most appropriate option below to continue.

- ❍ *Record another residence* ***(Go to 5.30)***
- ❍ *No other residences to record* ***(Skip to end of instrument)***

5.30	**What's the name of the place you are/were staying at?** *Interviewer: Record description according to what they tell you, prompt if necessary to get as specific as possible.* _____ _____ ❍ Refused ❍ Don't know

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

5.31	*Interviewer: Enter residence type code based on what you entered on the calendar. If code "A" (i.e. Homeless shelter),* ***go to 5.31a****. If code "B" (i.e. Physical Distancing Hotel),* ***go to 5.31b****. Otherwise,* ***skip to 5.32****.* *If need more information say:* **Where are/were you staying? What sort of residence is this** *(refer to coding list)***?** If other (Please specify) _____ Type code [ ] _____ ❍ Refused ❍ Don't know
5.31a	*Interviewer: If residence type is code "A" in 5.31, enter the appropriate shelter code based on what you recorded on the calendar then* ***skip to 5.33****. Otherwise,* ***go to 5.31b*** *if residence type is code "B" or,* ***go to 5.32*** *for all other residence types.* *If need more information say:* **Which shelter are/were you staying at** *(refer to coding list)***?** If other (Please specify) _____ Shelter code [ ][ ] _____ ❍ Refused ❍ Don't know
5.31b	*Interviewer: If residence type is code "B" in 5.31, enter the appropriate hotel code based on what you recorded on the calendar then* ***skip to 5.33****. Otherwise,* ***go to 5.32****.* *If need more information say:* **Which physical distancing hotel are/were you staying at** *(refer to coding list)***?** If other (Please specify) _____ Hotel code [ ][ ] _____ ❍ Refused ❍ Don't know
5.32	*Interviewer: If residence type is code "A" or "B" (unless "Other" option is selected) in 5.31,* ***skip to 5.33****. Otherwise, ask:* **What is/was the address of the residence?** _____ _____ ❍ Refused ❍ Don't know
5.32a	**Do you know the closest major intersection?** *Interviewer: If outside of Toronto, indicate the city.* _____ _____ ❍ Refused ❍ Don't know
5.32b	**Do you know the neighbourhood where the site/building is located?** _____ _____ ❍ Refused ❍ Don't know
5.33	*Interviewer: Enter date based on what you entered on the calendar.* *If need more information say:* **What was the first night you stayed here?** Start Date [D][D][-][M][M][M][-][Y][Y][Y][Y] ❍ Refused ❍ Don't know

5.34	*Interviewer: If current residence select N/A and,* ***go to 5.35****. Enter date based on what you entered on the calendar.* *If need more information say:* **What was the last night you stayed here?** Stop Date | D | D | - | M | M | M | - | Y | Y | Y | Y | ❍ N/A (Current residence) ❍ Refused ❍ Don't know
5.35	*Interviewer: Does the participant use this place (Residence 5) as a "Split Residence"? Refers to stays where moving to and from this location are not considered true moves because the participant is splitting time between this place and 1 or more other locations. Refer to QxQ.* *If need more information say:* **Do/did you split your time between this residence and another residence?** ❍ Yes ❍ No **(Skip to 5.36)** ❍ Refused **(Skip to 5.36)** ❍ Don't know **(Skip to 5.36)**
5.35a	*Interviewer: Record answer if answered, "Yes" to 5.35. Otherwise,* ***skip to 5.36.*** *How many times has the participant moved into Residence 5 over the measurement period? Remember that the measurement period is past 3 months (if baseline)/since the last interview date (if follow-up).* # of times | # | # | # | Comments: ❍ Refused ❍ Don't know
5.35b	*Interviewer: Record answer if answered, "Yes" to 5.35. Otherwise,* ***go to 5.36.*** *How many nights has the participant lived at Residence 5 over the measurement period? Remember that the measurement period is past 3 months (if baseline)/since the last interview date (if follow-up).* # of nights | # | # | # | Comments: ❍ Refused ❍ Don't know
5.36	**Are/were you sharing a living space with anyone while staying here?** ❍ Alone **(Skip to Residence 6)** ❍ Shared ❍ Refused **(Skip to Residence 6)** ❍ Don't know **(Skip to Residence 6)**
5.36a	*Interviewer: Ask if answered, "Shared" to 5.36. Otherwise,* ***go to Residence 6.*** **If yes, how many people are/were you sharing your living space with?** # of people | # | # | # | ❍ Refused ❍ Don't know

Residence 6

Interviewer: Select the most appropriate option below to continue.

- ❍ *Record another residence* ***(Go to 5.37)***
- ❍ *No other residences to record* ***(Skip to end of instrument)***

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

5.37	**What's the name of the place you are/were staying at?** *Interviewer: Record description according to what they tell you, prompt if necessary to get as specific as possible.* _____ ❍ Refused _____ ❍ Don't know
5.38	*Interviewer: Enter residence type code based on what you entered on the calendar. If code "A" (i.e. Homeless shelter),* ***go to 5.38a****. If code "B" (i.e. Physical Distancing Hotel),* ***go to 5.38b****. Otherwise,* ***skip to 5.39****.* *If need more information say:* **Where are/were you staying? What sort of residence is this** *(refer to coding list)***?** If other (Please specify) ❍ Refused Type code ___ _____ ❍ Don't know
5.38a	*Interviewer: If residence type is code "A" in 5.38, enter the appropriate shelter code based on what you recorded on the calendar then* ***skip to 5.40****. Otherwise,* ***go to 5.38b*** *if residence type is code "B" or,* ***go to 5.39*** *for all other residence types.* *If need more information say:* **Which shelter are/were you staying at** *(refer to coding list)***?** If other (Please specify) ❍ Refused Shelter code __ __ _____ ❍ Don't know
5.38b	*Interviewer: If residence type is code "B" in 5.38, enter the appropriate hotel code based on what you recorded on the calendar then* ***skip to 5.40****. Otherwise,* ***go to 5.39****.* *If need more information say:* **Which physical distancing hotel are/were you staying at** *(refer to coding list)***?** If other (Please specify) ❍ Refused Hotel code __ __ _____ ❍ Don't know
5.39	*Interviewer: If residence type is code "A" or "B" (unless "Other" option is selected) in 5.38,* ***skip to 5.40****. Otherwise, ask:* **What is/was the address of the residence?** _____ ❍ Refused _____ ❍ Don't know
5.39a	**Do you know the closest major intersection?** *Interviewer: If outside of Toronto, indicate the city.* _____ ❍ Refused _____ ❍ Don't know

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

5.39b	**Do you know the neighbourhood where the site/building is located?** _____ _____ ❍ Refused ❍ Don't know
5.40	*Interviewer: Enter date based on what you entered on the calendar.* *If need more information say:* **What was the first night you stayed here?** Start Date D D - M M M - Y Y Y Y ❍ Refused ❍ Don't know
5.41	*Interviewer: If current residence select N/A and, **go to 5.42**. Enter date based on what you entered on the calendar.* *If need more information say:* **What was the last night you stayed here?** Stop Date D D - M M M - Y Y Y Y ❍ N/A (Current residence) ❍ Refused ❍ Don't know
5.42	*Interviewer: Does the participant use this place (Residence 6) as a "Split Residence"? Refers to stays where moving to and from this location are not considered true moves because the participant is splitting time between this place and 1 or more other locations. Refer to QxQ.* *If need more information say:* **Do/did you split your time between this residence and another residence?** ❍ Yes ❍ No **(Skip to 5.43)** ❍ Refused **(Skip to 5.43)** ❍ Don't know **(Skip to 5.43)**
5.42a	*Interviewer: Record answer if answered, "Yes" to 5.42. Otherwise, **skip to 5.43.*** *How many times has the participant moved into Residence 6 over the measurement period? Remember that the measurement period is past 3 months (if baseline)/since the last interview date (if follow-up).* # of times # # # Comments: _____ ❍ Refused ❍ Don't know
5.42b	*Interviewer: Record answer if answered, "Yes" to 5.42. Otherwise, **go to 5.43.*** *How many nights has the participant lived at Residence 6 over the measurement period? Remember that the measurement period is past 3 months (if baseline)/since the last interview date (if follow-up).* # of nights # # # Comments: _____ ❍ Refused ❍ Don't know
5.43	**Are/were you sharing a living space with anyone while staying here?** ❍ Alone **(Skip to Residence 7)** ❍ Shared ❍ Refused **(Skip to Residence 7)** ❍ Don't know **(Skip to Residence 7)**
5.43a	*Interviewer: Ask if answered, "Shared" to 5.43. Otherwise, **go to Residence 7.*** **If yes, how many people are/were you sharing your living space with?** # of people # # # ❍ Refused ❍ Don't know

Residence 7

Interviewer: Select the most appropriate option below to continue.

- ❍ *Record another residence* ***(Go to 5.44)***
- ❍ *No other residences to record* ***(Skip to end of instrument)***

5.44	**What's the name of the place you are/were staying at?** *Interviewer: Record description according to what they tell you, prompt if necessary to get as specific as possible.* _____ _____ ❍ Refused ❍ Don't know
5.45	*Interviewer: Enter residence type code based on what you entered on the calendar. If code "A" (i.e. Homeless shelter),* ***go to 5.45a****. If code "B" (i.e. Physical Distancing Hotel),* ***go to 5.45b****. Otherwise,* ***skip to 5.46****.* *If need more information say:* **Where are/were you staying? What sort of residence is this** *(refer to coding list)***?** If other (Please specify) _____ Type code ___ _____ ❍ Refused ❍ Don't know
5.45a	*Interviewer: If residence type is code "A" in 5.45, enter the appropriate shelter code based on what you recorded on the calendar then* ***skip to 5.47****. Otherwise,* ***go to 5.45b*** *if residence type is code "B" or,* ***go to 5.46*** *for all other residence types.* *If need more information say:* **Which shelter are/were you staying at** *(refer to coding list)***?** If other (Please specify) _____ Shelter code ____ _____ ❍ Refused ❍ Don't know
5.45b	*Interviewer: If residence type is code "B" in 5.45, enter the appropriate hotel code based on what you recorded on the calendar then* ***skip to 5.47****. Otherwise,* ***go to 5.46****.* *If need more information say:* **Which physical distancing hotel are/were you staying at** *(refer to coding list)***?** If other (Please specify) _____ Hotel code ____ _____ ❍ Refused ❍ Don't know
5.46	*Interviewer: If residence type is code "A" or "B" (unless "Other" option is selected) in 5.45,* ***skip to 5.47****. Otherwise, ask:* **What is/was the address of the residence?** _____ _____ ❍ Refused ❍ Don't know

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

5.46a	**Do you know the closest major intersection?** *Interviewer: If outside of Toronto, indicate the city.* _____ _____ ❍ Refused ❍ Don't know
5.46b	**Do you know the neighbourhood where the site/building is located?** _____ _____ ❍ Refused ❍ Don't know
5.47	*Interviewer: Enter date based on what you entered on the calendar.* *If need more information say:* **What was the first night you stayed here?** Start Date | D | D | - | M | M | M | - | Y | Y | Y | Y | ❍ Refused ❍ Don't know
5.48	*Interviewer: If current residence select N/A and, **go to 5.49**. Enter date based on what you entered on the calendar.* *If need more information say:* **What was the last night you stayed here?** Stop Date | D | D | - | M | M | M | - | Y | Y | Y | Y | ❍ N/A (Current residence) ❍ Refused ❍ Don't know
5.49	*Interviewer: Does the participant use this place (Residence 7) as a "Split Residence"? Refers to stays where moving to and from this location are not considered true moves because the participant is splitting time between this place and 1 or more other locations. Refer to QxQ.* *If need more information say:* **Do/did you split your time between this residence and another residence?** ❍ Yes ❍ No **(Skip to 5.50)** ❍ Refused **(Skip to 5.50)** ❍ Don't know **(Skip to 5.50)**
5.49a	*Interviewer: Record answer if answered, "Yes" to 5.49. Otherwise, **skip to 5.50.*** *How many times has the participant moved into Residence 7 over the measurement period? Remember that the measurement period is past 3 months (if baseline)/since the last interview date (if follow-up).* # of times | # | # | # | Comments: _____ _____ ❍ Refused ❍ Don't know
5.49b	*Interviewer: Record answer if answered, "Yes" to 5.49. Otherwise, **go to 5.50.*** *How many nights has the participant lived at Residence 7 over the measurement period? Remember that the measurement period is past 3 months (if baseline)/since the last interview date (if follow-up).* # of nights | # | # | # | Comments: _____ _____ ❍ Refused ❍ Don't know

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

5.50	**Are/were you sharing a living space with anyone while staying here?** ❍ Alone **(Skip to Residence 8)** ❍ Shared ❍ Refused **(Skip to Residence 8)** ❍ Don't know **(Skip to Residence 8)**
5.50a	*Interviewer: Ask if answered, "Shared" to 5.50. Otherwise,* ***go to Residence 8.*** **If yes, how many people are/were you sharing your living space with?** # of people | # | # | # | ❍ Refused ❍ Don't know

Residence 8

Interviewer: Select the most appropriate option below to continue.

- ❍ *Record another residence* ***(Go to 5.51)***
- ❍ *No other residences to record* ***(Skip to end of instrument)***

5.51	**What's the name of the place you are/were staying at?** *Interviewer: Record description according to what they tell you, prompt if necessary to get as specific as possible.* _____ ❍ Refused _____ ❍ Don't know
5.52	*Interviewer: Enter residence type code based on what you entered on the calendar. If code "A" (i.e. Homeless shelter),* ***go to 5.52a****. If code "B" (i.e. Physical Distancing Hotel),* ***go to 5.52b****. Otherwise,* ***skip to 5.53****.* *If need more information say:* **Where are/were you staying? What sort of residence is this** *(refer to coding list)***?** If other (Please specify) ❍ Refused ❍ Don't know Type code | | _____ _____
5.52a	*Interviewer: If residence type is code "A" in 5.52, enter the appropriate shelter code based on what you recorded on the calendar then* ***skip to 5.54****. Otherwise,* ***go to 5.52b*** *if residence type is code "B" or,* ***go to 5.53*** *for all other residence types.* *If need more information say:* **Which shelter are/were you staying at** *(refer to coding list)***?** If other (Please specify) ❍ Refused ❍ Don't know Shelter code | | | _____ _____
5.52b	*Interviewer: If residence type is code "B" in 5.52, enter the appropriate hotel code based on what you recorded on the calendar then* ***skip to 5.54****. Otherwise,* ***go to 5.53****.* *If need more information say:* **Which physical distancing hotel are/were you staying at** *(refer to coding list)***?** If other (Please specify) ❍ Refused ❍ Don't know Hotel code | | | _____ _____

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

5.53	*Interviewer: If residence type is code "A" or "B" (unless "Other" option is selected) in 5.52,* ***skip to 5.54****. Otherwise, ask:* **What is/was the address of the residence?** _____ _____ ❍ Refused ❍ Don't know
5.53a	**Do you know the closest major intersection?** *Interviewer: If outside of Toronto, indicate the city.* _____ _____ ❍ Refused ❍ Don't know
5.53b	**Do you know the neighbourhood where the site/building is located?** _____ _____ ❍ Refused ❍ Don't know
5.54	*Interviewer: Enter date based on what you entered on the calendar.* *If need more information say:* **What was the first night you stayed here?** Start Date | D | D | - | M | M | M | - | Y | Y | Y | Y | ❍ Refused ❍ Don't know
5.55	*Interviewer: If current residence select N/A and,* ***go to 5.56****. Enter date based on what you entered on the calendar.* *If need more information say:* **What was the last night you stayed here?** Stop Date | D | D | - | M | M | M | - | Y | Y | Y | Y | ❍ N/A (Current residence) ❍ Refused ❍ Don't know
5.56	*Interviewer: Does the participant use this place (Residence 8) as a "Split Residence"? Refers to stays where moving to and from this location are not considered true moves because the participant is splitting time between this place and 1 or more other locations. Refer to QxQ.* *If need more information say:* **Do/did you split your time between this residence and another residence?** ❍ Yes ❍ No **(Skip to 5.57)** ❍ Refused **(Skip to 5.57)** ❍ Don't know **(Skip to 5.57)**
5.56a	*Interviewer: Record answer if answered, "Yes" to 5.56. Otherwise,* ***skip to 5.57.*** *How many times has the participant moved into Residence 8 over the measurement period? Remember that the measurement period is past 3 months (if baseline)/since the last interview date (if follow-up).* # of times | # | # | # Comments: _____ _____ ❍ Refused ❍ Don't know

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

5.56b	*Interviewer: Record answer if answered, "Yes" to 5.56. Otherwise,* ***go to 5.57.*** *How many nights has the participant lived at Residence 8 over the measurement period? Remember that the measurement period is past 3 months (if baseline)/since the last interview date (if follow-up).* # of nights | # | # | # Comments: _____ _____ ❍ Refused ❍ Don't know
5.57	**Are/were you sharing a living space with anyone while staying here?** ❍ Alone **(Skip to Residence 9)** ❍ Shared ❍ Refused **(Skip to Residence 9)** ❍ Don't know **(Skip to Residence 9)**
5.57a	*Interviewer: Ask if answered, "Shared" to 5.57. Otherwise,* ***go to Residence 9.*** **If yes, how many people are/were you sharing your living space with?** # of people | # | # | # ❍ Refused ❍ Don't know

Residence 9

Interviewer: Select the most appropriate option below to continue.

- ❍ *Record another residence* ***(Go to 5.58)***
- ❍ *No other residences to record* ***(Skip to end of instrument)***

5.58	**What's the name of the place you are/were staying at?** *Interviewer: Record description according to what they tell you, prompt if necessary to get as specific as possible.* _____ _____ ❍ Refused ❍ Don't know
5.59	*Interviewer: Enter residence type code based on what you entered on the calendar. If code "A" (i.e. Homeless shelter),* ***go to 5.59a****. If code "B" (i.e. Physical Distancing Hotel),* ***go to 5.59b****. Otherwise,* ***skip to 5.60****.* *If need more information say:* **Where are/were you staying? What sort of residence is this** *(refer to coding list)***?** Type code |_| If other (Please specify) _____ _____ ❍ Refused ❍ Don't know
5.59a	*Interviewer: If residence type is code "A" in 5.59, enter the appropriate shelter code based on what you recorded on the calendar then* ***skip to 5.61****. Otherwise,* ***go to 5.59b*** *if residence type is code "B" or,* ***go to 5.60*** *for all other residence types.* *If need more information say:* **Which shelter are/were you staying at** *(refer to coding list)***?** Shelter code |_|_| If other (Please specify) _____ _____ ❍ Refused ❍ Don't know

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

5.59b	*Interviewer: If residence type is code "B" in 5.59, enter the appropriate hotel code based on what you recorded on the calendar then **skip to 5.61**. Otherwise, **go to 5.60**.* *If need more information say:* **Which physical distancing hotel are/were you staying at** *(refer to coding list)***?** If other (Please specify) _____ Hotel code [ ][ ] _____ ❍ Refused ❍ Don't know
5.60	*Interviewer: If residence type is code "A" or "B" (unless "Other" option is selected) in 5.59, **skip to 5.61**. Otherwise, ask:* **What is/was the address of the residence?** _____ _____ ❍ Refused ❍ Don't know
5.60a	**Do you know the closest major intersection?** *Interviewer: If outside of Toronto, indicate the city.* _____ _____ ❍ Refused ❍ Don't know
5.60b	**Do you know the neighbourhood where the site/building is located?** _____ _____ ❍ Refused ❍ Don't know
5.61	*Interviewer: Enter date based on what you entered on the calendar.* *If need more information say:* **What was the first night you stayed here?** Start Date D D - M M M - Y Y Y Y ❍ Refused ❍ Don't know
5.62	*Interviewer: If current residence select N/A and, **go to 5.63**. Enter date based on what you entered on the calendar.* *If need more information say:* **What was the last night you stayed here?** Stop Date D D - M M M - Y Y Y Y ❍ N/A (Current residence) ❍ Refused ❍ Don't know
5.63	*Interviewer: Does the participant use this place (Residence 9) as a "Split Residence"? Refers to stays where moving to and from this location are not considered true moves because the participant is splitting time between this place and 1 or more other locations. Refer to QxQ.* *If need more information say:* **Do/did you split your time between this residence and another residence?** ❍ Yes ❍ No **(Skip to 5.64)** ❍ Refused **(Skip to 5.64)** ❍ Don't know **(Skip to 5.64)**

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

5.63a	*Interviewer: Record answer if answered, "Yes" to 5.63. Otherwise,* ***skip to 5.64.*** *How many times has the participant moved into Residence 9 over the measurement period? Remember that the measurement period is past 3 months (if baseline)/since the last interview date (if follow-up).* # of times | # | # | # | Comments: _____ ❍ Refused ❍ Don't know
5.63b	*Interviewer: Record answer if answered, "Yes" to 5.63. Otherwise,* ***go to 5.64.*** *How many nights has the participant lived at Residence 9 over the measurement period? Remember that the measurement period is past 3 months (if baseline)/since the last interview date (if follow-up).* # of nights | # | # | # | Comments: _____ ❍ Refused ❍ Don't know
5.64	**Are/were you sharing a living space with anyone while staying here?** ❍ Alone **(Skip to Residence 10)** ❍ Shared ❍ Refused **(Skip to Residence 10)** ❍ Don't know **(Skip to Residence 10)**
5.64a	*Interviewer: Ask if answered, "Shared" to 5.64. Otherwise,* ***go to Residence 10.*** **If yes, how many people are/were you sharing your living space with?** # of people | # | # | # | ❍ Refused ❍ Don't know

Residence 10

Interviewer: Select the most appropriate option below to continue.

- ❍ *Record another residence* ***(Go to 5.65)***
- ❍ *No other residences to record* ***(Skip to end of instrument)***

5.65	**What's the name of the place you are/were staying at?** *Interviewer: Record description according to what they tell you, prompt if necessary to get as specific as possible.* _____ ❍ Refused ❍ Don't know
5.66	*Interviewer: Enter residence type code based on what you entered on the calendar. If code "A" (i.e. Homeless shelter),* ***go to 5.66a****. If code "B" (i.e. Physical Distancing Hotel),* ***go to 5.66b****. Otherwise,* ***skip to 5.67****.* *If need more information say:* **Where are/were you staying? What sort of residence is this** *(refer to coding list)***?** Type code | | If other (Please specify) _____ ❍ Refused ❍ Don't know

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

5.66a	*Interviewer: If residence type is code "A" in 5.66, enter the appropriate shelter code based on what you recorded on the calendar then **skip to 5.68**. Otherwise, **go to 5.66b** if residence type is code "B" or, **go to 5.67** for all other residence types.* *If need more information say:* **Which shelter are/were you staying at** *(refer to coding list)***?** Shelter code ____ If other (Please specify) _____ ❍ Refused ❍ Don't know
5.66b	*Interviewer: If residence type is code "B" in 5.66, enter the appropriate hotel code based on what you recorded on the calendar then **skip to 5.68**. Otherwise, **go to 5.67**.* *If need more information say:* **Which physical distancing hotel are/were you staying at** *(refer to coding list)***?** Hotel code ____ If other (Please specify) _____ ❍ Refused ❍ Don't know
5.67	*Interviewer: If residence type is code "A" or "B" (unless "Other" option is selected) in 5.66, **skip to 5.68**. Otherwise, ask:* **What is/was the address of the residence?** _____ ❍ Refused ❍ Don't know
5.67a	**Do you know the closest major intersection?** *Interviewer: If outside of Toronto, indicate the city.* _____ ❍ Refused ❍ Don't know
5.67b	**Do you know the neighbourhood where the site/building is located?** _____ ❍ Refused ❍ Don't know
5.68	*Interviewer: Enter date based on what you entered on the calendar.* *If need more information say:* **What was the first night you stayed here?** Start Date D D - M M M - Y Y Y Y ❍ Refused ❍ Don't know
5.69	*Interviewer: If current residence select N/A and, **go to 5.70**. Enter date based on what you entered on the calendar.* *If need more information say:* **What was the last night you stayed here?** Stop Date D D - M M M - Y Y Y Y ❍ N/A (Current residence) ❍ Refused ❍ Don't know

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

5.70	*Interviewer: Does the participant use this place (Residence 10) as a "Split Residence"? Refers to stays where moving to and from this location are not considered true moves because the participant is splitting time between this place and 1 or more other locations. Refer to QxQ.* *If need more information say:* **Do/did you split your time between this residence and another residence?** ❍ Yes ❍ No **(Skip to 5.71)** ❍ Refused **(Skip to 5.71)** ❍ Don't know **(Skip to 5.71)**
5.70a	*Interviewer: Record answer if answered, "Yes" to 5.70. Otherwise,* ***skip to 5.71.*** *How many times has the participant moved into Residence 10 over the measurement period? Remember that the measurement period is past 3 months (if baseline)/since the last interview date (if follow-up).* # of times # # # Comments: _____ ❍ Refused ❍ Don't know
5.70b	*Interviewer: Record answer if answered, "Yes" to 5.70. Otherwise,* ***go to 5.71.*** *How many nights has the participant lived at Residence 10 over the measurement period? Remember that the measurement period is past 3 months (if baseline)/since the last interview date (if follow-up).* # of nights # # # Comments: _____ ❍ Refused ❍ Don't know
5.71	**Are/were you sharing a living space with anyone while staying here?** ❍ Alone **(Skip to end of instrument)** ❍ Shared ❍ Refused **(Skip to end of instrument)** ❍ Don't know **(Skip to end of instrument)**
5.71a	*Interviewer: Ask if answered, "Shared" to 5.71. Otherwise,* ***go to end of instrument.*** **If yes, how many people are/were you sharing your living space with?** # of people # # # ❍ Refused ❍ Don't know

Thank you for answering all of our questions. We will now collect the blood and saliva samples.

END OF SURVEY INSTRUMENT

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

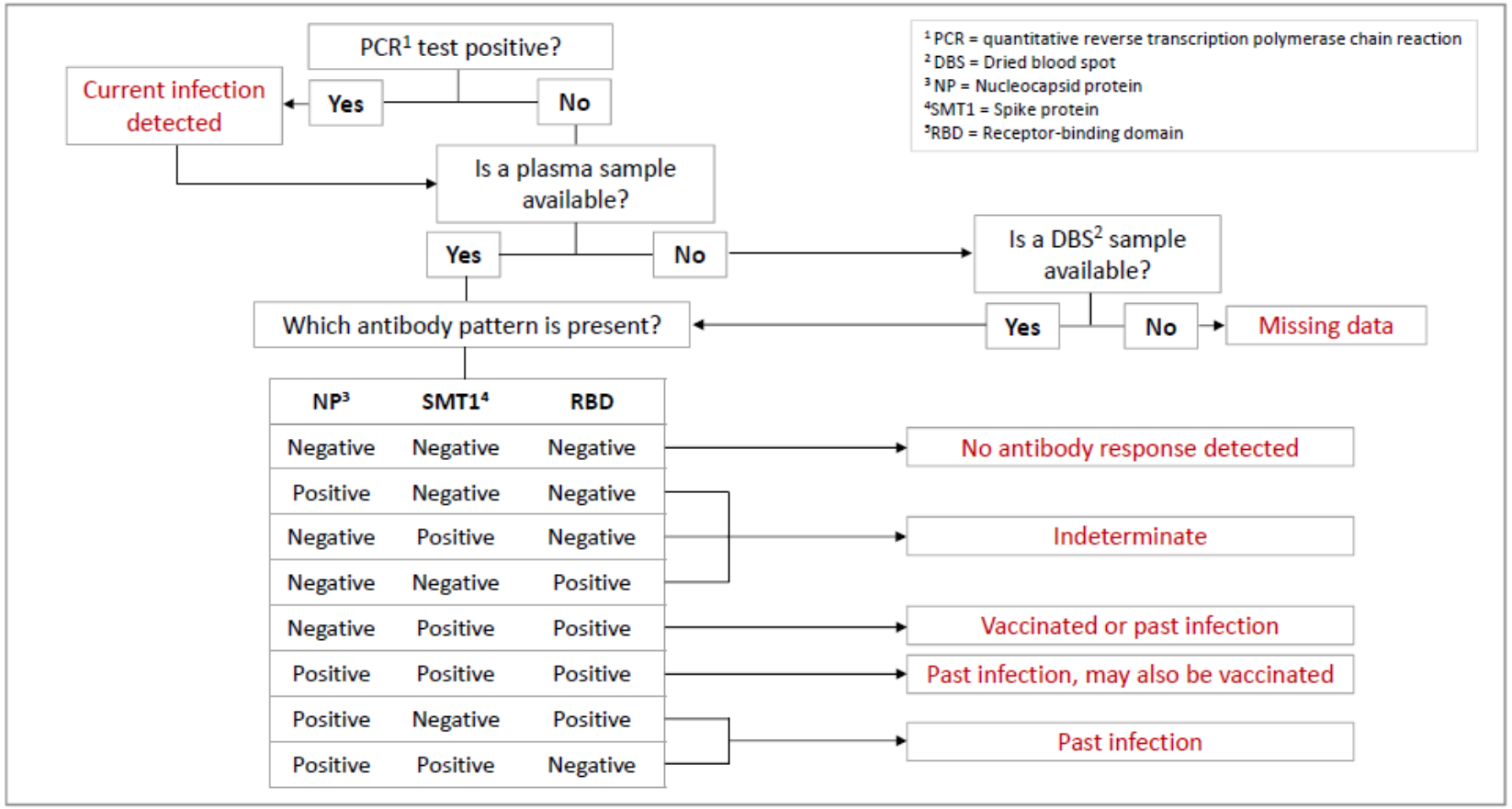
Supplement 4: Adjudication of serological and self-report data into past infection and vaccination status

Our serologic assays detect total IgG antibodies against three SARS-CoV-2 antigens: Nucleocapsid (NP), Spike protein (SMT1) and Receptor-binding domain (RBD). Antibodies against NP indicate past infection, whereas antibodies against SMT1 and RBD indicate immunization and/or past infection.

For each sample, raw values of IgG antibody levels were normalized to a reference point on a standard curve run on the same assay plate. The thresholds for positivity were set at 3 standard deviations below the mean of a log distribution of negative control samples. Sensitivity and specificity at these thresholds were determined by applying a confusion matrix to a set of 560 negative control samples (obtained prior to the advent of COVID-19) and 392 positive controls samples obtained from PCR-confirmed cases at least 2 weeks after symptom onset. Sensitivity and specificity were 0.99 and 0.79, respectively, for antibodies against NP; 0.99 and 0.97 for antibodies against SMT1; and 1.0 and 0.89 for antibodies against RBD.

Because our samples are collected during a period when both infections and vaccinations occur, we followed the decision tree in Step 1 to summarize serological results, and the decision matrix in Step 2 to combine serologic results and self-report data to assign infection status and vaccination status for each participant.

Step 1 - Decision tree to summarize serological data results



Step 2 – Decision matrix to combine serological results and self-report data to assign <u>past infection and vaccination status</u>

Serological results (See Step 1)	Self-reported Infection history[1]	Self-reported Vaccination History[2]	Final infection status	Final vaccination status
No antibody response	No positive test[3]	Zero doses	No past infection	No past vaccination
No antibody response	No positive test	1+ doses	No past infection	Past vaccination
No antibody response	Positive test	Zero doses	Past infection	No past vaccination
No antibody response	Positive test	1+ doses	Past infection	Past vaccination
Indeterminate	No positive test	Zero doses	No past infection	No past vaccination
Indeterminate	No positive test	1+ doses	No past infection	Past vaccination
Indeterminate	Positive test	Zero doses	Past infection	No past vaccination
Indeterminate	Positive test	1+ doses	Past infection	Past vaccination
Vaccinated or past infection	No positive test	Zero doses	Past infection	No past vaccination
Vaccinated or past infection	No positive test	1+ doses	No past infection	Past vaccination
Vaccinated or past infection	Positive test	Zero doses	Past infection	No past vaccination
Vaccinated or past infection	Positive test	1+ doses	Past infection	Past vaccination
Past infection, may also be vaccinated	No positive test	Zero doses	Past infection	No past vaccination
Past infection, may also be vaccinated	No positive test	1+ doses	Past infection	Past vaccination
Past infection, may also be vaccinated	Positive test	Zero doses	Past infection	No past vaccination
Past infection, may also be vaccinated	Positive test	1+ doses	Past infection	Past vaccination
Past infection	No positive test	Zero doses	Past infection	No past vaccination
Past infection	No positive test	1+ doses	Past infection	Past vaccination
Past infection	Positive test	Zero doses	Past infection	No past vaccination
Past infection	Positive test	1+ doses	Past infection	Past vaccination
Missing data	Any response	Any response	Missing	Missing

[1] All records linked at ICES will be cross-referenced against testing events in the OLIS database.

[2] All records linked at ICES will be cross-referenced against vaccination events recorded in the COVAXON database.

[3] 'No positive test' includes those who: were never tested; do not recall whether they were tested; were tested and received only negative results; or were tested but did not know their test result

Letter of Information and Consent to Participate in a Research Study

Title of Research Study:

The COVENANT Study: COVID-19 Cohort Study of People Experiencing Homelessness in Toronto

Principal Investigator **Dr. Stephen Hwang**
MAP Centre for Urban Health Solutions, St. Michael's Hospital
Tel: 416-864-5991

Study Coordinator **Olivia Spandier**
MAP Centre for Urban Health Solutions
St. Michael's Hospital, 209 Victoria Street, Toronto, M5B 1W8
Tel: 416-864-6060 x77440

Research Manager **Ruby Sniderman**
MAP Centre for Urban Health Solutions
St. Michael's Hospital, 209 Victoria Street, Toronto, M5B 1W8
Email: ruby.sniderman@unityhealth.to

Study personnel can be reached from Monday to Friday, 9:00 am – 5:00 pm.

Funding

This study is funded by the COVID-19 Immunity Task Force (CITF). The investigators have no conflicts of interest to disclose.

Introduction

You are being asked to consider taking part in a research study because you are currently experiencing homelessness. Before agreeing to take part in this research study, it is important that you read the information in this research consent form. It includes details we think you need to know in order to decide if you wish to take part in the study. If you have any questions after you read through this form, please ask the research team. You should not sign this form until you are sure you understand all the information on the form. Participation in this study is voluntary.

Purpose of the Research

The purpose of this study is to collect information on COVID-19 among people experiencing homelessness. Homelessness puts people at high risk during the COVID-19 pandemic. This study will provide important information on the spread of COVID-19 in the homeless population. This information may help support the health of people experiencing homelessness during the pandemic.

For this study, we will be recruiting 700 study participants from shelters, hotel programs and homeless encampments in Toronto, and then following-up with participants every 3 months for one year.

Description of the Research Activities

If you consent to participate in the study, you will be asked to participate in a total of 5 interviews: one interview today and then one interview every 3 months for the next year. We will ask you questions such as demographics, housing history, and questions about your thoughts and experiences with the COVID-19 vaccine. At the time of each interview you will also be asked to provide a saliva sample, where you will swish and gargle a solution for a period of time then spit into a cup, and a finger-prick blood sample (where we take a few drops of blood from your finger). At the interview today, you will also be asked to provide a second saliva sample by chewing on a swab. (Please note that using saliva samples to test for COVID-19 is not the standard method in Ontario. If you receive a positive test result, you will be asked to have a nasopharyngeal (NP) swab test to confirm the results.) The saliva and blood samples will be sent to research labs at Mt. Sinai Hospital and The University of Toronto, where scientists in the lab will test the saliva to see whether you currently have the COVID-19 virus, and will test the blood sample to see if you have antibodies to COVID-19, which would indicate if you have had COVID-19 in the past. These antibodies are substances that the body makes in response to infection with COVID-19. Please note, having antibodies does not necessarily mean you have developed immunity or are resistant to COVID-19. It simply means you were probably exposed to the virus at some point in the past. If you would like to receive the results of your antibody tests at the end of the study, we will call you after your last interview to give you the information. The interviews will take approximately 30-45 minutes to complete.

We also ask that you call a toll-free study number around 1 month before each interview to provide us with any updates to your contact information.

Other Research Activities

In addition to collecting information from you directly, with your permission, we would also like to collect additional information from the sources listed below and explained in detail at the end of this letter. You will be asked to consent specifically to each of these and may opt out if desired.

1) Health-related information from ICES
2) Shelter use information from the City of Toronto's Shelter Support & Housing Administration Division
3) Contact information of friends, family, and service providers
4) Permission to contact you for related research studies in the future
5) Permission to obtain any positive COVID-19 test swab from the laboratory and look at the COVID-19 virus's genetic fingerprint. We will only be looking at the genetic material of the COVID-19 virus, NOT your DNA.

Your health card number, name, date of birth, and gender/sex listed on government documents will be securely transferred from St. Michael's Hospital to the Institute for Clinical Evaluative Sciences (ICES) to help us gather information about your health, including any health conditions, COVID-19 testing, and hospital use. ICES is an organization where people's health information including health care use in Ontario is stored. The information will be securely

provided to the research team by ICES as coded information only for analysis. Any personal identifiers such as your health card number or name will be removed or replaced with a code that is not known to the research team.

Your name, date of birth, and gender/sex will be securely transferred from St. Michael's Hospital to the Shelter Support & Housing Administration Division to obtain information about your use of shelter programs in Toronto. For example, if you move to stay at a shelter program different from your current location, we will be notified of this information. These data will cover a period of one year before you join the study and will go up to two years after you have joined the study. Your name, date of birth, and gender/sex will also be used to help the research team locate you for upcoming interviews.

If you consent, we will obtain any positive COVID-19 test swabs from the laboratory and look at the COVID-19 virus's genetic fingerprint. Your sample will be transported from the original testing laboratory to the Sinai-UHN laboratory. A technician will extract genetic material from the virus that will be sent for sequencing at a CANCOGEN-partnered sequencing facility. The original sample will be stored for up to 10 years and then destroyed. We will only be looking at the genetic material of the COVID-19 virus, NOT your DNA. This allows us to examine the COVID-19 virus that infected you, test for variants, and track outbreak and infections patterns in different settings. This type of testing is routinely done by public health units to track the COVID-19 virus.

Potential Risks

Some of the interview questions may seem personal and may make you feel uncomfortable or may upset you. If this happens, you do not need to answer any question that you do not wish to, and you can let the interviewer know if you would like to take a break or stop the interview.

The main risk to participants is detection of active COVID-19 infection through study testing. Participants with a positive test will be contacted directly or by shelter staff to be informed of their status and offered temporary shelter, health monitoring, and supports at specially designated recovery shelters operated by the city of Toronto. Your name and results will be shared with the shelter staff for the purpose of notifying you of your results and connecting you to a service operated by the City of Toronto for people experiencing homelessness to recover from COVID-19. Your name and results will also be shared via email and Hypercare with the City of Toronto to facilitate transportation to a recovery site. You will be offered to have a driver meet you at the shelter you are residing at and take you to a COVID testing centre for confirmatory testing. They will then take you to a recovery site for you to stay at while you wait for your test results and/or recover from COVID-19. Given that COVID-19 is a condition of public health significance, positive results will be reported to the Medical Officer of Health (also known as Toronto Public Health), under the Health Protection and Promotion Act. Additionally, the Ontario government has passed a regulation authorizing first responders, such as police, firefighters and paramedics to access an individual's name, address, date of birth and whether the individual has had a positive test for COVID-19. It is unknown how long these regulations will be in place.

Potential Benefits

The main benefit to participants is the opportunity to find out about your COVID-19 status. If you do test positive, our research team will help you obtain referral and transportation to sites for confirmatory testing, temporary shelter, support, and health monitoring.

Protecting Your Health Information

All persons involved in the study are committed to respecting your privacy. No persons other than select members of the research team will have access to your personal health information without your consent, unless required by law. Study personnel will make every effort to keep your personal health information private and confidential in accordance with all applicable privacy legislation, including the Personal Health Information Protection Act (PHIPA) of Ontario.

To maintain your privacy, any personal information is kept separate from your study data and given a code. Your survey responses will not include any personally identifying information. Your survey data will be collected by trained interviewers using tablets and no data is saved on these tablets. Once collected, the data will be securely sent, stored, and kept at St. Michael's Hospital's on a secure computer server. All specimens, including saliva and finger-prick blood samples will be identified with a code. Our understanding of COVID-19 is changing rapidly. To allow for possible future research on COVID-19, all study data and samples will be kept for a period of 10 years following the end of the study and then destroyed.

Despite these protections, there remains a risk of unintentional release of information. However, the Principal Investigator will protect your records and keep your information confidential to the greatest extent possible. The chance that your personal information will be unintentionally released is very small.

Data Sharing with the COVID-19 Immunity Task Force (CITF)

The CITF is a national initiative funded by the Government of Canada to perform research related to COVID-19 immunity. Your study data related to COVID-19 infection status, demographic information, health, experience with COVID-19, activities and behaviors related to COVID-19, and housing history will be shared with the CITF. However, all of your study data will be labelled with a code and not with your personal information. No personally identifying information will be shared with the CITF.

Data provided to the CITF will be stored in the CITF database. The CITF database will be held under the custodianship of McGill University or one of its collaborators and will be shared via the cloud, both nationally and internationally. Data in the CITF database will be stored indefinitely, until it is no longer useful for research, or until an ethics committee decides otherwise. The data in the CITF database might be accessed by other researchers studying COVID-19 following approval by a Data Access Committee. This Committee will ensure that all use of data stored in the CITF database is in full compliance with Canadian law and research ethics.

Email and Text Message Communication

We may contact you by email or text message, if you indicate that you would like to be contacted this way when we collect your contact information. There is no obligation to text or email – you may always contact us by phone. Please note that email and texting may not be secure modes of communicating, since they may be viewed by others and kept indefinitely. For these reasons, we will use email and text messaging to set up appointments, but we will not include personal health information such as your full name, date of birth, or OHIP number in emails and text messages.

There are common risks of using email to communicate including:
• Information travels electronically and is not secure in the way a phone call or regular mail would be.
• If someone sees these messages they may know that you are a participant in this study or see the health information included in the message.
• Emails and text messages may be read or saved by your internet or phone provider (i.e. Rogers, your workplace, "free internet" providers).
• Copies of an email or a text message may continue to exist, even after efforts to delete the email have been made.
• There is always a chance with any unencrypted email or text message, however remote, that it could be intercepted or manipulated.

Please note: YOU MUST NOT USE EMAIL OR TEXT MESSAGES FOR MEDICAL EMERGENCIES. If you require immediate help, call your clinic or care provider, or seek emergency services.

Limits to Confidentiality
Any information that reveals your identity will not be released without your consent, unless required by law. COVID-19 is a reportable disease by law, so positive tests will be reported to Toronto Public Health. If you do have a positive test result, we will work with you, Toronto Public Health, and/or the place you are staying to help you get appropriate care and support. Positive tests are the only piece of data in this study that will be released to Toronto Public Health with your name.

Publication of Study Results
The results of this study may be presented at scientific conferences or published in scientific journals. If you are interested in obtaining the results of the study, you can contact the Principal Investigator or Research Coordinator by phone or email. You will never be personally identified in any publication, report, or presentation that may come from this study.

Potential Costs and Reimbursement
If you agree to participate in the study, you will receive $40 after each sample collection and interview (up to $200 for completing all 5 interviews) to compensate you for your time and help with transportation costs for follow-up interviews. In addition, you will have the opportunity to call the research team one month before each scheduled interview to update your contact information and confirm the timing of your next interview. You will receive $10 for each check-in call (up to $40 for completing all 4 check-ins). This additional $10 will be provided at your next interview.

Participation and Withdrawal
Participation in this study is completely voluntary. Even if you choose to participate, you may change your mind and stop participating in the study at any time without giving a reason. A researcher may ask you if you would like to re-join the study from time to time, but the decision is yours. You are not obligated to re-join the study. If you choose to withdraw from the study, the data and samples collected from you prior to your withdrawal will be retained and used in analyses.

Your decision to participate or not, or to withdraw from the study, will not impact the services you access from St. Michael's Hospital or any other service provider. If anything about the study changes that may impact your desire to participate, it will be communicated to you immediately.

Research Ethics Board Contact

If you have any questions regarding your rights as a research participant, you may contact the Unity Health Toronto Research Ethics Board Office at 416-864-6060 ext. 2557 during business hours (9:00am-5:00pm) Monday to Friday.

The study protocol and consent form have been reviewed by a committee called the Research Ethics Board. The Research Ethics Board is a group of scientists, medical staff, and individuals from other backgrounds (including law and ethics) as well as members from the community. The Board is established to review studies for their scientific and ethical merit. The Board pays special attention to the potential risks and benefits to the participant, as well as the potential benefit to society.

Study Contacts

If you have any questions about this study, contact Olivia Spandier, the study coordinator, at St. Michael's Hospital at 416-864-6060 ext. 77440. You may also contact Dr. Stephen Hwang, the Principal Investigator, at 416-864-5991.

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

Signature Pages: Documentation of Informed Consent
The COVENANT Study: COVID-19 Cohort Study of People Experiencing Homelessness in Toronto

By signing this consent form, I acknowledge that:

- I have received a copy of this letter of information and consent form.
- This research study and the information and samples to be collected from me have been explained to me, and my questions have been answered to my satisfaction.
- I know that I have the right not to participate and the right to withdraw from this study without affecting the services I receive at St. Michael's Hospital or any other service provider.
- The potential risks and benefits of participating in this research study have been explained to me.
- I have been told that I have not waived my legal rights nor released the investigator or involved institutions from their legal and professional responsibilities.
- I know that I may ask, now or in the future, any questions I have about this study.
- I have been told that information about me and my participation in this study will be kept confidential and that no personally identifying information will be disclosed without my permission unless required by law.
- I have been given sufficient time to read the information in this consent form.

I consent to participate in this study.

Participant Name (Print)	Participant Signature	Date

I have explained to the above-named participant the nature and purpose, the potential benefits, and possible risks of participation in this research study. All questions that have been raised about this study have been answered.

Name of Person Obtaining Consent (Print)	Position/Title of Person Obtaining Consent (Print)	Signature of Person Obtaining Consent	Date

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

CONSENT TO THE RELEASE OF INFORMATION FROM ICES

I consent to the research team linking my provincial health card number, my name, gender/sex, and date of birth to Ministry of Health files to obtain information about my health such as healthcare use, health conditions, and COVID-19 testing for the past 10 years and next 5 years.

☐ Yes _____ (initials) ☐ Declined

CONSENT TO THE RELEASE OF INFORMATION FROM THE CITY OF TORONTO

I consent to the transfer of my name, date of birth, and gender/sex to the City of Toronto's Shelter Support & Housing Administration Division in order for them to provide information to the research team about my use of the shelter system in Toronto and to locate and contact me for upcoming interviews.

☐ Yes _____ (initials) ☐ Declined

CONSENT TO THE RELEASE OF INFORMATION BY CONTACT PERSONS

I consent to the research team contacting the individuals I have listed as alternate contacts when attempting to contact me for the purpose of conducting follow-up interviews. This may include contacts at social services agencies I frequent or other people who might know where I am. I authorize these people to release information regarding my up-to-date contact information and location to the research team.

☐ Yes _____ (initials) ☐ Declined

CONSENT TO CONTACT FOR FUTURE RELATED RESEARCH STUDIES

The study team may wish to contact you regarding additional research related to this study. You are under no obligation to participate in additional research if contacted. I give permission for the research team to contact me regarding participation in additional research. Your contact information will be kept on a secure server at St. Michael's Hospital.

☐ Yes _____ (initials) ☐ Declined

CONSENT TO SHARE COVID TEST SAMPLES

If you have had COVID-19 or if you get it in the future, do you give the study team permission to obtain your positive test swab from the laboratory and look at the COVID-19 virus's genetic fingerprint. We will only be looking at the genetic material of the COVID-19 virus, NOT your DNA.

☐ Yes _____ (initials) ☐ Declined

INTEREST IN RECEIVING BLOOD TEST RESULTS AFTER THE STUDY

I would like the research team to contact me by phone to let me know the results of my blood tests after the study has ended.

☐ Yes _____ (initials) ☐ Declined

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

If participant is not able to read independently for any reason:

Declaration of Assistance – Witness to Consent Process

Study Participant's Name (Print): _____

ASSISTANCE DECLARATION AND SIGNATURE:
I have provided assistance during the consent discussion between the potential participant and the person obtaining consent by (please check one):

- ☐ Acting as a witness to the consent discussion
- ☐ Assisting in delivery of consent discussion (reading/oral), including communication of questions and responses
- ☐ Other: _____

I attest that the information was accurately explained, and the participant has freely given consent to participate in the research study.

Name of Person Assisting Consent (Print)	Signature of Person Assisting Consent	Date	Time

Relationship to Study Participant: _____

Contact Information of Person Assisting Consent: _____

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

If participant has limited proficiency in English:

Declaration of Assistance – Interpreter

Study Participant's Name (Print): _____

INTERPRETER DECLARATION AND SIGNATURE:
I am competent in the English language and in the preferred language of the potential participant: _____ (name of language)

I am not involved in the research study or related to the participant. I agree to keep confidential all personally identifying information of the participant. I have faithfully interpreted the consent discussion and provided a sight translation of the written informed consent form as directed by the research staff obtaining consent.

_____	_____	_____	_____
Name of Interpreter (Print)	Signature of Interpreter	Date	Time

Contact Information of Interpreter: _____

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

Additional Consent Measures Checklist

If the study team is uncertain about the potential participant's capacity to consent, this form will be reviewed with the potential participant prior to signing the consent form.

Participant ID: _____

Voluntary Participation	***Check One***
Do you have to participate in this research study?	❑ Clear ❑ Re-Explained
Once you have signed the consent form, do you have to stay in the study until the very end?	❑ Clear ❑ Re-Explained
Risks and Benefits	***Check One***
What are the risks of being in the study?	❑ Clear ❑ Re-Explained
What are the benefits of being in the study?	❑ Clear ❑ Re-Explained
Confidentiality	***Check One***
Will the information you provide to us be kept absolutely confidential?	❑ Clear ❑ Re-Explained
Samples Required	***Check One***
What samples will be required from you?	❑ Clear ❑ Re-Explained
Time Required	***Check One***
How long will you be enrolled in the study?	❑ Clear ❑ Re-Explained
How many interviews will you have to do?	❑ Clear ❑ Re-Explained
What will you need to do during each interview?	❑ Clear ❑ Re-Explained
Reimbursement	***Check One***
Will you be paid for participating in the study?	❑ Clear ❑ Re-Explained
COVID-19 Testing	***Check One***
What happens if you test positive for COVID-19?	❑ Clear ❑ Re-Explained
Questions	***Check One***
If you have questions about the study, who should you ask?	❑ Clear ❑ Re-Explained

CONSENT STATEMENT

I have administered the above additional consent measures to ensure that the potential participant understands the nature and purpose, the potential benefits, and possible risks associated with participation in this research study. I have answered all questions that have been raised.

X_____ _____ _____

Signature of Study Person Explaining Study | Name (Printed) | Date

COVENANT: COVID-19 Cohort Study of People Experiencing Homelessness in Toronto

SURVEY INSTRUMENT

Collected every 3 months

Face-to-Face Survey Administered by

MAP Survey Research Unit

St. Michael's Hospital

Principal Investigator

Dr. Stephen Hwang

Version

January 14, 2022

INSTRUCTIONS FOR INTERVIEWERS

Always read the instructions for the paper and web survey **carefully** as they may differ. You will find several symbols, reminders, and skip patterns throughout the survey. They appear in the survey as seen below:

1	*"Interviewer:"* or any *italicized* words are meant to be instructions for the interviewer and are not to be read aloud.
2	**Bolded texts** are the questions that are to be read aloud to participants. The only exceptions are grid style questions.
3	**(Go to 8.1)/→** If 18yrs/older: **Skip to 1.2.**: This shows a skip pattern in the question(s). Pay attention to *instructions* for interviewers as they may contain instructions for skip patterns.
4	If you see (round brackets) within question text, this can be used as a probe. For example: "**Have you received the flu shot this fall or winter (October 2020 or later)?"** Note that it may appear bolded/not bolded depending on whether the question is within a grid or not.
5	Underlined words are intended to a) be emphasized in the question. This could be related to a time period, descriptor, etc., or b) point out important instructions for the interviewer.
6	***[Bolded, italicized text in rectangle brackets]*:** This is an instruction for the interviewer to insert information to be said to the participant (e.g. a date).
7	Response boxes: ❑ - Used for "check all that apply" questions. ❍ - Used for single response questions.
8	Please use a "✓" or fill in the ❑ or ❍ next to the response options for close ended questions.
9	Writing qualitative, open-ended answers: You will notice a solid line that will instruct you to document qualitative text. Please make sure your printing is clearly legible.
10	Dates should be recorded as follows: e.g. 01-Aug-2020.
11	-1 (Not applicable); -2 (Refused); -3 (Don't know): Do not present these as options for respondents. Only use if the closest response to the question is not possible. Please note that N/A (Not applicable) should only be selected if the question does not apply to the respondent.
12	Section titles (e.g. **SECTION 1 – CONTACT INFORMATION**) are NOT to be read aloud to respondents. 'Bridging' sentences are provided as appropriate at the beginning of each new section or set of questions to introduce the section to respondents. **Subheadings** are bolded and underlined and, sub-subheadings are underlined.

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

Table of Contents

Section	Instrument	Page
1	Demographic Information	4
2	Health	6
3	Experience With COVID-19	8
4	Activities And Behaviours Related To COVID-19	22
5	Housing History	23

COVENANT Study

Interview ID | # | # | # | # | - | # | # |

Interview Date | D | D | - | M | M | M | - | Y | Y | Y | Y |

Interviewer Initials | | | |

Recruitment Details (Baseline Only):

Site _____

Program _____

Room #/Bed # _____

Interview ID Format

DIGIT	NAME	CODE
1 - 4	Participant Number	Starting at 0001
5 - 6	Period	i.e.: **00** = Baseline; **03** = 3 months; **06** = 6 months; **09** = 9 months; **12** = 12 months

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

Introduction

Interviewer: If baseline interview say: **We will now begin the main survey. This first set of questions will help us get to know you better. Remember that this survey is voluntary, and you do not have to answer any questions you do not want to. If you feel uncomfortable at any time during this interview, you can skip a question, or stop the interview.**

If this is a follow-up interview, ***skip to 2.4****. Questions 1.1 to 2.3 are only asked at baseline.*

SECTION 1 – DEMOGRAPHIC INFORMATION

1.1	**What is your gender? Do you identify as:** ❍ Male ❍ Female ❍ Non-Binary, Gender Queer, Agender, or a Similar Identity ❍ Two-Spirit ❍ Other (Please specify)_____ ❍ Refused ❍ Don't know
1.2	**What was your assigned sex at birth?** ❍ Male ❍ Female ❍ Other (Please specify)_____ ❍ Refused ❍ Don't know
1.3	**Were you born in Canada?** ❍ Yes **(Skip to 1.5)** ❍ No ❍ Refused **(Skip to 1.4)** ❍ Don't know **(Skip to 1.4)**
1.3a	*Interviewer: Ask this question if answered, "No" to 1.3. Otherwise,* ***skip to 1.5*** *if "Yes" to 1.3 or,* ***go to 1.4*** *if Ref/DK selected for 1.3.* **What year or how many years ago did you arrive in Canada? An estimate is fine.** *Interviewer: Record year or years ago.* Arrived in year Y Y Y Y Arrived in years ago # # ❍ Refused ❍ Don't know
1.4	**What is your current status in Canada?** ❍ Citizen ❍ Landed Immigrant ❍ Refugee Claimant ❍ Temporary Status/Visitor/Student ❍ Other (Please specify)_____ ❍ Refused ❍ Don't know

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

1.5	**We know that people of different races do not have significantly different genetics. But our race still has important consequences, including how we are treated by different individuals and institutions. Which race category best describes you?** *Interviewer: Do not read list. If more than one race/mixed,* ***go to 1.5a****. All others,* ***skip to 1.6****.* ❍ White (examples: English, Greek, Italian, Portuguese, Russian, Slovakian) ❍ Black (examples: African, African-Canadian descent, Afro-Caribbean) ❍ Indigenous (First Nations, Métis, Inuit) ❍ Arab, Middle Eastern or West Asian (examples: Afghan, Armenian, Iranian, Lebanese, Persian, Turkish) ❍ Latin American (examples: Brazilian, Colombian, Cuban, Mexican, Peruvian) ❍ East/Southeast Asian (examples: Chinese, Japanese, Korean, Filipino, Malaysian, Singaporean, Thai, Vietnamese) ❍ South Asian or Indo-Caribbean (examples: Indian, Indo-Guyanese, Indo-Trinidadian, Pakistani, Sri Lankan, Bangladeshi) ❍ More than one race category or mixed race **(Go to 1.5a)** ❍ Not listed (Please specify)_____ ❍ Refused ❍ Don't know
1.5a	*Interviewer: Ask this question if answered, "More than one race category or mixed race" to 1.5. Otherwise,* ***go to 1.6****.* **Which race categories best describe you?** *Interviewer: Select all that apply* ❑ White ❑ Black ❑ Indigenous ❑ Arab, Middle Eastern or West Asian ❑ Latin American ❑ East/Southeast Asian ❑ South Asian or Indo-Caribbean ❑ Other (Please specify)_____ ❍ Refused ❍ Don't know
1.6	**Do you identify as First Nations, Métis and/or Inuk/Inuit?** ❍ Yes ❍ No **(Skip to 1.7)** ❍ Refused **(Skip to 1.7)** ❍ Don't know **(Skip to 1.7)**
1.6a	*Interviewer: Ask this question if answered, "Yes" to 1.6. Otherwise,* ***go to 1.7****.* **Do you identify as:** ❑ First Nations ❑ Inuit ❑ Métis ❑ Not listed (Please specify)_____ ❍ Refused ❍ Don't know
1.7	**What is the highest level of education you have completed?** ❍ Have not completed High School ❍ High School or Secondary School ❍ Vocational/Technical School ❍ College/University ❍ Graduate/Professional School ❍ Other (Please specify)_____ ❍ Refused ❍ Don't know

SECTION 2 – HEALTH

In this next part, I would like to ask about your general health.

2.1	**Have you ever been diagnosed by a physician with any of the following chronic medical conditions?**	**Yes**	**No**	Ref	DK
A	Hypertension (high blood pressure)	1	2	-2	-3
B	Diabetes	1	2	-2	-3
C	Asthma	1	2	-2	-3
D	Chronic Lung Disease (such as chronic obstructive pulmonary disease, emphysema, or chronic bronchitis)	1	2	-2	-3
E	Chronic Heart Disease (such as heart attack, heart failure, or coronary artery disease)	1	2	-2	-3
F	Stroke	1	2	-2	-3
G	Chronic Kidney Disease	1	2	-2	-3
H	Chronic Neurological Disorder	1	2	-2	-3
I	Liver Disease	1	2	-2	-3
J	Cancer	1	2	-2	-3
K	HIV/AIDS	1	2	-2	-3
L	Immune Suppressed (other than HIV/AIDS)	1	2	-2	-3
M	Sickle Cell Disease	1	2	-2	-3
2.2	**What is your current weight? An estimate is fine.** *Interviewer: Record in kilograms or pounds.* # # # Kg # # # Lbs ❍ Refused ❍ Don't know				
2.3	**What is your current height? An estimate is fine.** *Interviewer: Record in meters or feet and inches. Record full inches only - round up/down to nearest inch.* # . # # # m. # # ft. # # in. ❍ Refused ❍ Don't know				

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

*Interviewer: If this is a **follow-up** interview, start here and say:* **We will now begin the follow-up survey. Many of these questions will be similar to what we asked you during our first interview. Remember that this survey is voluntary, and you do not have to answer any questions you do not want to. If you feel uncomfortable at any time during this interview, you can skip a question, or stop the interview. I will start by asking about your health.**

2.4	**Have you received the flu shot this fall or winter (October 2021 or later)?** ❍ Yes ❍ No ❍ Refused ❍ Don't know
2.5	**Have you smoked tobacco since March 1, 2020** *(if baseline)/***since** ***[DATE]*** *(if follow-up, insert last interview date from 'Interview Information' printout)***?** ❍ Yes ❍ No **(Skip to 2.6)** ❍ Refused **(Skip to 2.6)** ❍ Don't know **(Skip to 2.6)**
2.5a	*Interviewer: Ask this question if answered "Yes" to 2.5. Otherwise,* ***go to 2.6****.* **How often do you smoke tobacco?** ❍ Daily ❍ Less than daily ❍ Refused ❍ Don't know
2.6	**Have you vaped or used e-cigarettes since March 1, 2020** *(if baseline)/***since** ***[DATE]*** *(if follow-up, insert last interview date from 'Interview Information' printout)***?** ❍ Yes ❍ No **(Skip to 2.7)** ❍ Refused **(Skip to 2.7)** ❍ Don't know **(Skip to 2.7)**
2.6a	*Interviewer: Ask this question if answered "Yes" to 2.6. Otherwise,* ***go to 2.7****.* **How often do you vape or use e-cigarettes?** ❍ Daily ❍ Less than daily ❍ Refused ❍ Don't know
2.7	**How often did you have a drink containing alcohol since March 1, 2020** *(if baseline)/***since** ***[DATE]*** *(if follow-up, insert last interview date from 'Interview Information' printout)***?** *Interviewer: Read all options before asking participant to select an option.* ❍ Never ❍ Monthly or less ❍ 2 to 4 times a month ❍ 2 to 3 times a week ❍ 4 or more times a week ❍ Refused ❍ Don't know

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

2.8	**How many times since March 1, 2020** *(if baseline)/***since *[DATE]*** *(if follow-up, insert last interview date from 'Interview Information' printout)* **have you used an illegal drug or used a prescription medication for non-medical reasons?** *Interviewer: If asked to clarify the meaning of "nonmedical reasons" say:* **For instance, because of the experience or feeling it caused**. *If asked to clarify the meaning of "illegal drug" say:* **For instance, drugs bought on the street, not including marijuana.** *If they have not used then, enter "0".* # of times | # | # | # | ❍ Refused ❍ Don't know

SECTION 3 – EXPERIENCE WITH COVID-19

For the next few questions, I want to ask you about your experience with COVID-19.

3.1	*If baseline say:* **Have you ever been tested for COVID-19?** *If follow-up say:* **Have you been tested for COVID-19 since *[DATE]*** *(insert last interview date from 'Interview Information' printout)***?** ❍ Yes ❍ No **(Skip to 3.2)** ❍ Refused **(Skip to 3.1f)** ❍ Don't know **(Skip to 3.1f)**
3.1a	*Interviewer: Ask this question if answered, "Yes" to 3.1. Otherwise,* ***skip to 3.2*** *if "No" to 3.1 or* ***skip to 3.1f*** *if Ref/DK selected for 3.1.* *If baseline say:* **Have you ever been told by a healthcare provider that you tested positive for COVID-19?** *If follow-up say:* **Since *[DATE]*** *(insert last interview date from 'Interview Information' printout)***, have you been told by a healthcare provider that you tested positive for COVID-19?** ❍ Yes ❍ No **(Skip to 3.1e3)** ❍ Refused **(Skip to 3.1e3)** ❍ Don't know **(Skip to 3.1e3)**
3.1b	*Interviewer: Ask this question if answered, "Yes" to 3.1a. Otherwise,* ***skip to 3.1e3*** *if "No"/Ref/DK is selected for 3.1a.* *If baseline say:* **How many positive tests did you have?** *If follow-up say:* **Since *[DATE]*** *(insert last interview date from 'Interview Information' printout)***, how many positive tests did you have?** *We will record up to 3 positive tests. Record tests from newest to oldest below.* # of positive tests | # | ❍ Refused **(Skip to 3.1e3)** ❍ Don't know **(Skip to 3.1e3)**

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

Positive Test 1 - *Interviewer: Ask these questions if participant had a first positive test. Otherwise,* ***skip to 3.1e3****.*

3.1c	**What was the date of or how long ago was this positive test?** *Interviewer: Record date if known and leave the "how long ago fields" blank. If date is not known, leave the date field blank and then fill out how long ago. If filling out how long ago, any fields that aren't used should have "0" entered (e.g. Days ago: 2, Weeks ago: 0, Months ago: 0).* Date D D - M M M - Y Y Y Y OR Days ago # # # Weeks ago # # # Months ago # # # ❍ Refused ❍ Don't know
3.1c1	**Where did you have the positive test done? (e.g., shelter name, COVID Assessment Centre name, Emergency Department name; encampment site location)** _____ ❍ Refused ❍ Don't know
3.1c2	**Where were you staying the night before you had the positive test?** _____ ❍ Refused ❍ Don't know

Positive Test 2 - *Interviewer: Ask these questions if participant had a second positive test. Otherwise,* ***skip to 3.1e3****.*

3.1d	**What was the date of or how long ago was this positive test?** *Interviewer: Record date if known and leave the "how long ago fields" blank. If date is not known, leave the date field blank and then fill out how long ago. If filling out how long ago, any fields that aren't used should have "0" entered (e.g. Days ago: 2, Weeks ago: 0, Months ago: 0).* Date D D - M M M - Y Y Y Y OR Days ago # # # Weeks ago # # # Months ago # # # ❍ Refused ❍ Don't know
3.1d1	**Where did you have the positive test done? (e.g., shelter name, COVID Assessment Centre name, Emergency Department name; encampment site location)** _____ ❍ Refused ❍ Don't know
3.1d2	**Where were you staying the night before you had the positive test?** _____ ❍ Refused ❍ Don't know

Positive Test 3 - *Interviewer: Ask these questions if participant had a third positive test. Otherwise,* ***skip to 3.1e3****.*

3.1e	**What was the date of or how long ago was this positive test?** *Interviewer: Record date if known and leave the "how long ago fields" blank. If date is not known, leave the date field blank and then fill out how long ago. If filling out how long ago, any fields that aren't used should have "0" entered (e.g. Days ago: 2, Weeks ago: 0, Months ago: 0).* Date D D - M M M - Y Y Y Y OR Days ago # # # Weeks ago # # # Months ago # # # ❍ Refused ❍ Don't know

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

3.1e1	**Where did you have the positive test done? (e.g., shelter name, COVID Assessment Centre name, Emergency Department name; encampment site location)** _____ ❍ Refused ❍ Don't know
3.1e2	**Where were you staying the night before you had the positive test?** _____ ❍ Refused ❍ Don't know
3.1e3	**Since *[DATE]*** *(insert last interview date from 'Interview Information' printout)***, have you had a positive rapid antigen test for COVID-19? This includes a positive rapid antigen test done by shelter staff, other staff person, or one you did yourself. This doesn't include a positive test done by a health care provider.** ❍ Yes ❍ No **(Skip to 3.1f** *if "Yes" to 3.1a* **OR 3.2** *if "No" to 3.1a***)** ❍ Refused **(Skip to 3.1f)** ❍ Don't know **(Skip to 3.1f)**
3.1e4	*Interviewer: Ask this question if answered, "Yes" to 3.1e3. Otherwise,* ***skip to 3.2*** *if "No" to 3.1e3 or* ***skip to 3.1f*** *if Ref/DK selected for 3.1e3.* **Since *[DATE]*** *(insert last interview date from 'Interview Information' printout)***, how many positive rapid antigen tests did you have?** *We will record up to 3 positive rapid antigen tests. Record tests from newest to oldest below.* # of positive rapid antigen tests | # | ❍ Refused **(Skip to 3.1f)** ❍ Don't know **(Skip to 3.1f)**

Positive Rapid Antigen Test 1 - *Interviewer: Ask these questions if participant had a first positive rapid antigen test. Otherwise,* ***skip to 3.1f****.*

3.1e5	**What was the date of or how long ago was this positive rapid antigen test?** *Interviewer: Record date if known and leave the "how long ago fields" blank. If date is not known, leave the date field blank and then fill out how long ago. If filling out how long ago, any fields that aren't used should have "0" entered (e.g. Days ago: 2, Weeks ago: 0, Months ago: 0).* Date | D | D | - | M | M | M | - | Y | Y | Y | Y | OR Days ago | # | # | # | Weeks ago | # | # | # | Months ago | # | # | # ❍ Refused ❍ Don't know

Positive Rapid Antigen Test 2 - *Interviewer: Ask these questions if participant had a second positive rapid antigen test. Otherwise,* ***skip to 3.1f****.*

3.1e6	**What was the date of or how long ago was this positive rapid antigen test?** *Interviewer: Record date if known and leave the "how long ago fields" blank. If date is not known, leave the date field blank and then fill out how long ago. If filling out how long ago, any fields that aren't used should have "0" entered (e.g. Days ago: 2, Weeks ago: 0, Months ago: 0).* Date | D | D | - | M | M | M | - | Y | Y | Y | Y | OR Days ago | # | # | # | Weeks ago | # | # | # | Months ago | # | # | # ❍ Refused ❍ Don't know

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

Positive Rapid Antigen Test 3 - *Interviewer: Ask these questions if participant had a third positive rapid antigen test. Otherwise,* ***skip to 3.1f****.*

3.1e7	**What was the date of or how long ago was this positive rapid antigen test?** *Interviewer: Record date if known and leave the "how long ago fields" blank. If date is not known, leave the date field blank and then fill out how long ago. If filling out how long ago, any fields that aren't used should have "0" entered (e.g. Days ago: 2, Weeks ago: 0, Months ago: 0).* Date D D - M M M - Y Y Y Y OR ❍ Refused ❍ Don't know Days ago # # # Weeks ago # # # Months ago # # #
3.1f	*Interviewer: Ask this question if answered, Ref or DK to 3.1 OR "Yes", Ref or DK to either 3.1a OR 3.1e3. Otherwise,* ***skip to 3.2****.* *If baseline say:* **Have you ever been hospitalized for COVID-19?** *If follow-up say:* **Since *[DATE]*** *(insert last interview date from 'Interview Information' printout),* **have you been hospitalized for COVID-19?** ❍ Yes ❍ No **(Skip to 3.2)** ❍ Refused **(Skip to 3.2)** ❍ Don't know **(Skip to 3.2)**
3.1g	*Interviewer: Ask this question if answered, "Yes" to 3.1f. Otherwise,* ***skip to 3.2****.* **What were the dates of or how long ago were you hospitalized for COVID-19? And where were you hospitalized?** *Interviewer: Record hospitalizations from newest to oldest. Record date if known and leave the "how long ago fields" blank. If date is not known, leave the date field blank and then fill out how long ago. If filling out how long ago, any fields that aren't used should have "0" entered (e.g. Days ago: 2, Weeks ago: 0, Months ago: 0). Don't forget to record the name of the hospital.* First Hospitalization: Date D D - M M M - Y Y Y Y OR ❍ Refused ❍ Don't know Days ago # # # Weeks ago # # # Months ago # # # Hospital _____ Second Hospitalization: Date D D - M M M - Y Y Y Y OR ❍ Refused ❍ Don't know Days ago # # # Weeks ago # # # Months ago # # # Hospital _____ Third Hospitalization: Date D D - M M M - Y Y Y Y OR ❍ Refused ❍ Don't know Days ago # # # Weeks ago # # # Months ago # # # Hospital _____

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

3.2	*If baseline say:* **Have you ever stayed at a COVID-19 isolation or recovery hotel?** *If follow-up say:* **Have you stayed at a COVID-19 isolation or recovery hotel since *[DATE]*** *(insert last interview date from 'Interview Information' printout)***?** **These are sites where people stay if they are positive for COVID-19 or were a close contact of someone with COVID-19.** *Interviewer: Probe to ensure they stayed at the following eligible site during the specified time:* *-Four Points in Etobicoke (April 2020 to Present)* ❍ Yes ❍ No **(Skip to 3.3)** ❍ Refused **(Skip to 3.3)** ❍ Don't know **(Skip to 3.3)**
3.2a	*Interviewer: Ask this question if answered, "Yes" to 3.2. Otherwise, **go to 3.3**.* **What were the dates of or how long ago were these stays?** *Interviewer: Record stays from newest to oldest. Record date if known and leave the "how long ago fields" blank. If date is not known, leave the date field blank and then fill out how long ago. If filling out how long ago, any fields that aren't used should have "0" entered (e.g. Days ago: 2, Weeks ago: 0, Months ago: 0).* First Stay: Date D D - M M M - Y Y Y Y OR ❍ Refused ❍ Don't know Days ago # # # Weeks ago # # # Months ago # # # Second Stay: Date D D - M M M - Y Y Y Y OR ❍ Refused ❍ Don't know Days ago # # # Weeks ago # # # Months ago # # # Third Stay: Date D D - M M M - Y Y Y Y OR ❍ Refused ❍ Don't know Days ago # # # Weeks ago # # # Months ago # # #
3.3	**On average, every day: how many people were you in close contact with (for more than 15 minutes and less than 2 metres apart) inside your living space since March 1, 2020** *(if baseline)/***since *[DATE]*** *(if follow-up, insert last interview date from 'Interview Information' printout)***?** ❍ Nobody ❍ 1 person ❍ 2 to 4 people ❍ 5 to 10 people ❍ 11 to 20 people ❍ 20+ people ❍ Refused ❍ Don't know
3.4	**On average, every day: how many people were you in close contact with (for more than 15 minutes and less than 2 metres apart) outside your living space since March 1, 2020** *(if baseline)/***since *[DATE]*** *(if follow-up, insert last interview date from 'Interview Information' printout)***?** ❍ Nobody ❍ 1 person ❍ 2 to 4 people ❍ 5 to 10 people ❍ 11 to 20 people ❍ 20+ people ❍ Refused ❍ Don't know

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

We will now ask you to remember who you have been in contact with yesterday – from 5am yesterday to 5am this morning. By contacts, we mean 'direct' contacts – so someone you met in person and with whom you exchanged at least a few words or with whom you had physical contact (e.g. a hug, handshake, etc.). If you only spoke to them on the phone or internet, do not include them in this count.

3.5	**How many people was that?** *Interviewer: If they haven't had direct contacts, enter "0" and then **skip to 3.12**.* # of people | # | # | # ❍ Refused **(Skip to 3.12)** ❍ Don't know **(Skip to 3.12)**
3.6	*Interviewer: Ask this question if had 1 or more contacts in 3.5. Otherwise, **skip to 3.12**.* **How many of those *[NUMBER]* are using shelters or do not have housing?** *Interviewer: If none, enter "0".* # of people | # | # | # ❍ Refused ❍ Don't know
3.7	**Can you list the first names or give each person a nickname and answer some questions about them?** *Interviewer: Record up to 5 names/nicknames.* 1. _____ 4. _____ 2. _____ 5. _____ 3. _____ ❍ Refused **(Skip to 3.12)** ❍ Don't know **(Skip to 3.12)**

Contact 1 - *Interviewer: Ask these questions if provided a first contact. Otherwise, **skip to 3.12**.*

3.7a	**About how old is *[NAME/NICKNAME]*?** ❍ 19 and under ❍ 40-49 ❍ 70-79 ❍ 20-29 ❍ 50-59 ❍ 80 and older ❍ 30-39 ❍ 60-69 ❍ Refused ❍ Don't know
3.7b	**What is *[NAME/NICKNAME'S]* relationship to you?** *Interviewer: Check all that apply.* ❑ Someone I hang out with outside the shelter ❑ A family member ❑ Someone who uses same shelter as me ❑ Someone I share/use drugs with ❑ Works at the shelter I use ❑ Someone I drink with ❑ Caseworker/Social worker ❑ Other (Please specify) _____ ❑ Someone I work with ❑ A friend ❍ Refused ❍ Don't know
3.7c	**Is *[NAME/NICKNAME]* underhoused or a client of the shelters?** ❍ Yes ❍ No ❍ Refused ❍ Don't know

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

3.7d	**When you had direct contact with *[NAME/NICKNAME]* yesterday, did you have any:** *Interviewer: Check all that apply.* ❑ Physical contact (any sort of skin-to-skin contact, like shaking hands) ❑ Non-physical contact (did not touch the person) ❍ Refused **(Skip to 3.7e)** ❍ Don't know **(Skip to 3.7e)**
3.7d1	*Interviewer: Ask this question if answered, "Physical contact" or "Non-physical contact" in 3.7d. Otherwise, **go to 3.7e**.* **Was this contact:** ❍ Outside ❍ Inside ❍ Both outside and inside ❍ Refused ❍ Don't know
3.7e	**Did this person sleep/stay in same unit/room as you last night?** ❍ Yes ❍ No ❍ I did not sleep inside last night ❍ Refused ❍ Don't know
3.7f	**When you had direct contact, was the contact wearing a mask at the time?** ❍ Yes ❍ No ❍ Refused ❍ Don't know
3.7g	**When you had direct contact, were you wearing a mask at the time?** ❍ Yes ❍ No ❍ Refused ❍ Don't know

Contact 2 - *Interviewer: Ask these questions if provided a second contact. Otherwise, **skip to 3.12**.*

3.8a	**About how old is *[NAME/NICKNAME]*?** ❍ 19 and under ❍ 20-29 ❍ 30-39 ❍ 40-49 ❍ 50-59 ❍ 60-69 ❍ 70-79 ❍ 80 and older ❍ Refused ❍ Don't know
3.8b	**What is *[NAME/NICKNAME'S]* relationship to you?** *Interviewer: Check all that apply.* ❑ Someone I hang out with outside the shelter ❑ Someone who uses same shelter as me ❑ Works at the shelter I use ❑ Caseworker/Social worker ❑ Someone I work with ❑ A friend ❑ A family member ❑ Someone I share/use drugs with ❑ Someone I drink with ❑ Other (Please specify) _____ ❍ Refused ❍ Don't know
3.8c	**Is *[NAME/NICKNAME]* underhoused or a client of the shelters?** ❍ Yes ❍ No ❍ Refused ❍ Don't know

3.8d	**When you had direct contact with *[NAME/NICKNAME]* yesterday, did you have any:** *Interviewer: Check all that apply.* ❑ Physical contact (any sort of skin-to-skin contact, like shaking hands) ❑ Non-physical contact (did not touch the person) ❍ Refused **(Skip to 3.8e)** ❍ Don't know **(Skip to 3.8e)**
3.8d1	*Interviewer: Ask this question if answered, "Physical contact" or "Non-physical contact" in 3.7d. Otherwise, **go to 3.8e**.* **Was this contact:** ❍ Outside ❍ Inside ❍ Both outside and inside ❍ Refused ❍ Don't know
3.8e	**Did this person sleep/stay in same unit/room as you last night?** ❍ Yes ❍ No ❍ I did not sleep inside last night ❍ Refused ❍ Don't know
3.8f	**When you had direct contact, was the contact wearing a mask at the time?** ❍ Yes ❍ No ❍ Refused ❍ Don't know
3.8g	**When you had direct contact, were you wearing a mask at the time?** ❍ Yes ❍ No ❍ Refused ❍ Don't know

Contact 3 - *Interviewer: Ask these questions if provided a third contact. Otherwise, **skip to 3.12**.*

3.9a	**About how old is *[NAME/NICKNAME]*?** ❍ 19 and under ❍ 20-29 ❍ 30-39 ❍ 40-49 ❍ 50-59 ❍ 60-69 ❍ 70-79 ❍ 80 and older ❍ Refused ❍ Don't know
3.9b	**What is *[NAME/NICKNAME'S]* relationship to you?** *Interviewer: Check all that apply.* ❑ Someone I hang out with outside the shelter ❑ Someone who uses same shelter as me ❑ Works at the shelter I use ❑ Caseworker/Social worker ❑ Someone I work with ❑ A friend ❑ A family member ❑ Someone I share/use drugs with ❑ Someone I drink with ❑ Other (Please specify) _____ ❍ Refused ❍ Don't know
3.9c	**Is *[NAME/NICKNAME]* underhoused or a client of the shelters?** ❍ Yes ❍ No ❍ Refused ❍ Don't know

3.9d	**When you had direct contact with *[NAME/NICKNAME]* yesterday, did you have any:** *Interviewer: Check all that apply.* ❑ Physical contact (any sort of skin-to-skin contact, like shaking hands) ❑ Non-physical contact (did not touch the person) ❍ Refused **(Skip to 3.9e)** ❍ Don't know **(Skip to 3.9e)**
3.9d1	*Interviewer: Ask this question if answered, "Physical contact" or "Non-physical contact" in 3.7d. Otherwise, **go to 3.9e**.* **Was this contact:** ❍ Outside ❍ Inside ❍ Both outside and inside ❍ Refused ❍ Don't know
3.9e	**Did this person sleep/stay in same unit/room as you last night?** ❍ Yes ❍ No ❍ I did not sleep inside last night ❍ Refused ❍ Don't know
3.9f	**When you had direct contact, was the contact wearing a mask at the time?** ❍ Yes ❍ No ❍ Refused ❍ Don't know
3.9g	**When you had direct contact, were you wearing a mask at the time?** ❍ Yes ❍ No ❍ Refused ❍ Don't know

Contact 4 - *Interviewer: Ask these questions if provided a fourth contact. Otherwise, **skip to 3.12**.*

3.10a	**About how old is *[NAME/NICKNAME]*?** ❍ 19 and under ❍ 20-29 ❍ 30-39 ❍ 40-49 ❍ 50-59 ❍ 60-69 ❍ 70-79 ❍ 80 and older ❍ Refused ❍ Don't know
3.10b	**What is *[NAME/NICKNAME'S]* relationship to you?** *Interviewer: Check all that apply.* ❑ Someone I hang out with outside the shelter ❑ Someone who uses same shelter as me ❑ Works at the shelter I use ❑ Caseworker/Social worker ❑ Someone I work with ❑ A friend ❑ A family member ❑ Someone I share/use drugs with ❑ Someone I drink with ❑ Other (Please specify) _____ ❍ Refused ❍ Don't know
3.10c	**Is *[NAME/NICKNAME]* underhoused or a client of the shelters?** ❍ Yes ❍ No ❍ Refused ❍ Don't know

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

3.10d	**When you had direct contact with *[NAME/NICKNAME]* yesterday, did you have any:** *Interviewer: Check all that apply.* ❑ Physical contact (any sort of skin-to-skin contact, like shaking hands) ❑ Non-physical contact (did not touch the person) ❍ Refused **(Skip to 3.10e)** ❍ Don't know **(Skip to 3.10e)**
3.10d1	*Interviewer: Ask this question if answered, "Physical contact" or "Non-physical contact" in 3.7d. Otherwise, **go to 3.10e**.* **Was this contact:** ❍ Outside ❍ Inside ❍ Both outside and inside ❍ Refused ❍ Don't know
3.10e	**Did this person sleep/stay in same unit/room as you last night?** ❍ Yes ❍ No ❍ I did not sleep inside last night ❍ Refused ❍ Don't know
3.10f	**When you had direct contact, was the contact wearing a mask at the time?** ❍ Yes ❍ No ❍ Refused ❍ Don't know
3.10g	**When you had direct contact, were you wearing a mask at the time?** ❍ Yes ❍ No ❍ Refused ❍ Don't know

Contact 5 - *Interviewer: Ask these questions if provided a fifth contact. Otherwise, **skip to 3.12**.*

3.11a	**About how old is *[NAME/NICKNAME]*?** ❍ 19 and under ❍ 20-29 ❍ 30-39 ❍ 40-49 ❍ 50-59 ❍ 60-69 ❍ 70-79 ❍ 80 and older ❍ Refused ❍ Don't know
3.11b	**What is *[NAME/NICKNAME'S]* relationship to you?** *Interviewer: Check all that apply.* ❑ Someone I hang out with outside the shelter ❑ Someone who uses same shelter as me ❑ Works at the shelter I use ❑ Caseworker/Social worker ❑ Someone I work with ❑ A friend ❑ A family member ❑ Someone I share/use drugs with ❑ Someone I drink with ❑ Other (Please specify) _____ ❍ Refused ❍ Don't know
3.11c	**Is *[NAME/NICKNAME]* underhoused or a client of the shelters?** ❍ Yes ❍ No ❍ Refused ❍ Don't know

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

3.11d	**When you had direct contact with *[NAME/NICKNAME]* yesterday, did you have any:** *Interviewer: Check all that apply.* ❑ Physical contact (any sort of skin-to-skin contact, like shaking hands) ❑ Non-physical contact (did not touch the person) ❍ Refused **(Skip to 3.11e)** ❍ Don't know **(Skip to 3.11e)**
3.11d1	*Interviewer: Ask this question if answered, "Physical contact" or "Non-physical contact" in 3.7d. Otherwise, **go to 3.11e**.* **Was this contact:** ❍ Outside ❍ Inside ❍ Both outside and inside ❍ Refused ❍ Don't know
3.11e	**Did this person sleep/stay in same unit/room as you last night?** ❍ Yes ❍ No ❍ I did not sleep inside last night ❍ Refused ❍ Don't know
3.11f	**When you had direct contact, was the contact wearing a mask at the time?** ❍ Yes ❍ No ❍ Refused ❍ Don't know
3.11g	**When you had direct contact, were you wearing a mask at the time?** ❍ Yes ❍ No ❍ Refused ❍ Don't know
3.12	*If baseline say:* **Have you shared a living space or had close contact with someone who tested positive for COVID-19?** *If follow-up say:* **Have you shared a living space or had close contact with someone who tested positive for COVID-19 since *[DATE]* *(insert last interview date from 'Interview Information' printout)*?** ❍ Yes **(Go to 3.12a)** ❍ No ❍ Refused ❍ Don't know
3.12a	*Interviewer: Ask this question if answered, "Yes" to 3.12.* **If yes, how long ago did you share a living space or have close contact with someone who tested positive for COVID-19?** Days ago # # # Weeks ago # # # Months ago # # # ❍ Refused ❍ Don't know

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

Interviewer: At the last interview, what was the participant's COVID vaccine status? Refer to 'Interview Information' printout and select the most appropriate option below to continue.

- ❍ *One dose received* ***(Skip to 3.13c2)***
- ❍ *Two doses received* ***(Skip to 3.13e2)***
- ❍ *More than two doses received* ***(Skip to 3.15)***
- ❍ *Unvaccinated* ***(Go to 3.13)***
- ❍ *Refused or DK* ***(Go to 3.13)***

3.13	**Have you been vaccinated against COVID-19?** *Interviewer: Select "Yes" if participant has received at least one dose of the COVID-19 vaccine.* ❍ Yes **(Go to 3.13a)** ❍ No **(Skip to 3.14)** ❍ Refused **(Skip to 3.14)** ❍ Don't know **(Skip to 3.14)**
3.13a	*Interviewer: Ask this question if answered, "Yes" to 3.13. Otherwise,* ***skip to 3.14****.* **How many doses of the COVID-19 vaccine have you received so far?** ❍ One dose ❍ Two doses ❍ More than two doses ❍ Refused ❍ Don't know

One dose

3.13b	**When did you receive your first dose of the COVID-19 vaccine?** *Interviewer: Record date if known and leave the "how long ago fields" blank. If date is not known, leave the date field blank and then fill out how long ago. If filling out how long ago, any fields that aren't used should have "0" entered (e.g. Days ago: 2, Weeks ago: 0, Months ago: 0).* Date D D - M M M - Y Y Y Y OR Days ago # # # Weeks ago # # # Months ago # # # ❍ Refused ❍ Don't know
3.13c	**Which vaccine did you receive for your first dose?** ❍ Pfizer and BioNTech, mRNA vaccine ❍ Moderna, mRNA vaccine ❍ Astra Zeneca/COVISHIELD, viral vector vaccine ❍ Other (Please specify)_____ ❍ Refused ❍ Don't know

Two doses - *Interviewer: If baseline,* ***skip to 3.13d*** *if answered, "Two doses" or "More than two doses" to 3.13a. Otherwise, do not record a date and select the most appropriate option below for 3.13d and 3.13f and,* ***skip to 3.15****.*

If follow-up, ***go to 3.13c2*** *if the participant only had* ***one dose*** *at their last interview (refer to 'Interview Information' printout).*
If answered "Two doses" or "More than two doses" to 3.13a, ***skip to 3.13d.*** *Otherwise, do not record a date and select the most appropriate option below for 3.13d and 3.13f and,* ***skip to 3.15****.*

3.13c2	**During your last interview, you reported that you had one dose of the COVID-19 vaccine. Have you had a second dose now?** ❍ Yes **(Go to 3.13d)** ❍ No **(Skip to 3.15)** ❍ Refused **(Skip to 3.15)** ❍ Don't know **(Skip to 3.15)**

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

3.13d	**When did you receive your <u>second</u> dose of the COVID-19 vaccine?** *<u>Interviewer</u>: Record date if known and leave the "how long ago fields" blank. If date is not known, leave the date field blank and then fill out how long ago. If filling out how long ago, any fields that aren't used should have "0" entered (e.g. Days ago: 2, Weeks ago: 0, Months ago: 0).* Date D D - M M M - Y Y Y Y OR Days ago # # # Weeks ago # # # Months ago # # # ❍ Only first dose received so far ❍ N/A (one-dose vaccine received) ❍ Refused ❍ Don't know
3.13e	**Which vaccine did you receive for your <u>second</u> dose?** ❍ Pfizer and BioNTech, mRNA vaccine ❍ Moderna, mRNA vaccine ❍ Astra Zeneca/COVISHIELD, viral vector vaccine ❍ Other (Please specify)_____ ❍ Refused ❍ Don't know

<u>More than two doses</u> - *<u>Interviewer</u>: If baseline, **skip to 3.13f** if answered "More than two doses" to 3.13a. Otherwise, do not record a date and select the most appropriate option below for 3.13f and, **skip to 3.15**.*

*If <u>follow-up</u>, **go to 3.13e2** if the participant received **<u>two</u> doses** at their last interview (refer to 'Interview Information' printout).*
*If answered "More than two doses" to 3.13a, **skip to 3.13f.** Otherwise, do not record a date and select the most appropriate option below for 3.13f and, **skip to 3.15**.*

3.13e2	**Have you had a third dose of the COVID-19 vaccine?** ❍ Yes **(Go to 3.13f)** ❍ No **(Skip to 3.15)** ❍ Refused **(Skip to 3.15)** ❍ Don't know **(Skip to 3.15)**
3.13f	**When did you receive your <u>third</u> dose of the COVID-19 vaccine?** *<u>Interviewer</u>: Record date if known and leave the "how long ago fields" blank. If date is not known, leave the date field blank and then fill out how long ago. If filling out how long ago, any fields that aren't used should have "0" entered (e.g. Days ago: 2, Weeks ago: 0, Months ago: 0).* Date D D - M M M - Y Y Y Y OR Days ago # # # Weeks ago # # # Months ago # # # ❍ N/A ❍ Refused ❍ Don't know
3.13g	**Which vaccine did you receive for your <u>third</u> dose?** ❍ Pfizer and BioNTech, mRNA vaccine ❍ Moderna, mRNA vaccine ❍ Astra Zeneca/COVISHIELD, viral vector vaccine ❍ Other (Please specify)_____ ❍ Refused ❍ Don't know
3.14	*<u>Interviewer</u>: Ask this question if answered, "No" to 3.13. Otherwise, **skip to 3.15**.* **Have you been offered a COVID-19 vaccine?** ❍ Yes **(Skip to 3.14b)** ❍ No **(Go to 3.14a)** ❍ Refused **(Go to 3.14a)** ❍ Don't know **(Go to 3.14a)**

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

3.14a	**If offered a COVID-19 vaccine, how likely is it that you will choose to get it?** *Interviewer: If "Somewhat unlikely" or "Very unlikely", **go to 3.14b**. All others, **skip to 3.15**.* ❍ Very likely ❍ Somewhat likely ❍ Somewhat unlikely **(Go to 3.14b)** ❍ Very unlikely **(Go to 3.14b)** ❍ Refused ❍ Don't know
3.14b	*Interviewer: Ask this question if answered, "Somewhat unlikely" or "Very unlikely" to 3.14a. Otherwise, **go to 3.15**.* **Why did you/would you choose not to get the COVID-19 vaccine?** *Interviewer: Read all options before asking participant to select options. Select all that apply.* ❑ Not confident in the safety of the vaccine ❑ Concern about risks and side effects ❑ Will wait until it seems safe to get the vaccine ❑ Do not consider it necessary to get the vaccine ❑ Do not believe in vaccination ❑ Have a pre-existing medical condition ❑ Already had or think I have had COVID-19 ❑ Have not yet decided ❑ Don't know where to get it ❑ Vaccine wasn't available to me ❑ Not listed (Please specify)_____ ❍ Refused ❍ Don't know

3.15	**Now I am going to ask if you have had certain symptoms this past week. Thinking about the past week, have you had:**	**Yes**	**No**	Ref	DK
A	Fever	1	2	-2	-3
B	New or worsening cough	1	2	-2	-3
C	New or worsening shortness of breath	1	2	-2	-3
D	Sore throat/hoarse voice	1	2	-2	-3
E	Difficulty swallowing	1	2	-2	-3
F	Sore muscles or joints (without an underlying reason)	1	2	-2	-3
G	Headache	1	2	-2	-3
H	Fatigue	1	2	-2	-3
I	Nausea/vomiting, diarrhea, or abdominal pain	1	2	-2	-3
J	New or worsening runny nose or nasal congestion	1	2	-2	-3
K	Decreased sense of smell	1	2	-2	-3

3.15	*(Continued)* **Thinking about the <u>past week</u>, have you had:**	**Yes**	**No**	Ref	DK
L	Decreased sense of taste	1	2	-2	-3
M	Chills	1	2	-2	-3

SECTION 4 – ACTIVITIES AND BEHAVIOURS RELATED TO COVID-19

4.1	**Have you done any <u>paid</u> work since March 1, 2020** *(if baseline)/***since *[DATE]*** *(if follow-up, insert last interview date from 'Interview Information' printout)***?** ❍ Yes ❍ No **(Skip to 4.2)** ❍ Refused **(Skip to 4.2)** ❍ Don't know **(Skip to 4.2)**
4.1a	*<u>Interviewer</u>: Ask this question if answered, "Yes" to 4.1. Otherwise, **skip to 4.2**.* **Where do/did you work?** _____ _____ ❍ Refused ❍ Don't know
4.1b	*<u>Interviewer</u>: Ask this question if answered, "Yes" to 4.1. Otherwise, **go to 4.2**.* **What type of work do/did you do?** _____ _____ ❍ Refused ❍ Don't know
4.2	**Have you done any volunteer work since March 1, 2020** *(if baseline)/***since *[DATE]*** *(if follow-up, insert last interview date from 'Interview Information' printout)***?** ❍ Yes ❍ No **(Skip to 4.3)** ❍ Refused **(Skip to 4.3)** ❍ Don't know **(Skip to 4.3)**
4.2a	*<u>Interviewer</u>: Ask this question if answered, "Yes" to 4.2. Otherwise, **skip to 4.3**.* **Where do/did you volunteer?** _____ _____ ❍ Refused ❍ Don't know
4.2b	*<u>Interviewer</u>: Ask this question if answered, "Yes" to 4.2. Otherwise, **go to 4.3**.* **What type of volunteer work do/did you do?** _____ _____ ❍ Refused ❍ Don't know

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

4.3	**Since March 1, 2020** *(if baseline)/***since *[DATE]*** *(if follow-up, insert last interview date from 'Interview Information' printout)***, how often have you…**	**Never**	**Rarely**	**Occasionally**	**Often**	**Always**	Ref	DK
A	Worn a face mask in public places?	1	2	3	4	5	-2	-3
B	Practiced physical distancing in public places?	1	2	3	4	5	-2	-3
C	Avoided crowded places or gatherings?	1	2	3	4	5	-2	-3
D	Washed hands with soap or used hand sanitizer several times per day?	1	2	3	4	5	-2	-3

SECTION 5 – HOUSING HISTORY

The next set of questions are about your housing history.

Interviewer: Question 5.1 is only asked at baseline. If this is a follow-up interview, ***skip to Residential Timeline Follow-Back (RTLFB).***

Experience with Homelessness

5.1	**How long has your current period of homelessness lasted? In other words, how long has it been since you had a place of your own?** *Interviewer: If a value is filled out in one of the options below, the rest should be marked as "0". E.g. Number of years: 2, Number of months: 1, Number of days: 0.* *Own place is a place that is (1) not temporary (i.e. lasting 6 months or more OR expected to last 6 months or more) AND (2) where the person is paying rent. Exception: Staying with family/guardians on a permanent (non-temporary; see definition above) basis and not paying rent.* # of years # # # # of months # # # # of days # # # ❍ Refused ❍ Don't know

Residential Timeline Follow-Back (RTLFB)

Now I am going to ask you about where you have been living for the past 3 months *(if baseline)/***since *[DATE]*** *(if follow-up interview, insert last interview date from 'Interview Information' printout)***. Today is *[DATE]*, so the time we'll be talking about is between *[DATE]* and today. Let's look at this calendar together** *(refer to RTLFB Tool)* **and I'll make notes as you talk.**

Interviewer: Refer to the Adapted RTLFB Tool. Fill in the calendar with all moves first, then go on to ask the residence questions in this survey. Make sure you probe for all residences from current date to 3 months prior (if baseline)/since the last interview date (if follow-up). DO NOT leave gaps in the tool. Start on and record current date on the tool and work backwards ensuring there are no gaps. Once the calendar is complete say:

Now I need to go over specific information about each of the places that you have lived that were listed on the calendar. We will start with where you are living now and work backwards from there.

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

Residence 1

5.2	**What's the name of the place you are/were staying at?** *Interviewer: Record description according to what they tell you, prompt if necessary to get as specific as possible.* _____ ❍ Refused _____ ❍ Don't know
5.3	*Interviewer: Enter residence type code based on what you entered on the calendar. If code "A" (i.e. Homeless shelter),* ***go to 5.3a****. If code "B" (i.e. Physical Distancing Hotel),* ***go to 5.3b****. Otherwise,* ***skip to 5.4****.* *If need more information say:* **Where are/were you staying? What sort of residence is this** *(refer to coding list)***?** If other (Please specify) ❍ Refused _____ ❍ Don't know Type code [ ] _____
5.3a	*Interviewer: If residence type is code "A" in 5.3, enter the appropriate shelter code based on what you recorded on the calendar then* ***skip to 5.5****. Otherwise,* ***go to 5.3b*** *if residence type is code "B" or,* ***go to 5.4*** *for all other residence types.* *If need more information say:* **Which shelter are/were you staying at** *(refer to coding list)***?** If other (Please specify) ❍ Refused _____ ❍ Don't know Shelter code [ ][ ] _____
5.3b	*Interviewer: If residence type is code "B" in 5.3, enter the appropriate hotel code based on what you recorded on the calendar then* ***skip to 5.5****. Otherwise,* ***go to 5.4****.* *If need more information say:* **Which physical distancing hotel are/were you staying at** *(refer to coding list)***?** If other (Please specify) ❍ Refused _____ ❍ Don't know Hotel code [ ][ ] _____
5.4	*Interviewer: If residence type is code "A" or "B" (unless "Other" option is selected) in 5.3,* ***skip to 5.5****. Otherwise, ask:* **What is/was the address of the residence?** _____ ❍ Refused _____ ❍ Don't know
5.4a	**Do you know the closest major intersection?** *Interviewer: If outside of Toronto, indicate the city.* _____ ❍ Refused _____ ❍ Don't know

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

5.4b	**Do you know the neighbourhood where the site/building is located?** _____ _____ ❍ Refused ❍ Don't know
5.5	*Interviewer: Enter date based on what you entered on the calendar.* *If need more information say:* **What was the first night you stayed here?** Start Date D D - M M M - Y Y Y Y ❍ Refused ❍ Don't know
5.6	*Interviewer: If current residence select N/A and, **go to 5.7**. Enter date based on what you entered on the calendar.* *If need more information say:* **What was the last night you stayed here?** Stop Date D D - M M M - Y Y Y Y ❍ N/A (Current residence) ❍ Refused ❍ Don't know
5.7	*Interviewer: Does the participant use this place (Residence 1) as a "Split Residence"? Refers to stays where moving to and from this location are not considered true moves because the participant is splitting time between this place and 1 or more other locations. Refer to QxQ.* *If need more information say:* **Do/did you split your time between this residence and another residence?** ❍ Yes ❍ No **(Skip to 5.8)** ❍ Refused **(Skip to 5.8)** ❍ Don't know **(Skip to 5.8)**
5.7a	*Interviewer: Record answer if answered, "Yes" to 5.7. Otherwise, **skip to 5.8.*** *How many times has the participant moved into Residence 1 over the measurement period? Remember that the measurement period is past 3 months (if baseline)/since the last interview date (if follow-up).* # of times # # # Comments: _____ ❍ Refused ❍ Don't know
5.7b	*Interviewer: Record answer if answered, "Yes" to 5.7. Otherwise, **go to 5.8.*** *How many nights has the participant lived at Residence 1 over the measurement period? Remember that the measurement period is past 3 months (if baseline)/since the last interview date (if follow-up).* # of nights # # # Comments: _____ ❍ Refused ❍ Don't know
5.8	**Are/were you sharing a living space with anyone while staying here?** ❍ Alone **(Skip to Residence 2)** ❍ Shared ❍ Refused **(Skip to Residence 2)** ❍ Don't know **(Skip to Residence 2)**

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

5.8a	*Interviewer: Ask if answered, "Shared" to 5.8. Otherwise,* ***go to Residence 2.*** **If yes, how many people are/were you sharing your living space with?** # of people ☐☐☐ ❍ Refused ❍ Don't know

Residence 2

Interviewer: Select the most appropriate option below to continue.

- ❍ *Record another residence* ***(Go to 5.9)***
- ❍ *No other residences to record* ***(Skip to end of instrument)***

5.9	**What's the name of the place you are/were staying at?** *Interviewer: Record description according to what they tell you, prompt if necessary to get as specific as possible.* _____ _____ ❍ Refused ❍ Don't know
5.10	*Interviewer: Enter residence type code based on what you entered on the calendar. If code "A" (i.e. Homeless shelter),* ***go to 5.10a****. If code "B" (i.e. Physical Distancing Hotel),* ***go to 5.10b****. Otherwise,* ***skip to 5.11****.* *If need more information say:* **Where are/were you staying? What sort of residence is this** *(refer to coding list)***?** Type code ☐ If other (Please specify) _____ _____ ❍ Refused ❍ Don't know
5.10a	*Interviewer: If residence type is code "A" in 5.10, enter the appropriate shelter code based on what you recorded on the calendar then* ***skip to 5.12****. Otherwise,* ***go to 5.10b*** *if residence type is code "B" or,* ***go to 5.11*** *for all other residence types.* *If need more information say:* **Which shelter are/were you staying at** *(refer to coding list)***?** Shelter code ☐☐ If other (Please specify) _____ _____ ❍ Refused ❍ Don't know
5.10b	*Interviewer: If residence type is code "B" in 5.10, enter the appropriate hotel code based on what you recorded on the calendar then* ***skip to 5.12****. Otherwise,* ***go to 5.11****.* *If need more information say:* **Which physical distancing hotel are/were you staying at** *(refer to coding list)***?** Hotel code ☐☐ If other (Please specify) _____ _____ ❍ Refused ❍ Don't know

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

5.11	*Interviewer: If residence type is code "A" or "B" (unless "Other" option is selected) in 5.10,* ***skip to 5.12****. Otherwise, ask:* **What is/was the address of the residence?** _____ _____ ❍ Refused ❍ Don't know
5.11a	**Do you know the closest major intersection?** *Interviewer: If outside of Toronto, indicate the city.* _____ _____ ❍ Refused ❍ Don't know
5.11b	**Do you know the neighbourhood where the site/building is located?** _____ _____ ❍ Refused ❍ Don't know
5.12	*Interviewer: Enter date based on what you entered on the calendar.* *If need more information say:* **What was the first night you stayed here?** Start Date | D | D | - | M | M | M | - | Y | Y | Y | Y | ❍ Refused ❍ Don't know
5.13	*Interviewer: If current residence select N/A and,* ***go to 5.14****. Enter date based on what you entered on the calendar.* *If need more information say:* **What was the last night you stayed here?** Stop Date | D | D | - | M | M | M | - | Y | Y | Y | Y | ❍ N/A (Current residence) ❍ Refused ❍ Don't know
5.14	*Interviewer: Does the participant use this place (Residence 2) as a "Split Residence"? Refers to stays where moving to and from this location are not considered true moves because the participant is splitting time between this place and 1 or more other locations. Refer to QxQ.* *If need more information say:* **Do/did you split your time between this residence and another residence?** ❍ Yes ❍ No **(Skip to 5.15)** ❍ Refused **(Skip to 5.15)** ❍ Don't know **(Skip to 5.15)**
5.14a	*Interviewer: Record answer if answered, "Yes" to 5.14. Otherwise,* ***skip to 5.15.*** *How many times has the participant moved into Residence 2 over the measurement period? Remember that the measurement period is past 3 months (if baseline)/since the last interview date (if follow-up).* # of times | # | # | # Comments: _____ _____ ❍ Refused ❍ Don't know

5.14b	*Interviewer: Record answer if answered, "Yes" to 5.14. Otherwise,* ***go to 5.15.*** *How many nights has the participant lived at Residence 2 over the measurement period? Remember that the measurement period is past 3 months (if baseline)/since the last interview date (if follow-up).* # of nights | # | # | # | Comments: _____ _____ ❍ Refused ❍ Don't know
5.15	**Are/were you sharing a living space with anyone while staying here?** ❍ Alone **(Skip to Residence 3)** ❍ Shared ❍ Refused **(Skip to Residence 3)** ❍ Don't know **(Skip to Residence 3)**
5.15a	*Interviewer: Ask if answered, "Shared" to 5.15. Otherwise,* ***go to Residence 3.*** **If yes, how many people are/were you sharing your living space with?** # of people | # | # | # | ❍ Refused ❍ Don't know

Residence 3

Interviewer: Select the most appropriate option below to continue.

- ❍ *Record another residence* ***(Go to 5.16)***
- ❍ *No other residences to record* ***(Skip to end of instrument)***

5.16	**What's the name of the place you are/were staying at?** *Interviewer: Record description according to what they tell you, prompt if necessary to get as specific as possible.* _____ _____ ❍ Refused ❍ Don't know
5.17	*Interviewer: Enter residence type code based on what you entered on the calendar. If code "A" (i.e. Homeless shelter),* ***go to 5.17a****. If code "B" (i.e. Physical Distancing Hotel),* ***go to 5.17b****. Otherwise,* ***skip to 5.18****.* *If need more information say:* **Where are/were you staying? What sort of residence is this** *(refer to coding list)***?** Type code |_| If other (Please specify) _____ _____ ❍ Refused ❍ Don't know
5.17a	*Interviewer: If residence type is code "A" in 5.17, enter the appropriate shelter code based on what you recorded on the calendar then* ***skip to 5.19****. Otherwise,* ***go to 5.17b*** *if residence type is code "B" or,* ***go to 5.18*** *for all other residence types.* *If need more information say:* **Which shelter are/were you staying at** *(refer to coding list)***?** Shelter code |_|_| If other (Please specify) _____ _____ ❍ Refused ❍ Don't know

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

5.17b	*Interviewer: If residence type is code "B" in 5.17, enter the appropriate hotel code based on what you recorded on the calendar then **skip to 5.19**. Otherwise, **go to 5.18**.* *If need more information say:* **Which physical distancing hotel are/were you staying at** *(refer to coding list)***?** If other (Please specify) _____ Hotel code ☐☐ _____ ❍ Refused ❍ Don't know
5.18	*Interviewer: If residence type is code "A" or "B" (unless "Other" option is selected) in 5.17, **skip to 5.19**. Otherwise, ask:* **What is/was the address of the residence?** _____ _____ ❍ Refused ❍ Don't know
5.18a	**Do you know the closest major intersection?** *Interviewer: If outside of Toronto, indicate the city.* _____ _____ ❍ Refused ❍ Don't know
5.18b	**Do you know the neighbourhood where the site/building is located?** _____ _____ ❍ Refused ❍ Don't know
5.19	*Interviewer: Enter date based on what you entered on the calendar.* *If need more information say:* **What was the first night you stayed here?** Start Date D D - M M M - Y Y Y Y ❍ Refused ❍ Don't know
5.20	*Interviewer: If current residence select N/A and, **go to 5.21**. Enter date based on what you entered on the calendar.* *If need more information say:* **What was the last night you stayed here?** Stop Date D D - M M M - Y Y Y Y ❍ N/A (Current residence) ❍ Refused ❍ Don't know
5.21	*Interviewer: Does the participant use this place (Residence 3) as a "Split Residence"? Refers to stays where moving to and from this location are not considered true moves because the participant is splitting time between this place and 1 or more other locations. Refer to QxQ.* *If need more information say:* **Do/did you split your time between this residence and another residence?** ❍ Yes ❍ No **(Skip to 5.22)** ❍ Refused **(Skip to 5.22)** ❍ Don't know **(Skip to 5.22)**

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

5.21a	*Interviewer: Record answer if answered, "Yes" to 5.21. Otherwise,* ***skip to 5.22.*** *How many times has the participant moved into Residence 3 over the measurement period? Remember that the measurement period is past 3 months (if baseline)/since the last interview date (if follow-up).* # of times | # | # | # | Comments: _____ _____ ❍ Refused ❍ Don't know
5.21b	*Interviewer: Record answer if answered, "Yes" to 5.21. Otherwise,* ***go to 5.22.*** *How many nights has the participant lived at Residence 3 over the measurement period? Remember that the measurement period is past 3 months (if baseline)/since the last interview date (if follow-up).* # of nights | # | # | # | Comments: _____ _____ ❍ Refused ❍ Don't know
5.22	**Are/were you sharing a living space with anyone while staying here?** ❍ Alone **(Skip to Residence 4)** ❍ Shared ❍ Refused **(Skip to Residence 4)** ❍ Don't know **(Skip to Residence 4)**
5.22a	*Interviewer: Ask if answered, "Shared" to 5.22. Otherwise,* ***go to Residence 4.*** **If yes, how many people are/were you sharing your living space with?** # of people | # | # | # | ❍ Refused ❍ Don't know

Residence 4

Interviewer: Select the most appropriate option below to continue.

- ❍ *Record another residence* ***(Go to 5.23)***
- ❍ *No other residences to record* ***(Skip to end of instrument)***

5.23	**What's the name of the place you are/were staying at?** *Interviewer: Record description according to what they tell you, prompt if necessary to get as specific as possible.* _____ _____ ❍ Refused ❍ Don't know
5.24	*Interviewer: Enter residence type code based on what you entered on the calendar. If code "A" (i.e. Homeless shelter),* ***go to 5.24a****. If code "B" (i.e. Physical Distancing Hotel),* ***go to 5.24b****. Otherwise,* ***skip to 5.25****.* *If need more information say:* **Where are/were you staying? What sort of residence is this** *(refer to coding list)***?** Type code | | If other (Please specify) _____ _____ ❍ Refused ❍ Don't know

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

5.24a	*Interviewer: If residence type is code "A" in 5.24, enter the appropriate shelter code based on what you recorded on the calendar then **skip to 5.26**. Otherwise, **go to 5.24b** if residence type is code "B" or, **go to 5.25** for all other residence types.* *If need more information say:* **Which shelter are/were you staying at** *(refer to coding list)***?** Shelter code ____ If other (Please specify) _____ ❍ Refused ❍ Don't know
5.24b	*Interviewer: If residence type is code "B" in 5.24, enter the appropriate hotel code based on what you recorded on the calendar then **skip to 5.26**. Otherwise, **go to 5.25**.* *If need more information say:* **Which physical distancing hotel are/were you staying at** *(refer to coding list)***?** Hotel code ____ If other (Please specify) _____ ❍ Refused ❍ Don't know
5.25	*Interviewer: If residence type is code "A" or "B" (unless "Other" option is selected) in 5.24, **skip to 5.26**. Otherwise, ask:* **What is/was the address of the residence?** _____ ❍ Refused ❍ Don't know
5.25a	**Do you know the closest major intersection?** *Interviewer: If outside of Toronto, indicate the city.* _____ ❍ Refused ❍ Don't know
5.25b	**Do you know the neighbourhood where the site/building is located?** _____ ❍ Refused ❍ Don't know
5.26	*Interviewer: Enter date based on what you entered on the calendar.* *If need more information say:* **What was the first night you stayed here?** Start Date D D - M M M - Y Y Y Y ❍ Refused ❍ Don't know
5.27	*Interviewer: If current residence select N/A and, **go to 5.28**. Enter date based on what you entered on the calendar.* *If need more information say:* **What was the last night you stayed here?** Stop Date D D - M M M - Y Y Y Y ❍ N/A (Current residence) ❍ Refused ❍ Don't know

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

5.28	*Interviewer: Does the participant use this place (Residence 4) as a "Split Residence"? Refers to stays where moving to and from this location are not considered true moves because the participant is splitting time between this place and 1 or more other locations. Refer to QxQ.* *If need more information say:* **Do/did you split your time between this residence and another residence?** ❍ Yes ❍ No **(Skip to 5.29)** ❍ Refused **(Skip to 5.29)** ❍ Don't know **(Skip to 5.29)**
5.28a	*Interviewer: Record answer if answered, "Yes" to 5.28. Otherwise,* ***skip to 5.29.*** *How many times has the participant moved into Residence 4 over the measurement period? Remember that the measurement period is past 3 months (if baseline)/since the last interview date (if follow-up).* # of times # # # Comments: _____ ❍ Refused ❍ Don't know
5.28b	*Interviewer: Record answer if answered, "Yes" to 5.28. Otherwise,* ***go to 5.29.*** *How many nights has the participant lived at Residence 4 over the measurement period? Remember that the measurement period is past 3 months (if baseline)/since the last interview date (if follow-up).* # of nights # # # Comments: _____ ❍ Refused ❍ Don't know
5.29	**Are/were you sharing a living space with anyone while staying here?** ❍ Alone **(Skip to Residence 5)** ❍ Shared ❍ Refused **(Skip to Residence 5)** ❍ Don't know **(Skip to Residence 5)**
5.29a	*Interviewer: Ask if answered, "Shared" to 5.29. Otherwise,* ***go to Residence 5.*** **If yes, how many people are/were you sharing your living space with?** # of people # # # ❍ Refused ❍ Don't know

Residence 5

Interviewer: Select the most appropriate option below to continue.

- ❍ *Record another residence* ***(Go to 5.30)***
- ❍ *No other residences to record* ***(Skip to end of instrument)***

5.30	**What's the name of the place you are/were staying at?** *Interviewer: Record description according to what they tell you, prompt if necessary to get as specific as possible.* _____ _____ ❍ Refused ❍ Don't know

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

5.31	*Interviewer: Enter residence type code based on what you entered on the calendar. If code "A" (i.e. Homeless shelter),* ***go to 5.31a****. If code "B" (i.e. Physical Distancing Hotel),* ***go to 5.31b****. Otherwise,* ***skip to 5.32****.* *If need more information say:* **Where are/were you staying? What sort of residence is this** *(refer to coding list)***?** If other (Please specify) _____ Type code [ ] _____ ❍ Refused ❍ Don't know
5.31a	*Interviewer: If residence type is code "A" in 5.31, enter the appropriate shelter code based on what you recorded on the calendar then* ***skip to 5.33****. Otherwise,* ***go to 5.31b*** *if residence type is code "B" or,* ***go to 5.32*** *for all other residence types.* *If need more information say:* **Which shelter are/were you staying at** *(refer to coding list)***?** If other (Please specify) _____ Shelter code [ ][ ] _____ ❍ Refused ❍ Don't know
5.31b	*Interviewer: If residence type is code "B" in 5.31, enter the appropriate hotel code based on what you recorded on the calendar then* ***skip to 5.33****. Otherwise,* ***go to 5.32****.* *If need more information say:* **Which physical distancing hotel are/were you staying at** *(refer to coding list)***?** If other (Please specify) _____ Hotel code [ ][ ] _____ ❍ Refused ❍ Don't know
5.32	*Interviewer: If residence type is code "A" or "B" (unless "Other" option is selected) in 5.31,* ***skip to 5.33****. Otherwise, ask:* **What is/was the address of the residence?** _____ _____ ❍ Refused ❍ Don't know
5.32a	**Do you know the closest major intersection?** *Interviewer: If outside of Toronto, indicate the city.* _____ _____ ❍ Refused ❍ Don't know
5.32b	**Do you know the neighbourhood where the site/building is located?** _____ _____ ❍ Refused ❍ Don't know
5.33	*Interviewer: Enter date based on what you entered on the calendar.* *If need more information say:* **What was the first night you stayed here?** Start Date [D][D][-][M][M][M][-][Y][Y][Y][Y] ❍ Refused ❍ Don't know

5.34	*Interviewer: If current residence select N/A and,* ***go to 5.35****. Enter date based on what you entered on the calendar.* *If need more information say:* **What was the last night you stayed here?** Stop Date | D | D | - | M | M | M | - | Y | Y | Y | Y | ❍ N/A (Current residence) ❍ Refused ❍ Don't know
5.35	*Interviewer: Does the participant use this place (Residence 5) as a "Split Residence"? Refers to stays where moving to and from this location are not considered true moves because the participant is splitting time between this place and 1 or more other locations. Refer to QxQ.* *If need more information say:* **Do/did you split your time between this residence and another residence?** ❍ Yes ❍ No **(Skip to 5.36)** ❍ Refused **(Skip to 5.36)** ❍ Don't know **(Skip to 5.36)**
5.35a	*Interviewer: Record answer if answered, "Yes" to 5.35. Otherwise,* ***skip to 5.36.*** *How many times has the participant moved into Residence 5 over the measurement period? Remember that the measurement period is past 3 months (if baseline)/since the last interview date (if follow-up).* # of times | # | # | # | Comments: ❍ Refused ❍ Don't know
5.35b	*Interviewer: Record answer if answered, "Yes" to 5.35. Otherwise,* ***go to 5.36.*** *How many nights has the participant lived at Residence 5 over the measurement period? Remember that the measurement period is past 3 months (if baseline)/since the last interview date (if follow-up).* # of nights | # | # | # | Comments: ❍ Refused ❍ Don't know
5.36	**Are/were you sharing a living space with anyone while staying here?** ❍ Alone **(Skip to Residence 6)** ❍ Shared ❍ Refused **(Skip to Residence 6)** ❍ Don't know **(Skip to Residence 6)**
5.36a	*Interviewer: Ask if answered, "Shared" to 5.36. Otherwise,* ***go to Residence 6.*** **If yes, how many people are/were you sharing your living space with?** # of people | # | # | # | ❍ Refused ❍ Don't know

Residence 6

Interviewer: Select the most appropriate option below to continue.

- ❍ *Record another residence* ***(Go to 5.37)***
- ❍ *No other residences to record* ***(Skip to end of instrument)***

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

5.37	**What's the name of the place you are/were staying at?** *Interviewer: Record description according to what they tell you, prompt if necessary to get as specific as possible.* _____ ❍ Refused _____ ❍ Don't know
5.38	*Interviewer: Enter residence type code based on what you entered on the calendar. If code "A" (i.e. Homeless shelter),* ***go to 5.38a****. If code "B" (i.e. Physical Distancing Hotel),* ***go to 5.38b****. Otherwise,* ***skip to 5.39****.* *If need more information say:* **Where are/were you staying? What sort of residence is this** *(refer to coding list)***?** If other (Please specify) ❍ Refused Type code ___ _____ ❍ Don't know
5.38a	*Interviewer: If residence type is code "A" in 5.38, enter the appropriate shelter code based on what you recorded on the calendar then* ***skip to 5.40****. Otherwise,* ***go to 5.38b*** *if residence type is code "B" or,* ***go to 5.39*** *for all other residence types.* *If need more information say:* **Which shelter are/were you staying at** *(refer to coding list)***?** If other (Please specify) ❍ Refused Shelter code __ __ _____ ❍ Don't know
5.38b	*Interviewer: If residence type is code "B" in 5.38, enter the appropriate hotel code based on what you recorded on the calendar then* ***skip to 5.40****. Otherwise,* ***go to 5.39****.* *If need more information say:* **Which physical distancing hotel are/were you staying at** *(refer to coding list)***?** If other (Please specify) ❍ Refused Hotel code __ __ _____ ❍ Don't know
5.39	*Interviewer: If residence type is code "A" or "B" (unless "Other" option is selected) in 5.38,* ***skip to 5.40****. Otherwise, ask:* **What is/was the address of the residence?** _____ ❍ Refused _____ ❍ Don't know
5.39a	**Do you know the closest major intersection?** *Interviewer: If outside of Toronto, indicate the city.* _____ ❍ Refused _____ ❍ Don't know

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

5.39b	**Do you know the neighbourhood where the site/building is located?** _____ _____ ❍ Refused ❍ Don't know
5.40	*Interviewer: Enter date based on what you entered on the calendar.* *If need more information say:* **What was the first night you stayed here?** Start Date D D - M M M - Y Y Y Y ❍ Refused ❍ Don't know
5.41	*Interviewer: If current residence select N/A and, **go to 5.42**. Enter date based on what you entered on the calendar.* *If need more information say:* **What was the last night you stayed here?** Stop Date D D - M M M - Y Y Y Y ❍ N/A (Current residence) ❍ Refused ❍ Don't know
5.42	*Interviewer: Does the participant use this place (Residence 6) as a "Split Residence"? Refers to stays where moving to and from this location are not considered true moves because the participant is splitting time between this place and 1 or more other locations. Refer to QxQ.* *If need more information say:* **Do/did you split your time between this residence and another residence?** ❍ Yes ❍ No **(Skip to 5.43)** ❍ Refused **(Skip to 5.43)** ❍ Don't know **(Skip to 5.43)**
5.42a	*Interviewer: Record answer if answered, "Yes" to 5.42. Otherwise, **skip to 5.43.*** *How many times has the participant moved into Residence 6 over the measurement period? Remember that the measurement period is past 3 months (if baseline)/since the last interview date (if follow-up).* # of times # # # Comments: _____ ❍ Refused ❍ Don't know
5.42b	*Interviewer: Record answer if answered, "Yes" to 5.42. Otherwise, **go to 5.43.*** *How many nights has the participant lived at Residence 6 over the measurement period? Remember that the measurement period is past 3 months (if baseline)/since the last interview date (if follow-up).* # of nights # # # Comments: _____ ❍ Refused ❍ Don't know
5.43	**Are/were you sharing a living space with anyone while staying here?** ❍ Alone **(Skip to Residence 7)** ❍ Shared ❍ Refused **(Skip to Residence 7)** ❍ Don't know **(Skip to Residence 7)**
5.43a	*Interviewer: Ask if answered, "Shared" to 5.43. Otherwise, **go to Residence 7.*** **If yes, how many people are/were you sharing your living space with?** # of people # # # ❍ Refused ❍ Don't know

Residence 7

Interviewer: Select the most appropriate option below to continue.

- ❍ *Record another residence* ***(Go to 5.44)***
- ❍ *No other residences to record* ***(Skip to end of instrument)***

5.44	**What's the name of the place you are/were staying at?** *Interviewer: Record description according to what they tell you, prompt if necessary to get as specific as possible.* _____ _____ ❍ Refused ❍ Don't know
5.45	*Interviewer: Enter residence type code based on what you entered on the calendar. If code "A" (i.e. Homeless shelter),* ***go to 5.45a****. If code "B" (i.e. Physical Distancing Hotel),* ***go to 5.45b****. Otherwise,* ***skip to 5.46****.* *If need more information say:* **Where are/were you staying? What sort of residence is this** *(refer to coding list)***?** If other (Please specify) _____ Type code ___ _____ ❍ Refused ❍ Don't know
5.45a	*Interviewer: If residence type is code "A" in 5.45, enter the appropriate shelter code based on what you recorded on the calendar then* ***skip to 5.47****. Otherwise,* ***go to 5.45b*** *if residence type is code "B" or,* ***go to 5.46*** *for all other residence types.* *If need more information say:* **Which shelter are/were you staying at** *(refer to coding list)***?** If other (Please specify) _____ Shelter code ____ _____ ❍ Refused ❍ Don't know
5.45b	*Interviewer: If residence type is code "B" in 5.45, enter the appropriate hotel code based on what you recorded on the calendar then* ***skip to 5.47****. Otherwise,* ***go to 5.46****.* *If need more information say:* **Which physical distancing hotel are/were you staying at** *(refer to coding list)***?** If other (Please specify) _____ Hotel code ____ _____ ❍ Refused ❍ Don't know
5.46	*Interviewer: If residence type is code "A" or "B" (unless "Other" option is selected) in 5.45,* ***skip to 5.47****. Otherwise, ask:* **What is/was the address of the residence?** _____ _____ ❍ Refused ❍ Don't know

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

5.46a	**Do you know the closest major intersection?** *Interviewer: If outside of Toronto, indicate the city.* _____ _____ ❍ Refused ❍ Don't know
5.46b	**Do you know the neighbourhood where the site/building is located?** _____ _____ ❍ Refused ❍ Don't know
5.47	*Interviewer: Enter date based on what you entered on the calendar.* *If need more information say:* **What was the first night you stayed here?** Start Date | D | D | - | M | M | M | - | Y | Y | Y | Y | ❍ Refused ❍ Don't know
5.48	*Interviewer: If current residence select N/A and, **go to 5.49**. Enter date based on what you entered on the calendar.* *If need more information say:* **What was the last night you stayed here?** Stop Date | D | D | - | M | M | M | - | Y | Y | Y | Y | ❍ N/A (Current residence) ❍ Refused ❍ Don't know
5.49	*Interviewer: Does the participant use this place (Residence 7) as a "Split Residence"? Refers to stays where moving to and from this location are not considered true moves because the participant is splitting time between this place and 1 or more other locations. Refer to QxQ.* *If need more information say:* **Do/did you split your time between this residence and another residence?** ❍ Yes ❍ No **(Skip to 5.50)** ❍ Refused **(Skip to 5.50)** ❍ Don't know **(Skip to 5.50)**
5.49a	*Interviewer: Record answer if answered, "Yes" to 5.49. Otherwise, **skip to 5.50.*** *How many times has the participant moved into Residence 7 over the measurement period? Remember that the measurement period is past 3 months (if baseline)/since the last interview date (if follow-up).* # of times | # | # | # | Comments: _____ _____ ❍ Refused ❍ Don't know
5.49b	*Interviewer: Record answer if answered, "Yes" to 5.49. Otherwise, **go to 5.50.*** *How many nights has the participant lived at Residence 7 over the measurement period? Remember that the measurement period is past 3 months (if baseline)/since the last interview date (if follow-up).* # of nights | # | # | # | Comments: _____ _____ ❍ Refused ❍ Don't know

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

5.50	**Are/were you sharing a living space with anyone while staying here?** ❍ Alone **(Skip to Residence 8)** ❍ Shared ❍ Refused **(Skip to Residence 8)** ❍ Don't know **(Skip to Residence 8)**
5.50a	*Interviewer: Ask if answered, "Shared" to 5.50. Otherwise,* ***go to Residence 8.*** **If yes, how many people are/were you sharing your living space with?** # of people | # | # | # | ❍ Refused ❍ Don't know

Residence 8

Interviewer: Select the most appropriate option below to continue.

- ❍ *Record another residence* ***(Go to 5.51)***
- ❍ *No other residences to record* ***(Skip to end of instrument)***

5.51	**What's the name of the place you are/were staying at?** *Interviewer: Record description according to what they tell you, prompt if necessary to get as specific as possible.* _____ ❍ Refused _____ ❍ Don't know
5.52	*Interviewer: Enter residence type code based on what you entered on the calendar. If code "A" (i.e. Homeless shelter),* ***go to 5.52a****. If code "B" (i.e. Physical Distancing Hotel),* ***go to 5.52b****. Otherwise,* ***skip to 5.53****.* *If need more information say:* **Where are/were you staying? What sort of residence is this** *(refer to coding list)***?** If other (Please specify) ❍ Refused ❍ Don't know Type code | | _____ _____
5.52a	*Interviewer: If residence type is code "A" in 5.52, enter the appropriate shelter code based on what you recorded on the calendar then* ***skip to 5.54****. Otherwise,* ***go to 5.52b*** *if residence type is code "B" or,* ***go to 5.53*** *for all other residence types.* *If need more information say:* **Which shelter are/were you staying at** *(refer to coding list)***?** If other (Please specify) ❍ Refused ❍ Don't know Shelter code | | | _____ _____
5.52b	*Interviewer: If residence type is code "B" in 5.52, enter the appropriate hotel code based on what you recorded on the calendar then* ***skip to 5.54****. Otherwise,* ***go to 5.53****.* *If need more information say:* **Which physical distancing hotel are/were you staying at** *(refer to coding list)***?** If other (Please specify) ❍ Refused ❍ Don't know Hotel code | | | _____ _____

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

5.53	*Interviewer: If residence type is code "A" or "B" (unless "Other" option is selected) in 5.52,* ***skip to 5.54****. Otherwise, ask:* **What is/was the address of the residence?** _____ _____ ❍ Refused ❍ Don't know
5.53a	**Do you know the closest major intersection?** *Interviewer: If outside of Toronto, indicate the city.* _____ _____ ❍ Refused ❍ Don't know
5.53b	**Do you know the neighbourhood where the site/building is located?** _____ _____ ❍ Refused ❍ Don't know
5.54	*Interviewer: Enter date based on what you entered on the calendar.* *If need more information say:* **What was the first night you stayed here?** Start Date | D | D | - | M | M | M | - | Y | Y | Y | Y | ❍ Refused ❍ Don't know
5.55	*Interviewer: If current residence select N/A and,* ***go to 5.56****. Enter date based on what you entered on the calendar.* *If need more information say:* **What was the last night you stayed here?** Stop Date | D | D | - | M | M | M | - | Y | Y | Y | Y | ❍ N/A (Current residence) ❍ Refused ❍ Don't know
5.56	*Interviewer: Does the participant use this place (Residence 8) as a "Split Residence"? Refers to stays where moving to and from this location are not considered true moves because the participant is splitting time between this place and 1 or more other locations. Refer to QxQ.* *If need more information say:* **Do/did you split your time between this residence and another residence?** ❍ Yes ❍ No **(Skip to 5.57)** ❍ Refused **(Skip to 5.57)** ❍ Don't know **(Skip to 5.57)**
5.56a	*Interviewer: Record answer if answered, "Yes" to 5.56. Otherwise,* ***skip to 5.57.*** *How many times has the participant moved into Residence 8 over the measurement period? Remember that the measurement period is past 3 months (if baseline)/since the last interview date (if follow-up).* # of times | # | # | # Comments: _____ _____ ❍ Refused ❍ Don't know

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

5.56b	*Interviewer: Record answer if answered, "Yes" to 5.56. Otherwise,* ***go to 5.57.*** *How many nights has the participant lived at Residence 8 over the measurement period? Remember that the measurement period is past 3 months (if baseline)/since the last interview date (if follow-up).* # of nights | # | # | # Comments: _____ _____ ❍ Refused ❍ Don't know
5.57	**Are/were you sharing a living space with anyone while staying here?** ❍ Alone **(Skip to Residence 9)** ❍ Shared ❍ Refused **(Skip to Residence 9)** ❍ Don't know **(Skip to Residence 9)**
5.57a	*Interviewer: Ask if answered, "Shared" to 5.57. Otherwise,* ***go to Residence 9.*** **If yes, how many people are/were you sharing your living space with?** # of people | # | # | # ❍ Refused ❍ Don't know

Residence 9

Interviewer: Select the most appropriate option below to continue.

- ❍ *Record another residence* ***(Go to 5.58)***
- ❍ *No other residences to record* ***(Skip to end of instrument)***

5.58	**What's the name of the place you are/were staying at?** *Interviewer: Record description according to what they tell you, prompt if necessary to get as specific as possible.* _____ _____ ❍ Refused ❍ Don't know
5.59	*Interviewer: Enter residence type code based on what you entered on the calendar. If code "A" (i.e. Homeless shelter),* ***go to 5.59a****. If code "B" (i.e. Physical Distancing Hotel),* ***go to 5.59b****. Otherwise,* ***skip to 5.60****.* *If need more information say:* **Where are/were you staying? What sort of residence is this** *(refer to coding list)***?** Type code |_| If other (Please specify) _____ _____ ❍ Refused ❍ Don't know
5.59a	*Interviewer: If residence type is code "A" in 5.59, enter the appropriate shelter code based on what you recorded on the calendar then* ***skip to 5.61****. Otherwise,* ***go to 5.59b*** *if residence type is code "B" or,* ***go to 5.60*** *for all other residence types.* *If need more information say:* **Which shelter are/were you staying at** *(refer to coding list)***?** Shelter code |_|_| If other (Please specify) _____ _____ ❍ Refused ❍ Don't know

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

5.59b	*Interviewer: If residence type is code "B" in 5.59, enter the appropriate hotel code based on what you recorded on the calendar then **skip to 5.61**. Otherwise, **go to 5.60**.* *If need more information say:* **Which physical distancing hotel are/were you staying at** *(refer to coding list)***?** If other (Please specify) _____ Hotel code [ ][ ] _____ ❍ Refused ❍ Don't know
5.60	*Interviewer: If residence type is code "A" or "B" (unless "Other" option is selected) in 5.59, **skip to 5.61**. Otherwise, ask:* **What is/was the address of the residence?** _____ _____ ❍ Refused ❍ Don't know
5.60a	**Do you know the closest major intersection?** *Interviewer: If outside of Toronto, indicate the city.* _____ _____ ❍ Refused ❍ Don't know
5.60b	**Do you know the neighbourhood where the site/building is located?** _____ _____ ❍ Refused ❍ Don't know
5.61	*Interviewer: Enter date based on what you entered on the calendar.* *If need more information say:* **What was the first night you stayed here?** Start Date D D - M M M - Y Y Y Y ❍ Refused ❍ Don't know
5.62	*Interviewer: If current residence select N/A and, **go to 5.63**. Enter date based on what you entered on the calendar.* *If need more information say:* **What was the last night you stayed here?** Stop Date D D - M M M - Y Y Y Y ❍ N/A (Current residence) ❍ Refused ❍ Don't know
5.63	*Interviewer: Does the participant use this place (Residence 9) as a "Split Residence"? Refers to stays where moving to and from this location are not considered true moves because the participant is splitting time between this place and 1 or more other locations. Refer to QxQ.* *If need more information say:* **Do/did you split your time between this residence and another residence?** ❍ Yes ❍ No **(Skip to 5.64)** ❍ Refused **(Skip to 5.64)** ❍ Don't know **(Skip to 5.64)**

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

5.63a	*Interviewer: Record answer if answered, "Yes" to 5.63. Otherwise,* ***skip to 5.64.*** *How many times has the participant moved into Residence 9 over the measurement period? Remember that the measurement period is past 3 months (if baseline)/since the last interview date (if follow-up).* # of times | # | # | # | Comments: _____ ❍ Refused ❍ Don't know
5.63b	*Interviewer: Record answer if answered, "Yes" to 5.63. Otherwise,* ***go to 5.64.*** *How many nights has the participant lived at Residence 9 over the measurement period? Remember that the measurement period is past 3 months (if baseline)/since the last interview date (if follow-up).* # of nights | # | # | # | Comments: _____ ❍ Refused ❍ Don't know
5.64	**Are/were you sharing a living space with anyone while staying here?** ❍ Alone **(Skip to Residence 10)** ❍ Shared ❍ Refused **(Skip to Residence 10)** ❍ Don't know **(Skip to Residence 10)**
5.64a	*Interviewer: Ask if answered, "Shared" to 5.64. Otherwise,* ***go to Residence 10.*** **If yes, how many people are/were you sharing your living space with?** # of people | # | # | # | ❍ Refused ❍ Don't know

Residence 10

Interviewer: Select the most appropriate option below to continue.

- ❍ *Record another residence* ***(Go to 5.65)***
- ❍ *No other residences to record* ***(Skip to end of instrument)***

5.65	**What's the name of the place you are/were staying at?** *Interviewer: Record description according to what they tell you, prompt if necessary to get as specific as possible.* _____ ❍ Refused ❍ Don't know
5.66	*Interviewer: Enter residence type code based on what you entered on the calendar. If code "A" (i.e. Homeless shelter),* ***go to 5.66a****. If code "B" (i.e. Physical Distancing Hotel),* ***go to 5.66b****. Otherwise,* ***skip to 5.67****.* *If need more information say:* **Where are/were you staying? What sort of residence is this** *(refer to coding list)***?** Type code | | If other (Please specify) _____ ❍ Refused ❍ Don't know

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

5.66a	*Interviewer: If residence type is code "A" in 5.66, enter the appropriate shelter code based on what you recorded on the calendar then **skip to 5.68**. Otherwise, **go to 5.66b** if residence type is code "B" or, **go to 5.67** for all other residence types.* *If need more information say:* **Which shelter are/were you staying at** *(refer to coding list)***?** Shelter code ____ If other (Please specify) _____ ❍ Refused ❍ Don't know
5.66b	*Interviewer: If residence type is code "B" in 5.66, enter the appropriate hotel code based on what you recorded on the calendar then **skip to 5.68**. Otherwise, **go to 5.67**.* *If need more information say:* **Which physical distancing hotel are/were you staying at** *(refer to coding list)***?** Hotel code ____ If other (Please specify) _____ ❍ Refused ❍ Don't know
5.67	*Interviewer: If residence type is code "A" or "B" (unless "Other" option is selected) in 5.66, **skip to 5.68**. Otherwise, ask:* **What is/was the address of the residence?** _____ ❍ Refused ❍ Don't know
5.67a	**Do you know the closest major intersection?** *Interviewer: If outside of Toronto, indicate the city.* _____ ❍ Refused ❍ Don't know
5.67b	**Do you know the neighbourhood where the site/building is located?** _____ ❍ Refused ❍ Don't know
5.68	*Interviewer: Enter date based on what you entered on the calendar.* *If need more information say:* **What was the first night you stayed here?** Start Date D D - M M M - Y Y Y Y ❍ Refused ❍ Don't know
5.69	*Interviewer: If current residence select N/A and, **go to 5.70**. Enter date based on what you entered on the calendar.* *If need more information say:* **What was the last night you stayed here?** Stop Date D D - M M M - Y Y Y Y ❍ N/A (Current residence) ❍ Refused ❍ Don't know

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

5.70	*Interviewer: Does the participant use this place (Residence 10) as a "Split Residence"? Refers to stays where moving to and from this location are not considered true moves because the participant is splitting time between this place and 1 or more other locations. Refer to QxQ.* *If need more information say:* **Do/did you split your time between this residence and another residence?** ❍ Yes ❍ No **(Skip to 5.71)** ❍ Refused **(Skip to 5.71)** ❍ Don't know **(Skip to 5.71)**
5.70a	*Interviewer: Record answer if answered, "Yes" to 5.70. Otherwise,* ***skip to 5.71.*** *How many times has the participant moved into Residence 10 over the measurement period? Remember that the measurement period is past 3 months (if baseline)/since the last interview date (if follow-up).* # of times # # # Comments: _____ ❍ Refused ❍ Don't know
5.70b	*Interviewer: Record answer if answered, "Yes" to 5.70. Otherwise,* ***go to 5.71.*** *How many nights has the participant lived at Residence 10 over the measurement period? Remember that the measurement period is past 3 months (if baseline)/since the last interview date (if follow-up).* # of nights # # # Comments: _____ ❍ Refused ❍ Don't know
5.71	**Are/were you sharing a living space with anyone while staying here?** ❍ Alone **(Skip to end of instrument)** ❍ Shared ❍ Refused **(Skip to end of instrument)** ❍ Don't know **(Skip to end of instrument)**
5.71a	*Interviewer: Ask if answered, "Shared" to 5.71. Otherwise,* ***go to end of instrument.*** **If yes, how many people are/were you sharing your living space with?** # of people # # # ❍ Refused ❍ Don't know

Thank you for answering all of our questions. We will now collect the blood and saliva samples.

END OF SURVEY INSTRUMENT

Richard L, *et al. BMJ Open* 2022; 12:e063234. doi: 10.1136/bmjopen-2022-063234

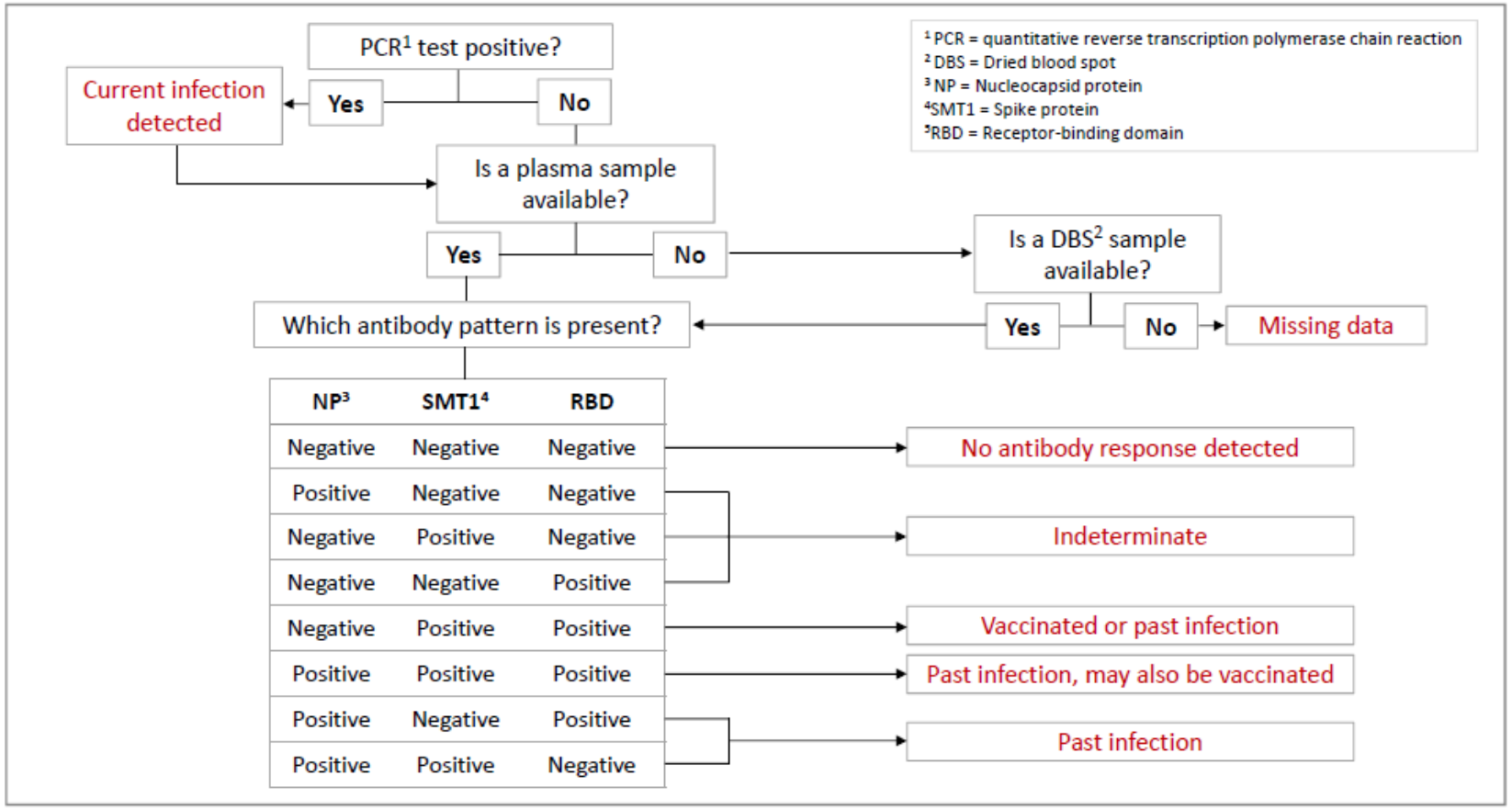
Supplement 4: Adjudication of serological and self-report data into past infection and vaccination status

Our serologic assays detect total IgG antibodies against three SARS-CoV-2 antigens: Nucleocapsid (NP), Spike protein (SMT1) and Receptor-binding domain (RBD). Antibodies against NP indicate past infection, whereas antibodies against SMT1 and RBD indicate immunization and/or past infection.

For each sample, raw values of IgG antibody levels were normalized to a reference point on a standard curve run on the same assay plate. The thresholds for positivity were set at 3 standard deviations below the mean of a log distribution of negative control samples. Sensitivity and specificity at these thresholds were determined by applying a confusion matrix to a set of 560 negative control samples (obtained prior to the advent of COVID-19) and 392 positive controls samples obtained from PCR-confirmed cases at least 2 weeks after symptom onset. Sensitivity and specificity were 0.99 and 0.79, respectively, for antibodies against NP; 0.99 and 0.97 for antibodies against SMT1; and 1.0 and 0.89 for antibodies against RBD.

Because our samples are collected during a period when both infections and vaccinations occur, we followed the decision tree in Step 1 to summarize serological results, and the decision matrix in Step 2 to combine serologic results and self-report data to assign infection status and vaccination status for each participant.

Step 1 - Decision tree to summarize serological data results



Step 2 – Decision matrix to combine serological results and self-report data to assign <u>past infection and vaccination status</u>

Serological results (See Step 1)	Self-reported Infection history[1]	Self-reported Vaccination History[2]	Final infection status	Final vaccination status
No antibody response	No positive test[3]	Zero doses	No past infection	No past vaccination
No antibody response	No positive test	1+ doses	No past infection	Past vaccination
No antibody response	Positive test	Zero doses	Past infection	No past vaccination
No antibody response	Positive test	1+ doses	Past infection	Past vaccination
Indeterminate	No positive test	Zero doses	No past infection	No past vaccination
Indeterminate	No positive test	1+ doses	No past infection	Past vaccination
Indeterminate	Positive test	Zero doses	Past infection	No past vaccination
Indeterminate	Positive test	1+ doses	Past infection	Past vaccination
Vaccinated or past infection	No positive test	Zero doses	Past infection	No past vaccination
Vaccinated or past infection	No positive test	1+ doses	No past infection	Past vaccination
Vaccinated or past infection	Positive test	Zero doses	Past infection	No past vaccination
Vaccinated or past infection	Positive test	1+ doses	Past infection	Past vaccination
Past infection, may also be vaccinated	No positive test	Zero doses	Past infection	No past vaccination
Past infection, may also be vaccinated	No positive test	1+ doses	Past infection	Past vaccination
Past infection, may also be vaccinated	Positive test	Zero doses	Past infection	No past vaccination
Past infection, may also be vaccinated	Positive test	1+ doses	Past infection	Past vaccination
Past infection	No positive test	Zero doses	Past infection	No past vaccination
Past infection	No positive test	1+ doses	Past infection	Past vaccination
Past infection	Positive test	Zero doses	Past infection	No past vaccination
Past infection	Positive test	1+ doses	Past infection	Past vaccination
Missing data	Any response	Any response	Missing	Missing

[1] All records linked at ICES will be cross-referenced against testing events in the OLIS database.

[2] All records linked at ICES will be cross-referenced against vaccination events recorded in the COVAXON database.

[3] 'No positive test' includes those who: were never tested; do not recall whether they were tested; were tested and received only negative results; or were tested but did not know their test result