

## **Considering social inequalities in health in large-scale testing for COVID-19 in Montreal: A qualitative case study**

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# **Considering social inequalities in health in large-scale testing for COVID-19 in Montreal: A qualitative case study**

Evidence shows that COVID-19 is exacerbating social inequalities in health (SIH). The aim of this qualitative study was to assess how SIH were considered in the design of large-scale COVID-19 testing programs in Montreal (Quebec, Canada). We conducted semi-structured interviews with 19 stakeholders involved in planning large-scale testing or working with vulnerable populations during the pandemic. We developed interview guides and a codebook using literature on policy design and planning, and analysed data deductively and inductively using thematic analysis in NVivo. Findings suggest that large-scale COVID-19 testing in Montreal did not initially consider SIH in their planning phases. However, adaptations were made over time to improve the accessibility, acceptability, and availability of testing services. Actors from the community sector played an important role to ensure that public health interventions considered SIH. These findings contribute to the reflections on the lessons learned from COVID-19, highlighting that public health programmes must address structural barriers to accessing healthcare services through multisectoral collaboration. This will be necessary to ensure that future health crises do not further increase SIH.

Keywords: COVID-19; large-scale testing; social inequalities in health; equity; health systems

## **Introduction**

Evidence continues to accumulate highlighting that certain marginalised populations have been disproportionately affected by COVID-19 (Upshaw et al., 2021). The pandemic has amplified existing health inequalities, shaped by long-standing structural inequities and socioeconomic determinants of health (Greenaway et al., 2020). Public health systems and programs have a responsibility to protect the health of the population, which includes emergency preparedness, paramount to ensuring that inequities are not exacerbated (Benjamin, 2020). Central to infectious disease control and prevention is the ability to detect, monitor, and control disease transmission. Large-scale testing is instrumental in case of infectious disease outbreaks,

allowing for the detection of cases and resulting actions such as treatment, isolation, and contact tracing (Ost et al., 2021). Inclusive and equitable access to testing programs is crucial to support response efforts (Berger et al., 2020; Ost et al., 2021).

While many studies document the impacts of COVID-19 on social inequalities in health (SIH), to the best of our knowledge, none have examined how public health responses to the pandemic have unfolded to address these inequities in Canada. Research conducted elsewhere indicate that governments faced many challenges in developing testing strategies, such as the expansion of testing services for the whole population (Magno et al., 2020; Thébaud-Mony, 2020). Other studies demonstrate that large-scale testing for COVID-19 exemplified the famous inverse care law, whereby those who derive the least benefits from testing interventions are those who have the highest need of it (Green et al., 2021; Riou et al., 2021). These findings from the current pandemic are important, as evidence show that public health responses to infectious disease epidemics seldom consider SIH (Mathevet et al., 2021; Ost et al., 2021).

Given this gap, we used Montreal as a case study to assess how SIH were considered in the design and planning of large-scale testing for COVID-19 (Ridde et al., 2021). Montreal, a city of approximately 2 million inhabitants located in the Canadian province of Quebec, experienced one of the highest numbers of confirmed cases in the country during the first and second waves of the pandemic. The present article is based on the analysis of qualitative data from interviews with key informants involved in large-scale testing in Montreal. Understanding how large-scale testing was developed in Montreal and whether existing and emerging SIH were considered is not only critical for COVID-19, but also for future pandemics (Araz et al., 2020; Ost et al., 2021).

## **Materials and methods**

### ***Study site and context***

Canada has a mostly publicly funded healthcare system (70.9%), in which the federal government provides financial support to provinces, responsible for organizing and delivering healthcare services (Martin et al., 2018). In the province of Quebec, healthcare is under the responsibility of the Ministry of Health and Social Services (MSSS) and includes public health, which represents approximately 2% of total health expenditures following recent budget cuts (Denis et al., 2020). Territorially defined Health and Social Services Centres (CISSS/CIUSSS, hereafter health centres) and public health departments are accountable to the MSSS. Montreal has one public health department and five health centres coordinating healthcare and social services to residents in their catchment area.

In Quebec, COVID-19 was declared a public health emergency on March 13, 2020, soon followed by SARS-CoV-2 diagnostic testing. As of May 2020, COVID-19 testing was open to Montreal residents with symptoms or without symptoms but having been in contact with confirmed cases (Institut national de santé publique du Québec, 2021). During the first wave of COVID-19 (February 25-July 11, 2020), public health departments were responsible for deciding on testing priorities, while health centres were responsible for designing and implementing large-scale testing. During the second and subsequent waves, the responsibility for testing rested primarily with health centres, supported by public health departments. Testing services varied between health centres, including permanent and mobile clinics, with and without appointments.

### ***Study design***

This article is based on data from a descriptive qualitative case study (Merriam, 2009) conducted in Montreal, part of the multi-country HoSPiCOVID study (Ridde et al., 2021). The case is the consideration of SIH in the design and planning of large-scale testing for COVID-19 in Montreal across space (health centres responsible for planning large-scale testing in Montreal) and time (from the first wave of COVID-19 in March 2020 to spring 2021). The case study describes the large-scale testing interventions within their context, including their justification, scope, and the actors involved, as well as the adaptations over time.

### *Sampling strategy*

Study participants were key informants directly or indirectly involved in the planning of large-scale testing for COVID-19 in Montreal, as well as other actors who worked with vulnerable populations during the pandemic. We identified a list of initial participants and used snowball sampling. We first recruited participants through the senior co-authors' networks in Montreal. Participants then identified other actors that met the inclusion criteria. Inclusion criteria were as follows: (1) working in the health or community sector; (2) Having participated in designing, planning, or implementing large-scale COVID-19 testing in Montreal; and (3) having been involved in the adaptations of large-scale testing over time or in creating parallel interventions targeting vulnerable populations. This strategy allowed the inclusion of not readily accessible individuals who could provide rich information on large-scale testing (Palinkas et al., 2015). Thirty participants were initially identified and nineteen accepted to participate. The final sample was diverse and consisted of stakeholders from various settings (Pires, 1997).

### *Theoretical bricolage*

We created an interview guide and analysed data using a theoretical *bricolage* approach (Table 1), a ‘do-it-yourself’ strategy in which existing theories and frameworks are combined. Our *bricolage* was developed iteratively through multiple meeting with the HoSPiCOVID research team (Jones et al., 2021). The four categories included in the *bricolage* were based on literature from policy design and planning of public health programmes (Howlett, 2019; Pineault & Daveluy, 1995) as well as on REFLEX-ISS (Guichard et al., 2019), a tool developed in Quebec to assess the inclusion of SIH in planning public health interventions. The first category refers to how respondents and their institutions perceived SIH, considering their understanding of the COVID-19 context and available evidence. The second describes the approach adopted by stakeholders to tackle SIH and differentiates between location-based, vulnerability-based, and population-wide strategies. The third examines intersectoral collaboration and long-term involvement of multiple sectors. It specifically assesses how the community sector complemented efforts from the health sector to address SIH. The fourth refers to the adaptation capacity of large-scale testing, including the adoption of flexible design and planning with constant monitoring of emerging needs and evidence to mitigate unintended consequences. Adaptations include the improvement of accessibility, acceptability, and availability of testing services to address SIH, meeting the needs of specific populations.

Table 1. Theoretical *bricolage* developed for the HoSPiCOVID study (adapted by the second author from Howlett, 2019; Pineault & Daveluy, 1995; Guichard et al., 2019)

| Reference                     | Axes of policy and public health intervention design, planning, implementation, and evaluation explored in the literature |   |  |   |
|-------------------------------|---|---|--|---|
| Policy design (Howlett, 2019) | Synthesis of available evidence   | Solution development and evidence-based decision-making | Consideration of diverging stakeholders’ interests | Anticipation of the potential effects of the proposed solutions |

|  |  |  |  |  |
|--|--|--|--|--|
| Planning of public health interventions (Pineault & Daveluy, 1995) | Strategic planning                         | Tactical and operational planning                | (Implicit)                                 | Operational planning   |
| REFLEX-ISS tool (Guichard et al., 2019)                            | Analysis of problems and needs             | Objectives, justification, and conception of SIH | Involvement of partners and the population | (Not applicable)   |
| <b>Theoretical bricolage</b>                                       | <b>Understanding and perception of SIH</b> | <b>Approach to address SIH</b>                   | <b>Intersectoral collaboration</b>         | <b>Adaptation capacity: accessibility, acceptability, and availability</b> |

### ***Data collection***

The fourth and fifth authors conducted virtual semi-structured interviews with participants in French via Zoom between September 2020 and April 2021. Interviews were audio recorded and transcribed in their original language. Excerpts used in study reports were subsequently translated in English by the first author, fluent in French and English. A total of 17 interviews, lasting between 30 minutes and 1 hour and a half, were conducted with 19 stakeholders.

### ***Data analysis***

We analysed the interview data using thematic analysis (Braun & Clarke, 2006). The first author read the interview transcriptions multiple times and wrote memos to note initial code and theme ideas, as well as preliminary analytical insights. Data were analysed deductively and inductively in NVivo. Guided by the theoretical *bricolage*, three initial transcripts were coded to create a preliminary list of codes based on the four categories described previously, followed by the systematic coding of all transcripts (Ritchie & Spencer, 1994). The codebook was adapted in an iterative manner to include codes developed inductively from the data. Themes were created, defined, and reviewed with the research team.

### *Ethical considerations*

Ethical approval was granted by each hospital involved in the study, and by the Science and Health Research Ethics Board at the University of Montreal for the entire project (CERSES-20-061-D). All participants interviewed gave their written informed consent. All analyses were performed on de-identified data.

Table 2. Professional information on study participants (N=19)

| <b>Sector of employment</b>                 | <b>Role</b>  | <b>Number of participants</b> | <b>Identification</b>                   |
|---|--|-------------------------------|---|
| Health sector<br>(n=11)                     | Managerial position in a large-scale COVID-19 testing clinic                     | n=4                           | Participants 02, 04, 05, 09             |
|   | Support role for COVID-19 activities in a health centre                          | n=4                           | Participants 08*, 10, 11, 16            |
|   | Public health position   | n=3                           | Participants 03, 12, 13                 |
| Community and philanthropic sector<br>(n=8) | Working with vulnerable populations in a community or philanthropic organisation | n=7                           | Participants 01, 06, 14, 15, 17, 18, 19 |
|   | Specific role for COVID-19 in a community or philanthropic organisation          | n=1                           | Participant 07                          |

\*Participant 08 occupied positions in the health and community sectors during the pandemic. Quotes were adjusted accordingly.

## **Results**

### *Description of participants*

The 19 stakeholders interviewed, 17 women and two men, came from various organisations and played different roles in large-scale testing (Table 2). Eleven participants worked in the health sector, and eight in community or philanthropic organisations. Four participants from the health sector were directly involved in developing large-scale testing clinics. Two



participants from health centres worked to develop accessible communication strategies and intervention approaches to meet the needs of patients during COVID-19. Two others played strategic roles during COVID-19, ensuring that the health sector created partnerships and supported other sectors in adapting their activities and managing outbreaks in their respective environments. One participant had a position created specifically to tackle the pandemic, aimed at supporting actors from the community and health sectors in their responses to COVID-19. The remaining ten participants – three from the health sector and seven from the community sector – had mandates directly related to vulnerable populations, with nine specifically working with migrants and racialised minorities. One participant had positions both within the community and health sectors during the pandemic. While most participants were not directly involved in planning large-scale testing, their views as collaborators to health centres provided important information on the strengths and weaknesses of testing efforts in Montreal.

### ***1. Understanding and perception of SIH***

Diverse perceptions of SIH emerged from our analysis of interview data. Most respondents mentioned that SIH were an important part of their organisation's vision and mandate, both before and during the pandemic. Yet, their perception of SIH seemed to be shaped by the mandates of their respective organisation during COVID-19:

We are always confronted with SIH. [...] One of my mandates is ensuring that we meet the needs of the whole population. We know that our health centre is situated [in a low-income neighbourhood] and that our target population faces health and social deprivation. [...] In the context of my current mandate, I always deal with SIH in making decisions. (Participant 09, health sector)

[I think the objectives of large-scale testing] only partly consider SIH, not fully... We've been in the field for months and [...] if I come out of my 'community sector bubble', I don't really see changes. [...] I didn't see initiatives put in place, except by the community

sector [...] I don't think that large-scale testing decreases inequalities, because there are no specific services [for people with difficult living conditions]. (Participant 06, community sector)

Another participant also emphasised these different visions of SIH across different levels within the health sector:

You were asking me earlier if there was a common philosophy or perception of SIH... There is no doubt that with our colleagues in Montreal, we perceive SIH in a specific way, but at the level of the Ministry of Health more generally, or even of public health departments, it can really differ. (Participant 16, health sector)

Some participants perceived that the fact that sociodemographic data on COVID-19 cases were not available in Quebec reflected this generalised lack of consideration for SIH:

The issue is that people who experience social inequalities are also those who are disproportionately impacted by the pandemic [...] It's extremely frustrating in Quebec that we don't have access to data on racialised populations, income, language... on all these elements that are important determinants for the pandemic, as we saw in Ontario and other countries. (Participant 08, health sector)

Most participants had some knowledge of SIH. However, data suggest that there was not a clear and unified vision of SIH within the health sector, or between the community and the health sectors during the pandemic. Many actors agreed that heterogeneous perceptions of SIH and lack of data hindered efforts of large-scale testing to address SIH for specific subgroups of the population.

## ***2. Approach to address SIH***

### *2.1. State of emergency and lack of design*

Many respondents mentioned that the state of urgency caused by the pandemic was unprecedented. This impeded the adequate and evidence-based design and planning of large-scale COVID-19 testing, as well as the consideration of SIH given the immediacy of the situation. For instance, two participants who contributed to planning testing clinics stated that their health centre did not have a well-developed protocol for such interventions:

We really started from zero. [...] I'm trying to think about what we had in terms of screening services [in our hospital], and nothing comes to mind. [...] So, of course, it was a lot of 'trial and error' in the end. (Participant 04, health sector)

Sometimes, before COVID, we discussed health crises, and I think it was an abstract concept. We thought that it was possible to plan in a crisis context... But in a real crisis, planning is very short term. (Participant 09, health sector)

Another participant who managed a COVID-19 testing clinic emphasised that the priority during the first wave of COVID-19 was to develop large-scale COVID-19 testing as quickly as possible, without considering SIH, because they did not have the initial resources and instruments in place. She mentioned that this lack of design was not necessarily undesirable:

I wonder if we would have been able to think about social inequalities, you know... At the same time as organising this clinic and... I don't know. I'm under the impression that it's maybe not a bad thing to work towards responding positively to emerging needs. (Participant 02)

Participants highlighted that there was a lack of pre-existing guidelines to design large-scale testing for COVID-19, and that initiatives were not always grounded in lessons learned from health crises in other contexts. The state of emergency brought by the pandemic thus hindered the use of evidence-based design and planning.

## *2.2. Primacy of a population-wide approach for the health sector*

Participants from the health sector mentioned that the priority of large-scale testing programs was to meet the testing needs of the whole population. A community organiser mentioned that ‘the objectives [of large-scale testing] are to make testing accessible to everyone’ (Participant 08, health sector). Similarly, respondents involved in developing large-scale testing explained that employing a population-wide approach first and then subsequently address SIH represented a normal course of actions:

When you plan something for the masses... You can't think of social inequalities in health. [...] You're creating a new service for the whole population, so you must create it – at the beginning, I mean at the very beginning only – by not thinking about that. But once the foundations are there, then you can start to think about, ‘Ok, with what I have, am I able to reach everyone? What is the population I can't reach? How can I adapt this universal service?’ (Participant 09)

Participants thus perceived that large-scale testing was designed and implemented for the whole population first, in the hopes of being reactive and increasing access to screening services for everyone.

## **3. Intersectoral collaboration**

### *3.1. Shifting of the decision-making centre*

Most participants recognised that the health sector was responsible for designing, planning, and implementing COVID-19 testing programs in Montreal. Some respondents mentioned that between the first and subsequent waves of COVID-19, there was a shift in decision-making and

coordination from the regional level – with public health departments and the Ministry of Health and Social Services – to territorially defined health centres:

We created partnerships for large-scale testing. At one point, we had [services planned for] the whole Island of Montreal, and then health centres took over. We were in partnerships with other health centres, because to tackle inequalities in accessing health services [...] we should offer services where populations are located. So, the Ministry of Health decided – I think it was during the summer – that health centres would take over large-scale testing [to offer services to populations in their catchment area]. (Participant 05, health sector)

Accordingly, some participants recognised health centres as the ‘main actors’ in large-scale testing, stressing that ‘the planning [of large-scale testing] was very different between each health centre’ (Participant 13, public health). Participants from the community sector mentioned that even if they participated in working groups, they were unsatisfied because of their lack of autonomy and decision-making power:

[Working groups] don’t have the money. [*Ad hoc*] committees don’t have the money. Health centres can give us human resources and money. They go with what they can [offer] [...] In terms of an action plan, we try to adapt our actions to the reality of health centres. (Participant 01, community sector)

The responsibility for executive decision-making thus evolved during the pandemic in Montreal, shifting from the regional level to local health centres, with varying involvement from other actors depending on where the decision-making power rested.

### *3.2. Attempts at formalising an intersectoral approach to large-scale testing*

While the level of collaboration with partners varied between each health centre, many participants from the health sector stated that the pandemic increased the collaboration between different stakeholders: ‘A positive aspect of the pandemic is that it very clearly reinforced the collaboration between public health and the community and research sectors’ (Participant 16).

Collaboration between sectors was formalised through the creation of crisis units and working groups, involving hospitals and public health departments, decision-makers at the city and neighbourhood levels, and community organisations, among others:

From the first wave, we created what we called crisis units, in collaboration with city districts and community partners. These units brought together hospitals, districts, [...] neighbourhood groups and key community partners to try and develop constant consultations to be able to intervene quickly and share information on upcoming large-scale testing clinics. (Participant 12, public health)

This collaboration largely centred around the health sector, consulting and sharing information to support other organisations working with communities. However, some community actors felt that their involvement in large-scale testing was minimal, and that they did not receive enough support from the government to appropriately care for communities:

[The government] gives us information and, ‘figure it out with the information that we give you’ and that’s it. [...] [COVID-19] started in March, and I think it’s only in September that we received emergency funds. [...] There’s a clear delay compared to services offered to the general population. (Participant 17, community sector)

And the exhaustion to always try to address these issues while it shouldn’t be the community sector’s responsibility. [...] We shouldn’t be the people on the front lines... It should be hospitals, public health departments, the government, local authorities that come and really address [SIH]. (Participant 06, community sector)

Therefore, the health sector was the key stakeholder involved in large-scale testing, collaborating with other actors to share governmental guidelines and support partners. Yet, data suggests that resources were insufficient to address SIH.

#### ***4. Adaptation capacity***

#### *4.1. Accessibility of large-scale testing*

Various adaptations were made to large-scale testing to increase accessibility for specific population groups, addressing information, linguistic, physical, and geographic obstacles to COVID-19 testing. Access to information was a barrier identified by several participants. Accordingly, the adaptation that was most discussed was the written and oral translation of testing-related information in multiple languages to better reach allophone communities:

Another problem with planning was information on testing. [...] This must be communicated very broadly to the population, through various means and in different languages, which wasn't done at the beginning. We worked with a [community organisation] offering translation services [...] which later contributed to translating material for other territories, allowing health centres to translate their material in various languages. (Participant 07, philanthropic sector)

Some participants also mentioned that information about large-scale testing was adapted for low literacy levels through collaborations between the health and community sectors:

We have done another series [of informative materials] that used pictograms, very few words and pictograms. [...] We sometimes had templates that had too much text, so we went by trial-and-error... But it was something we thought about. (Participant 12, health sector)

Other adaptations discussed were the development of outpatient testing and partnerships with taxi companies to increase access to testing for individuals with mobility issues or low-income, and for the elderly:

We were asked to go and test people at home [...] Our home-based services aimed at reaching people in long-term care facilities, private retirement homes, rehabilitation centres for people with intellectual disabilities, youth shelters [...] This really allowed us to target a vulnerable clientele. (Participant 02, health sector)

We looked if it was possible to provide taxi fares for people who could not [get tested]. We had an agreement with [a taxi company] so that people at risk who couldn't come could get transport. (Participant 05, health sector)

Many adaptations to COVID-19 testing occurring after the initial implementation were mentioned by participants, which included improving linguistic, informational, physical, and geographic accessibility.

#### *4.2. Acceptability of COVID-19 testing*

Efforts were made in collaboration with partners outside the health sector to improve the acceptability of COVID-19 testing for certain population groups. One of the major obstacles discussed by respondents was the incapacity of some people to self-isolate in case they tested positive to COVID-19, influencing their initial decision to get tested:

Sometimes, there are occupational health teams present in the field in the case of outbreaks to inform people [...] about their rights for the 14 days [of self-isolation]. [...] There are also discussions with the Red Cross to provide care packages during self-isolation. [...] There are discussions with foundations to see [...] how we could find money to pay these people so they can isolate. It's a public health mandate and many actions are taken towards this goal. (Participant 03, public health)

One participant also mentioned that additional efforts were made to encourage homeless individuals to get tested and follow governmental sanitary guidelines:

Obviously, patients experiencing homelessness needed a place to wait for their results, and needed a place to self-isolate, because most of the community organisations were not welcoming them anymore. So, we got that going. (Participant 02, health sector)

Some community groups also supported the right of migrants without medical insurance to be tested for COVID-19 without fear of being reported or getting into trouble with authorities:



Some groups highlighted the issue of having a [health insurance card]. It was written on posters that you needed a health insurance card to get tested. So, there were many efforts to say, ‘We can’t put that on posters because people without [authorised migrant] status, who don’t have the card, won’t want to get tested.’ [...] This can be an example of how we listened to what came from the field to adapt practices. (Participant 08, health sector)

Consequently, adaptations were made to large-scale testing to increase its acceptability for different vulnerable groups. Many of these changes were motivated by pressures from the community sector, advocating to remove barriers influencing how various groups perceived large-scale testing.

#### *4.3. Availability of services and patient intake*

Adaptations to large-scale testing also aimed at improving the availability of services and patient intake, specifically targeted at reaching vulnerable populations in their environment and at broadening the offer of services for them. These adaptations unfolded in three specific ways. First, most participants mentioned that the creation of mobile clinics in collaboration with community actors improved service provision for vulnerable groups:

We had regular clinics covering our territory, and we added mobile clinics too, to move closer to red zones with populations that we thought would not necessarily go [to regular clinics]. [...] We worked in partnership with community organisations to promote and organise clinics. (Participant 12, public health)

Second, the transition from appointment only to walk-in clinics was mentioned by many as an adaptation that increased the availability of testing services:

Services were [initially] very focused on appointment booking. We believed, particularly in certain communities, that it was easier in terms of people’s working conditions or daily life to go to walk-in clinics. This offer is increasing with time... But we should have been

more flexible from the beginning and create walk-in clinics to accommodate as many people as possible. (Participant 07, philanthropic sector)

Third, the schedules of testing clinics were modified to offer longer operating hours:

We had to think about [...] which operating hours could best tackle issues [of service availability]. [...] We were suggesting that evenings were better, because a lot of people in the field were telling me they couldn't go during the day. It took a long time for requests to be heard. [...] Now it's better in terms of location, operating hours, and advertising. (Participant 08, community sector)

Several adaptations were thus implemented to improve the availability of testing services in Montreal, improving the offer of services for vulnerable populations. While participants mentioned that it was difficult to change existing interventions, they recognised that services improved gradually to respond to the needs of specific subgroups.

## **Discussion**

This qualitative study provided useful insights on the consideration of SIH in the design and planning of large-scale testing for COVID-19 in Montreal (Canada). Results presented suggest that the unprecedented scale and speed of the pandemic in combination with a lack of pre-existing guidelines for emergency preparedness led to a population-wide approach for COVID-19 testing. Various adaptations were made in collaboration with the community sector to increase accessibility, acceptability, and availability of large-scale testing. This study is significant as, to the best of our knowledge, it is one of the first to investigate the consideration of SIH in testing efforts. Our findings can be used to improve current and future testing initiatives in the context of infectious disease outbreaks.

Our theoretical *bricolage* was useful in analysing interview data. Combining existing

theories and conceptual frameworks to fit research objectives is a promising approach to health policy research, as it provides a flexible and holistic tool for understanding complex interventions in a given context (Jones et al., 2021). Our *bricolage*, focused primarily on SIH, was innovative and allowed to identify the interactions between various levels of governance and activities for large-scale testing, including their adaptations.

Our first theme demonstrated that there lacked a unified representation of SIH for all sectors involved in large-scale testing in Montreal. It has been argued elsewhere that the ways in which different actors understand and represent SIH, their causes and their consequences influence how health interventions are designed (Ridde & Guichard, 2008). In our study, participants shared their frustration towards the fact that disaggregated data on COVID-19 cases were not available, which would have been useful for evidence-based decision-making for large-scale testing. Indeed, recent studies highlighted the importance of collecting data on social determinants of health (*i.e.*, gender, occupation, income, ethnicity) to support decision-making during COVID-19, considering that disadvantaged social contexts were associated with increased risk of infection (Yaya et al., 2020; Khalatbari-Soltani et al., 2020). Adopting an integrated vision of SIH for all stakeholders involved in developing public health measures such as large-scale testing could play a key role in identifying the most appropriate strategies for reaching specific targeted groups (Public Health Agency of Canada, 2020).

The second theme showed that the state of urgency created by COVID-19 resulted in large-scale testing being developed without consulting or using evidence from prior infectious disease outbreaks. Other studies have demonstrated that governments worldwide failed to adopt evidence-based decision-making during COVID-19, notably for planning large-scale testing and tackling SIH (Moatti, 2020; Solinas-Saunders, 2020). This echoes the findings of recent rapid reviews, emphasising that health inequity is rarely considered in the design and evaluation of public health interventions (Mathevet et al., 2021; Ost et al., 2021). For instance, evidence

shows that population-wide strategies tend to exacerbate SIH. Benefits from population approaches are not equally distributed across a population, as they often fail to address the social conditions disadvantaging certain groups. Approaches that are aimed at vulnerable populations are more promising, as they target the conditions that prevent some populations from using public health resources to improve their health (Frohlich & Potvin, 2008). A population approach was nevertheless the initial approach to large-scale testing adopted in Montreal, despite the Canadian Pandemic Influenza Preparedness plan indicating that planners must identify specific populations, settings and needs for prevention or care services (Public Health Agency of Canada, 2018). Despite the challenges associated with planning public health initiatives in sanitary crises, the consideration and uptake of an evidence-based approach to large-scale testing could have allowed a better consideration of SIH in Montreal.

The third theme highlighted that decision-making for testing was primarily with the health sector. Accordingly, participants from the community sector perceived that their involvement was minimal and that they did not have enough resources to tackle SIH, despite being frontline workers throughout the pandemic. Other studies suggest that integrated and inclusive governance for health is crucial to tackle COVID-19 (Rajan et al., 2020). They emphasised the importance of multilevel and multisectoral approaches, coupled with community participation and collaboration with community organisations, to promote social protections and foster equity (Rajan et al., 2020; Lal et al., 2021). The creation of mutually beneficial partnerships with the community sector and the population is presented as integral part of the public health apparatus in Quebec, despite interventions seldom being adapted to their local context and involving community actors in practice (Ridde & Druetz, 2016; Touati et al., 2018). This could have been improved in the context of COVID-19, as collaboration appears to be critical for reaching vulnerable populations in health crises (Gautier, 2021).

Our fourth theme indicated that large-scale testing was iteratively adapted to increase the accessibility, acceptability, and availability of services. Reinvention of public health interventions as they are implemented can improve effectiveness, showing that they are flexible enough to be adapted to emerging local needs (Pérez et al., 2020). Recent studies suggest that mistrust of health services, inability to conduct physical distancing, precarious working conditions, and limited access to accurate information are potential reasons for the unequal uptake of testing during COVID-19 (Dodds & Fakoya, 2020; Valeriani et al., 2020). They criticise the fact that responsibility was placed on individuals for not respecting sanitary recommendations, while decision-makers failed to adapt testing to the needs of marginalised groups. Targeted outreach efforts in community settings, involvement of community leaders and organisations, and cultural adaptation of services were identified as promising strategies for increasing accessibility and acceptability of large-scale testing (Jacobson et al., 2020; Valeriani et al., 2020). Adapting testing strategies to contextual factors, which was gradually done in Montreal, was crucial to mitigate the negative impacts of COVID-19 policies on SIH (Craig et al., 2018).

### *Limitations*

Due to the strain caused by COVID-19 on healthcare systems and their personnel, some actors involved in planning large-scale testing could not be reached or did not accept our invitation to participate. Accordingly, our study only included health sector participants from two territories, despite there being five in Montreal. This resulted in the sample not necessarily representing the experiences of all testing sites. Additionally, while our study focused on the design and planning of large-scale testing, many respondents were only indirectly involved in this phase and thus mainly discussed implementation. The inclusion of key informants with various

affiliations nevertheless offered a nuanced and comprehensive view of testing programs, and the use of thick descriptions and direct quotes increased the transferability of findings (Nowell et al., 2017). Furthermore, interview excerpts were translated in English for reporting purposes. While quotes were validated multiple times, translation could influence the comparability of data, reflecting choices made by the translator about form and content (Chen & Boore, 2010). Lastly, our theoretical *bricolage* represented an attempt at classifying interview data, and themes were not mutually exclusive. This *bricolage* was nonetheless useful in classifying and analysing data, ensuring that results were presented in a coherent manner.

## **Conclusion**

Despite repeated calls for public health actors to improve social justice, our study suggests that SIH were initially not prioritised in large-scale testing in Montreal (Ridde, 2004). From the Ottawa Charter (Ridde et al., 2007) to the Commission on the Social Determinants of Health (Marmot & Bell, 2012), COVID-19 shows that we must continue to advocate for SIH to be central in public health initiatives. Pandemic preparedness and response must include a commitment to truly ‘leave no one behind’. This will not happen without political will and a substantial increase in the resources available for public health and the reduction of SIH, in Quebec and elsewhere.

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## **Disclosure statement**

The authors declare that they have no conflict of interest.

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**“It felt like building a plane while in flight”: The consideration of social inequities in health in the design of a contact-tracing program for COVID-19 in Montréal**

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# **“It felt like building a plane while in flight”: The consideration of social inequities in health in the design of a contact-tracing program for COVID-19 in Montréal**

## **Abstract:**

**Background:** In Canada and globally, the COVID-19 pandemic has increased social inequities in health (SIH), furthering the vulnerability of certain groups and communities. Contact tracing is a cornerstone intervention with COVID-19 prevention and control programs. The aim of this study was to describe if and how SIH were considered during the design of the COVID-19 contact-tracing program in Montréal.

**Methods:** A qualitative case study was carried out in Montréal, based on a “bricolage” conceptual framework describing the consideration for SIH in intervention and policy design. Qualitative data were collected using semi-structured interviews with 16 public health practitioners, recruited using both purposive and snowball sampling. Data was analyzed using thematic analysis, both inductively and deductively.

**Results:** Results showed that SIH were not considered during the design of contract tracing in Montréal, which the participants thought was due to the crisis nature of the situation. Public health practitioners deplored the Québec government’s lack of will to integrate SIH into the public health response, as well as the lack of preparedness to pandemics.

**Conclusions:** Considering these findings, prior to designing public health interventions, decision-makers need to have a common vision of SIH, allowing to conceptualize and consider SIH better in the future.

**Keywords:** COVID-19; social inequities; public health; contact-tracing program; Montréal, Québec; Canada

## **Key Messages:**

### **1. Implications for policymakers**

- COVID-19 prevention interventions need to actively consider social inequities in health to be effective

- There is a need for a clear and common vision of social inequities in health at the political, institutional, and local levels in public health
- Systematic data regarding sociodemographic, working and living conditions, and access to health care should be collected to provide equitable public health interventions

## **2. Implications for public**

Social inequities in health refer to disparities in health status that disproportionately affect certain groups of the population. Public health interventions are likely to be less beneficial to vulnerable and marginalized populations if social inequities in health are not considered during the design of the interventions. Our results highlight the need for greater consideration of social inequities in health in prevention programs during sanitary crises, such as contact tracing for COVID-19.

### **Background**

In Québec, there have been more than 410 000 cases of COVID-19, as of October 1<sup>st</sup>.<sup>1</sup> The first case was declared in the province on February 27<sup>th</sup> and the government declared all the non-essential services closed starting March 24<sup>th</sup>. Montréal, the largest and most populated city in Québec, rapidly became the most burdened city in the province.<sup>2</sup> It also became apparent in Montréal as well as globally that COVID-19 and the associated measures differentially impact marginalized communities relative to the general population.<sup>3</sup> There is past and present evidence of inequalities in prevalence and mortality rates in pandemics: between high/low-income countries, more/less affluent areas, higher/lower social classes, and urban/rural areas.<sup>4</sup> It was suggested that the severity of the COVID-19 pandemic is amplified because of both (pre-) existing social inequalities and chronic diseases (e.g., hypertension and diabetes) high prevalence which are themselves socially stratified and associated with exposure to the social determinants of health.<sup>4</sup>

Social determinants of health are discussed in the literature to explain health inequities. For example, some authors describe structural and intermediary determinants of health.

The first encompass the political and socioeconomic context (e.g., labour, housing, education and health and social protection policies in place in a country) and the social position that is shaped by gender, age, socioeconomic (income, occupation, and education), racialized and migration status. Intermediary determinants are made of living and working conditions, psychosocial factors (e.g., stress), and access to health care and other public services. Moreover racism and social networks are related to both levels of determinants.<sup>5</sup> In Canada, the impact of poverty on health is considerable since about one out of six Canadians are living in a low-income household.<sup>6</sup> Racial and ethnic minorities and First Nations often experience racism and social exclusion, barriers to health care and to decent housing, and are more likely to live in poverty.<sup>7</sup> Migrants both with or without authorized status and without medical insurance face important unmet medical needs and lack of access to health care due to financial constraints,<sup>8</sup> and are more likely to perceive their health in a negative way.<sup>9</sup> According to Whitehead and Dahlgren, SIH can be defined as variations in health that are “systematic, socially produced (and therefore modifiable) and unfair.”<sup>10</sup> SIH have been studied extensively in public health, but much remains to be done, particularly about the most appropriate approach to reduce health inequities. For instance, it has been argued that the population strategy approach, suggested by Geoffrey Rose, has the potential to increase SIH by reaching primarily the most privileged groups.<sup>11</sup> Conversely, it has been posited that a new population-level intervention will first increase SIH by affecting the populations with a higher socioeconomic status, before reaching those living in less affluent neighbourhoods in a second phase.<sup>12</sup> Frohlich & Potvin suggest a vulnerable population approach, which targets the fundamental causes that create vulnerability, therefore ensuring SIH to decrease between socially defined groups.<sup>13</sup> An intervention is equitable “if the benefits are greater in the subgroups or territories that have been defined as the most vulnerable or having the greatest needs.”<sup>14</sup> Finally, the design stage of the intervention is a crucial stage to consider SIH, as it is unlikely that SIH will decrease if the intervention was not intentionally designed to do so.<sup>15</sup>

Contract tracing is a cornerstone public health intervention for diseases that are transmitted from person-to-person, such as COVID-19, with the goal to identify, assess, and manage people who have been exposed to prevent onward transmission.<sup>16</sup> Contact tracing involves informing people that they may have been exposed to a confirmed case,

to assist them in getting tested, to understand their contacts and risk of exposure, and to give them information on self-isolation if necessary.<sup>17</sup> A rapid review of the literature shows how contact-tracing programs for COVID-19 usually do not account for SIH, putting aside the specific needs of particular subgroups of the population.<sup>18</sup>

Considering that the COVID-19 pandemic has exacerbated existing SIH, it is necessary that the public health interventions intending to prevent transmission, such as contact tracing, not further increase SIH and maximum the opportunity to prevent onward transmission. The aim of the study was to explore how SIH were considered during the design and planning of the contact-tracing program in Montréal.

## **Methods**

A qualitative case study was conducted in Montréal, Québec, in Fall 2020, approximately 8 months after COVID-19 contact tracing began. This study is part of the HoSPiCOVID project, a multi-country study which mainly focuses on the resilience of the health systems to the COVID-19 pandemic in Canada, France, Brazil, Mali, Japan and China.<sup>19</sup>

### ***Conceptual framework***

This qualitative study is built on a hybrid conceptual framework that was adapted from three analytical tools: Policy design by Howett<sup>20</sup>, Planning of public health interventions by Pineault and Daveluy<sup>21</sup>, and REFLEX-ISS by Guichard and colleagues.<sup>22</sup> Combining these three analytical tools into one (a “bricolage” approach often use in health policy and health system research<sup>23</sup>) allowed for a more holistic analysis the consideration of SIH in the intervention design. Interview guides, as well as deductive coding, were built on this hybrid conceptual framework (Tables 1 and 2).

**Table 1 – Frameworks on policy design and planning**

| Reference | Stages of policy and public health intervention design and planning explored in the literature |
|-----------|--|
|-----------|--|



|   |  |   |  |  |
|---|--|---|--|--|
| Policy design <sup>20</sup>                           | Synthesis of available evidence            | Solution development and evidence-based decision-making | Consideration of diverging stakeholders' interests | Anticipation of the potential effects of the proposed solutions                                |
| Planning of public health interventions <sup>21</sup> | Strategic planning                         | Tactical and operational planning                       | (Implicit)   | Operational planning   |
| REFLEX-ISS tool <sup>22</sup>                         | Analysis of problems and needs             | Objectives, justification, and conception of SIH        | Involvement of partners and the population         | (not applicable)   |
| <b>Combined framework</b>                             | <b>Understanding and perception of SIH</b> | <b>Approach to address SIH</b>                          | <b>Multisectoral collaboration</b>                 | <b>Adaptation capacity: accessibility, acceptability, availability, and unintended impacts</b> |

Legend: The combined framework is based on authors' own work, and Howlett, 2019; Pineault & Daveluy, 1995; Guichard et al., 2019

**Table 2 - Definitions of the four categories of the combined framework**

| Categories  | Definitions   |
|---|---|
| Understanding and perception of SIH   | Respondents' narratives about SIH, (lack of) common vision of SIH shared with their teams, institutions, and partners based on a mutual analysis of the context and supported by evidence         |
| Approaches to address SIH   | Respondents' discourse about a 'milieu-based' approach to tackle SIH versus 'at-risk' groups approach (i.e., to avoid stigmatization) and other similar approaches.                               |
| Intersectoral collaboration   | Respondents' mentions of involving key partners from other sectors, and ensuring their ongoing commitment, thus delivering the intersectoral approach.  |
| Adaptation capacity (incorporating the subcategories below)                 | Respondents' discourse about flexible design and planning, monitoring, and adjusting as needed, e.g., accounting for implementation shortcomings and incorporating new evidence (related to SIH). |
| <ul style="list-style-type: none"> <li>• Unintended consequences</li> </ul> | Intervention designers' and planners' ability to anticipate unintended and undesirable consequences, and to adjust accordingly  |
| <ul style="list-style-type: none"> <li>• Acceptability</li> </ul>           | Perceived capacity for intervention recipients to benefit from it, and intervention's capacity to adjust to enhance acceptability   |
| <ul style="list-style-type: none"> <li>• Availability</li> </ul>            | Perceived reception of the intervention, and intervention's capacity to adjust to enhance availability  |
| <ul style="list-style-type: none"> <li>• Accessibility</li> </ul>           | Information on how to access the program, adaptations of communication tools to be more easily accessible   |

Legend: The combined framework is based on authors' own work and Lévesque et al., 2013<sup>42</sup>

### *Study sites*

In Canada, the responsibility of the health system is shared between the federal and provincial/territorial governments. The Canadian Health Act describes the principles that must be met by the provinces and territories (such as public administration, comprehensiveness, universality, portability, accessibility) for the federal government to transfer them the full payment. Provinces and territories are responsible for managing and delivering health care to their residents.<sup>24</sup> The health system in the province of Québec is consisted of 22 Integrated Health and Social Services Centers and is governed by the Ministry of Health and Social Services.<sup>25</sup> Public health activities are part of a service delivery program distributed among each administrative region of the province of Québec through a local public health authority. In Montréal, the local public health authorities have the mandate to conduct contact tracing as part of communicable disease programs. For COVID-19, the activities involved with contract tracing depend on the level of risk of the contact in question (low, medium, or high): i) active surveillance of the contacts by telephone or email for a maximum period of 14 days, or ii) self-monitoring of the contacts with public health supervision via a daily email (a questionnaire focused on evaluating symptoms).

### *Sampling of participants*

Data collection took place among the local public health authorities in Montréal, Québec and involved semi-structured interviews with 16 participants. Participants were purposively sampled for their knowledge of the contact-tracing program,<sup>26</sup> in its implementation or its adaptation to different populations or settings. First, a short list of potential participants was created and based on the professional network of the HoSPiCOVID researchers. Potential participants were then contacted by email or phone. Snowball sampling was then used to identify other potential participants, as each participant was asked to provide names of colleagues who were involved in the design or implementation of the COVID-19 contact-tracing program. Participants were recruited until data saturation was achieved.

### *Data collection*

An interview guide was created based on our conceptual framework (Table 2), which was piloted tested prior to data collection. Participant recruitment and semi-structured interviews were conducted between November and December 2020. Interviews were conducted online using Zoom and two authors (RM and ASL) conducted the interviews in French. The interviews were recorded and videotaped, and at the end of each interview, the interviewer wrote notes to highlight important themes discussed. The audio files were transcribed.

### *Analysis*

The first author carried out data analysis using a thematic analysis approach.<sup>27</sup> Data was organized and verbatim transcriptions were read several times. A vertical reading was done to become more familiar with the content of the data, followed by several horizontal readings (sentence by sentence) to begin to identify important and recurrent themes. Categories were developed and used to codify the verbatim. The coding was both deductive (the main categories were based on the hybrid conceptual framework developed by the research team) and inductive (other categories were developed as new ideas emerged from the data collected). Finally, data was interpreted to bring out and clarify the meaning. Our hybrid conceptual framework was used to guide the interpretation of the results. The first author translated the parts of the verbatim figuring in the Results section, from French to English. Data analysis was assisted by NVivo release 1.5.

### *Ethics*

The research project has been approved by the University of Montréal's Research Ethics Committee (CERSES-20-061-D). Consent was provided prior to conducting the interviews. Individual interviews were conducted on Zoom, during which the interviewer was in an isolated room to ensure confidentiality. Data was stored on a password-protected server and anonymized.

## **Results**

We conducted 16 semi-structured interviews (Table 3). All participants were involved in the COVID-19 contact-tracing program. Table 4 presents the main theme discussed during data collection.

**Table 3 – Characteristics of the participants (n = 16)**

| <b>Public health authority department</b> | <b>Training</b>               | <b>Work experience</b>       | <b>Involved in the contact-tracing program</b> |
|---|-------------------------------|------------------------------|--|
| Infectious disease prevention<br>n = 10   | Medical degree<br>n = 4       | Less than a year<br>n = 6    | Involved in design<br>n = 2                    |
| Health promotion<br>n = 1                 | Nursing degree<br>n = 5       | >1 year < 2 years<br>n = 3   | Involved in implementation<br>n = 4            |
| Occupational health<br>n = 3              | Public health degree<br>n = 3 | More than two years<br>n = 7 | Involved in adaptation<br>n = 10               |
| Urban environment<br>n = 2                | Other/Unknown<br>n = 4        |                              |  |

**Table 4 - Main themes discussed during data collection**

| <b>Theme</b>   | <b>Example of question</b>  |
|--|---|
| Design process of the contact-tracing program                    | <i>Could you explain how the design of the intervention was carried out?</i><br><br><i>If you had the opportunity to design the intervention, what would you have done to consider the social inequities in health?</i> |
| Vision, knowledge, and consideration of social health inequities | <i>In this particular position, what do social inequalities in health mean to you?</i><br><br><i>Is there a kind of formalized reflection on the issue of social inequalities?</i>                                      |
| Partnerships and concertation with other actors                  | <i>How were community organizations involved in the design of the intervention?</i>   |
| Adaptations and redesign process of the intervention             | <i>Can you explain other adaptations to the intervention and what drove the adaptation to consider social inequities?</i>   |

### *Structural and institutional perceptions of SIH*

When asked about how the participants usually perceive and understand SIH, they generally responded that SIH are well known and considered within the institution. Public health practitioners explained that they showed commitment to tackling SIH, whether in times of COVID-19 or not. However, they often faced numerous barriers to integrate SIH within COVID-19 contact tracing, due to limited resources, e.g., budget cuts for the public health sector and lack of time to design the intervention.

*“So, the concepts of social inequalities, yes, I think there are people in public health who are very familiar with this subject, but we hadn't reached the point where all the teams had the time to integrate the concept of SIH, especially in infectious diseases, where budgets had been cut, so what we had was investigators to do the bare minimum”* (participant #4).

*“Yes, yes, yes, yes really there is one [formalized reflection about SIH]! Do we want to implement it? I think we want to, but there are so many fronts to fight, I think that's the lack of time, we can't actually, I wouldn't even know where to start...”* (Participant #5).

Public health workers explained how SIH were important to them, and how they felt as though SIH were not a priority of the provincial government. Participants described how this lack of common vision of SIH resulted in disagreements at different stages of the design and implementation of the intervention, for instance, when developing data collection tools.

*“This is a debate that we have been having since March [2020], to add the questions of ethnic origin and ethnocultural belonging and migratory status. And it's probably now that we're finally going to add them, but the Ministry [of Health] is still categorically refusing”* (participant #1).

For this participant, the lack of consideration for SIH was likely related to the political agenda of the Ministry of Health, which may have resulted in more challenges to consider and address SIH. The participant condemned the provincial exclusion of ethnocultural data, which would have been extremely informative to better consider SIH within the local public health programs and interventions.

*“It's just that the expectations of the interviewers are really to do the questionnaire with the people. This questionnaire is neutral, I mean, it is standardized and does not reflect any concern about social inequalities in health [...]. And this is the wish of the Ministry! [...] And then we must adjust because it's certain that if the concerns of social inequalities in health are not reflected in the political expectations, they won't be reflected in the tools that are going to be imposed on us, they won't be reflected in the strategic orientations” (participant #2).*

### ***Approaches to addressing SIH***

When asked about how SIH were integrated into the design of the COVID-19 contact-tracing program, respondents unanimously mentioned that there was no time to consider SIH during the design the intervention. Participants described an atmosphere of urgency and panic that was overwhelming during the first wave, which resulted in the intervention being designed as quickly as possible, without consideration of SIH.

*“Montréal was going to be the Canadian city with the most cases during the first wave; obviously, we weren't ready for that, it felt like building a plane during the flight. [...] So it was too fast for us to be able to have any other consideration than just trying to catch this huge tsunami, and then being able to do the work that was asked of us, which was to call the cases within 24 hours. [...] Even at the federal and provincial level to support the activities there was nothing planned.” (Participant #11).*

However, as knowledge about the epidemiologic situation was improving, public health practitioners noticed that the contact-tracing program could not reach vulnerable groups and therefore their approach was adjusted. For example, as soon as it was recognized that people in certain workplaces were at higher risk of infection than the general population, a specific approach for employers was designed. The main purpose of this adjustment to the initial intervention was to help employers to identify contacts and to give them guidelines in the prevention of virus transmission within the workplace.

*“We made a chart to support the employer to identify the close contacts, and if there is difficulty to do it, we do it with him on the phone. I'm not the one who does that, but when we developed it, we really developed it with the doctors, we presented it to the*

*stakeholders, and then we tried to make it as simple as possible, despite the complexity of the thing” (participant #14).*

Other structural vulnerabilities were considered later in the implementation of the program. For example, it is well known that migrants and refugees are generally more vulnerable to health risks due to the barriers they face all along their immigration journey. Therefore, the public health authorities attempted to address specific issues faced by asylum seekers and illegal migrants in terms of COVID-19 contact tracing, such as the lack of trust in the governmental institutions.

*“Often there is a [COVID-19] case, he will say ‘well I can't tell you who my contact is, because the person is here illegally,’ and according to the law the person must declare, but the person didn't want to because he is afraid that this person can be deported or have legal problems. [...] I think that when people who don't have the information think that when they have become contacts, it's like the police, but we try to say, ‘no, no, we don't want you to transmit the virus’” (participant #15).*

Another example of structural vulnerability that was addressed by the local public health authorities was being a member of an ethnic minority. A particular unit of the local public health authority, which is responsible for adapting public health measures to different cultural communities, worked in collaboration with leaders of different communities in Montréal to make sure the contacts were able to quarantine themselves, as the intervention is not necessarily accessible or acceptable to every community due to the structural barriers that they usually face (e.g., racism or xenophobia). For example, a partnership was built with religious leaders to help communities comply with public health measures while taking into account their religious practices.

*“What we also do is intercultural mediation: we work with leaders of religious communities to anticipate with them the difficulties that the communities could have in the observance of religious practices [...]. The idea is to anticipate with these communities, once again, these difficulties and to put in place mechanisms of intercultural mediation to look at whether there are points of convergence that could lead to a satisfactory solution for the communities [for them to respect public health measures]” (participant #7).*

### *Multisectoral collaboration*

Several partnerships were developed as the program was implemented. For instance, community organizations in Montréal worked in collaboration with the local public health authorities to provide support to contacts who needed to be quarantined. Community organizations were not involved in the design of the contact-tracing program but were asked for support once it became evident that certain communities could not meet their basic daily needs during the lockdown.

*“I think that in the first wave, we heard there were a lot of elderly people who died and were hospitalized and all that, so in the second wave, even before the second wave, there was already [a concern like] ‘how do we help the elderly contacts?’ Now there is a service from the Red Cross that allows to find an accommodation for the elderly so that they are not all alone at home, or there is someone who can prepare the meals. So today, there are services” (participant #15).*

Other partners were mandated by the Ministry of Health to support the local public health authority with contact tracing given increased number of contacts. Often the partners were private firms, such as call centres, without any knowledge or skill in public health nor SIH. According to participants, building partnerships with those private firms resulted in wasted time in tracing contacts, which may have limited the success of the intervention.

*“The public health objective is to reach the case within 48 hours, the contact within 72 hours. Before [the private firm joined the program] it was easy. We used to call, we would receive the fax there and then we would call right away, but now we don't, because of the system. You receive the fax and then you must enter that information in the information system, and then the person will only call the next day, so you already miss the 24 hours. Currently not 100% of people are reached within 48 hours, and when we don't reach them, well, it certainly causes risks” (participant #15).*

### *Adaptive capacity*

Rapidly after the beginning of beginning COVID-19 contact tracing, it became clear that SIH had the potential to greatly limit the acceptability of the intervention. Certain



structural factors limited the acceptability of the intervention and included poverty, poor housing conditions, migration status, and precarious employment.

*“Depending on their living conditions, their working conditions, which are linked to social inequalities in health, we noticed that there were several communities who did not want to have any connection with public health because of their migration status, their relationship with the government, which was often represented by the police. [...] It was really on these aspects that we saw the difference between the different communities, and the social inequalities in health”* (participant #9)

To increase accessibility of the intervention, some adaptations were needed after its initial implementation. For example, when the first wave started, the program was inaccessible to contacts who did not speak French nor English (e.g., isolation instructions), which then was addressed by having translation possible into 16 languages for the isolation guidelines.

*“I can tell you honestly that this planning, even if it was good for ensuring a daily follow-up of contacts, it was done without thinking about social inequalities. The language, we tried very hard to simplify it, so it was available in French and English, in a simple language but [...] we didn't include other languages right away. It was quite long before our isolation instructions were translated into 16 other languages”* (participant #4).

Other adaptations have been made to address the special needs of certain vulnerable populations, such as homeless people. For instance, participants described a collaboration with community organizations to find the most appropriate ways to reach homeless people who did not own a cellphone. At the time of the study, the contact-tracing program was still being modified.

*“The adaptations really came at the end of the first wave and even then, we would have liked to be able to adapt the questionnaire to this effect, but we were not able to adapt it. But we have a bank of interpreters who can come quickly to support us in languages; we have set up a department that deals with homelessness; we are still working with the health workers to try to see how we can support these people who work in several places and have a precarious status here in Montréal, so that's something we are working on”* (participant #11).

This accessibility issue shows that SIH were not considered at the beginning in the implementation of the intervention, as it became clear that minorities were more vulnerable to COVID-19 in Montréal.

### **Discussion**

To the best of our knowledge, our study is the first to examine if and how SIH were considered in COVID-19 contact tracing. Our results demonstrate how SIH were not initially considered in COVID-19 contact tracing in Montréal, but certain adaptations were implemented to improve the accessibility and reach of the intervention. Despite the willingness and skills of the public health practitioners to addressing SIH in contact tracing, there were major barriers to design an equitable program, such as lack of support from the provincial government in terms of collecting appropriate data on racial and ethnic minority groups and individuals. Moreover, the intervention was initially designed in a context of urgency, and participants felt they lacked resources (time, budget) to design the intervention with SIH in mind, or with the involvement of other appropriate partners outside of the health sector from the onset.

In Québec and in Canada, the lack of ethnic and race data is not limited to COVID-19; it is common throughout research.<sup>28</sup> However, it is essential to provide an informed understanding of the health status of ethnic and racial minority groups and individuals, which would result in more equitable interventions and programs.<sup>29</sup> For instance, the city of Toronto built a publicly available database on the number of COVID-19 cases, cross-referenced with the neighbourhoods, the proportion of immigrants and visible minority status.<sup>30</sup> These aggregate data at the community level allowed researchers to provide evidence that the Toronto neighbourhoods that had the highest number of COVID-19 cases have the highest visible minority population and has a higher percentage of visible minorities.<sup>31</sup> Such data can be used to design and implement equitable public health interventions, by allocating the larger amount of resources to communities which need them the most.<sup>32</sup>

In Québec, the public health budget was cut by 33% in 2015<sup>25</sup> and in 2019, Québec spent only 2.2% of all health expenditures on public health, the lowest amount of all provinces and territories in Canada.<sup>33</sup> The lack of resources, particularly during a crisis, does not provide public health authorities with the capacity to address the social determinants of health.<sup>34</sup> Therefore, it is possible that the lack of financial resources limited the success of the contact-tracing program, as it was the case in the United States.<sup>35</sup> A sufficiently large budget must be allocated to public health authorities to increase their impact, as well as to strengthen the four essential functions of public health (surveillance, health promotion, prevention, protection).<sup>36</sup>

The lack of resources also had implications for partner collaboration during the implementation of the COVID-19 measures. However, other partners outside of the health sector can have an important impact on helping the most vulnerable to follow the self-isolation guidelines, which is essential for the success of the contact-tracing program. For example, soon after the lockdown was declared in Paris, civil society organizations quickly deployed resources outside of the health sector to provide housing, food, and basic hygiene products to unaccompanied minors.<sup>37</sup> In Montréal as well, community organizations played an important role in supporting vulnerable migrants, providing COVID-19 information and access to food banks and psychosocial support.<sup>38</sup> In France, the Red Cross was assigned the mandate to provide accommodations for populations who were unable to self-isolate, such as homeless people.<sup>39</sup> It is crucial to consider inclusion and participation of marginalized populations within the public health response, as community engagement is needed for a better effectiveness of the contact-tracing program.<sup>40</sup>

### *Strengths and limitations*

This study is based on a combined conceptual framework, which describes the consideration for SIH within the design of interventions. Our “bricolage” framework<sup>23</sup> is built upon three other frameworks describing the planning, implementation, and evaluation of interventions. The strength of our framework is that it focuses primarily on SIH and emphasizes the importance to place them at the heart of public health

interventions. However, the main limitation of this model is that it does not provide extended guidelines on each stage of the intervention design. Moreover, the study was cross-sectional and took place in Montréal, within only one public health institution of Québec, which can limit the transferability of the results within the province of Québec or the country of Canada. Furthermore, due to the health situation in Montréal at the time of the study, it was not possible to triangulate data collection methods (e.g., with focus groups or other key informants). Finally, participants were mostly involved in implementation of the intervention and not the design phase, therefore respondents spoken about implementation issues. However, the reach of data saturation, the numerous debriefings with the global HoSPiCOVID research team, as well as the co-construction and sharing of the codebook, increased the credibility of the results.

### **Conclusion**

This study shows that despite the COVID-19 pandemic exacerbating social inequities in health, and vice versa, SIH were not initially considered in the design and planning of the contact-tracing program in Montréal. Contact-tracing programs, as well as other prevention and control interventions need to go beyond the population-based approach and actively include SIH. With the inclusion of SIH, it will also lead to more effective control of SARS-CoV-2 transmission. We suggest that there needs to be a clear and common vision and inclusion of SIH at all levels (political, institutional, local) and that this vision should be an integral part of public health programs and interventions, including health promotion, emergency, and pandemic preparedness planning. We also recommend collecting more data on other structural vulnerabilities and power imbalance in the face of COVID-19,<sup>41</sup> to better understand how different marginalized groups are affected by the pandemic. To do so, public health institutions need to be strengthened and adequately funded, to function effectively, including designing and implementing more equitable programs and interventions at a long-term level and for emergencies. Yet, historically, previous infectious disease epidemics have taught us that the high prevalence of chronic diseases and social inequalities in health, both of which are linked, amplify the severity of epidemics such as COVID-19.<sup>4</sup> Both the reduction of chronic diseases prevalence and, more globally, the social determinants of

health approach should guide any government and institutions policies (health, social, economic). Finally, to better understand SIH and take action in the context of COVID-19, and more globally pandemics, systematic data are needed with regard to sociodemographic, working and living conditions, and access to health care.

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The authors declare that they have no competing interests.

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#### **Ethical issues**

The research project has been approved by the University of Montréal's Research Ethics Committee (CERSES-20-061-D).

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#### **Authors' contributions**

The study was conceived by VR and KZ. The instruments were developed by RM and ASL. Data were collected by RM and ASL, with data analysis and interpretation by CB. CB wrote the first draft of the manuscript. All authors read and gave feedback on the manuscript and approved its final version.

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EDITORIAL

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# Editorial commentary: public mental health and racism in Europe



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Several dramatic events, related to racism, have made headlines globally in recent months. The murder of George Floyd by a police officer in the United States is a tragedy that reinforced the Black Lives Matter movement which fights against police violence inflicted against Black people in the United States. The global media coverage of both the murder and the anti-racist protest movements have contributed to raising awareness not only of police violence but also the persistence of racism. In Europe, racial profiling and increasing violence in everyday interactions, during police checks or in detention of Afro-descendants in particular, whether they are European citizens or migrants, have been denounced by the European parliament [1]. Those who are designated 'Muslim' or 'Black' are particular victims of racism, as it was noticed in Belgium, whether in terms of negative attitudes towards them (insults, threats, aggression) or unemployment [2]. Occupational downgrading and unemployment, as for Afro-descendants, contrast with a generally high level of education. In a recent study on Afro-descendants in Belgium, Demart et al. indicated that a majority of respondents (80%) declared experiences of discrimination, unequal treatment or insults with references to skin colour or origin [3].

Racism is a type of discrimination with a physical motive. According to M. Foucault [4], European States used racism as a power to justify slavery and modern colonialisms (among which are Belgium, France, Germany, Spain, Italy, The Netherlands, and Spain). Racism aims at both constructing and producing *difference* targeting bodies (racialization), while

establishing a hierarchical relationship between the *self* (viewed as the norm) and the *racialized others* (viewed as *different*), and hence the mistreatment of the later. Foucault viewed racism as a condition for the legitimising of the killing of those categorized as inferior.

With regard to health, racism is seen as a social determinant of health and a global public health issue [5] that also affects mental health [6, 7]. Racism determines social inequalities in health, which are amplified in the context of disastrous situations. For example the current COVID-19 pandemic [5], through discriminatory health policies that can aggravate precariousness, or through acts of violence [8].

Authors note the importance of research on the deleterious impact of racism on health, including the lack of attention regarding relationships between the macro-micro levels of racism [9]. Racism has structural and institutional components that shape social hierarchy and daily interactions, resulting in potential social exclusion and deleterious consequences for racialized minorities [9]. Importantly, racism also interacts with other structural determinants (e.g., migration law and migrant status, class and gender power relations) that shape social position and that determine living and working circumstances, and overall well-being [10].

With regard to mental health, racism can be a normative experience for some minorities, resulting in psychological distress and poor mental health [7]. Chronic exposure to racism worsens mental health [11]. Racism has social and economic consequences, which in turn impact negatively on mental health of racialized minorities. Furthermore, racism negatively affects the mental health system and appropriate and timely mental health services of these groups [12]. Research reports how quality of mental health

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support to ethnic minority women depends on cultural competence and attitudes of health care providers [13]. Racialized stereotypes even affect the diagnostic process [14]. Also the health of youth is affected by racism, and it is suggested that psychosocial resources can improve some of its adverse effects [15].

The European parliament acknowledges the problem, and urges the EU and national authorities to develop anti-racist policies and end racism, e.g. in education, housing, healthcare, police, political participation and migration [1]. Public health research on institutionalized racism can contribute to overcoming its deleterious effects on mental health [16, 17]. It must focus on the relationship between policies, social position, living and working conditions, access to health care and other resources, and psychosocial indicators (e.g., stress), and mental health outcomes. It must also contribute in dismantling systems of oppression such as racism [8]. Public health, as an institution, should exercise leadership in this area by putting in place internal policies and practices for change and more social justice. This could be operationalised through more inclusive policies towards historically excluded and marginalised populations, by encouraging for example the recruitment of people (researchers, students and other health professionals) who identify themselves as racialized minorities. Also other proactive policies are necessary such as a call to the health and research community to train and sensitize mental health professionals against racism, review policies and regulations, and collect data on racialized and ethnic categories for public health surveillance purposes.

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