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Pharmacists expanded role in providing care for opioid use disorder during COVID-19: A qualitative study exploring pharmacists' experiences

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ABSTRACT

Introduction: During the COVID-19 pandemic, patients with opioid use disorder (OUD) struggled with access to prescribers and opioid agonist therapy (OAT). Recognizing this gap in care, Health Canada issued a short-term subsection 56(1) class exemption from the Controlled Drugs and Substances Act authorizing pharmacists to independently manage controlled substances. The purpose of this study was to explore the expanded role of Canadian pharmacists in providing care to patients with OUD during the pandemic.

Methods: We conducted qualitative key informant telephone interviews in the fall of 2020 with Canadian pharmacists who used the exemption. We included community or primary healthcare team-based pharmacists who managed opioid medication under the exemption. We recorded, transcribed verbatim, and de-identified all transcripts. Data was analyzed using a thematic approach involving line-by-line coding and constant comparison.

Results: We interviewed nineteen pharmacists with representation from all provinces and urban and rural practice settings. Three major themes emerged that captured the pharmacists' perspectives when providing care for patients with OUD during the pandemic: (i) continuity of care; (ii) harm reduction; and (iii) access to care. Pharmacists used the exemption to extend prescriptions, transfer prescriptions, receive verbal orders, and deliver OAT.

Conclusions: Throughout the pandemic, pharmacists were able to provide continuity of care to patients with OUD who would have otherwise been unable to access care. The exemption permitted pharmacists to assess patients and provide OAT through this expanded role. Other countries should look to the Canadian experience and leverage the expertise of the pharmacist to expand their scope so that they can help fill the gap in care for patients with OUD.

1. Introduction

The opioid crisis has escalated across Canada during the COVID-19 pandemic, with record numbers of apparent opioid toxicity deaths and hospitalizations (Government of Canada, 2021). This may be related to changes in illegal drug supply, increased stress, and reduced access to support and services (Government of Canada, 2020). One of the mainstay treatments for opioid use disorder (OUD) is opioid agonist therapy (OAT). In the primary care setting, OAT can improve patient outcomes by reducing drug-related harms and supporting long-term recovery (Bruneau et al., 2018; Korownyk et al., 2019; SAMHSA, 2021). Frequent assessment, monitoring, and dispensing of OAT is necessary, as missed doses can cause withdrawal and destabilization (Bruneau et al., 2018). During the pandemic, there were challenges in accessing healthcare

providers (HCPs), especially for those patients who would benefit from the initiation or continuation of OAT. Additionally, maintaining physical distancing was a struggle, especially with the requirement for direct observation of OAT (CAMH, 2020; ISMP Canada, 2020).

Patients receiving treatment for OUD require frequent assessment for efficacy, safety, tolerability, and adherence, due to potential harms if patients are not monitored closely (Bruneau et al., 2018). Pharmacists are trained as medication therapy experts, who have the skills and expertise to monitor and assess medications when providing patient-centred care, which is of particular importance for patients who receive OAT (NAPRA, 2009). Pharmacists also promote harm reduction approaches as part of their role as opioid stewards by focusing on reducing the negative consequences of drug use, such as providing naloxone kits, sterile injection supplies, a safe supply of opioids, and

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information about safe injection (Hawk et al., 2017; Kapadia et al., 2021). However, in some situations pharmacists have contributed to stigma against people with substance use disorder or the use of harm reduction approaches (Chaar et al., 2013; Harris and McElrath, 2012; van Boekel et al., 2013).

In Canada, the administration of OAT is observed at a clinic or pharmacy, often on a daily or near-daily basis, and once stabilized, patients may be authorized to receive a limited supply of take-home doses (Eibl et al., 2017). For decades, Canadian pharmacists have played a critical role in supporting patients with OUD through the dispensing and monitoring of OAT, especially given their accessibility and ability to provide continuity of care (Cochran et al., 2020; Tsuyuki et al., 2018). However, prior to the pandemic, Canadian pharmacists were limited in their ability to provide uninterrupted OAT due to limitations in the Controlled Drugs and Substances Act (CDSA) whereby pharmacists were not authorized as prescribers and could not alter prescriptions for controlled drugs and substances.

The pandemic brought significant challenges for patients who were taking OAT when prescribers could not be reached or patients could not travel to the pharmacy. Recognizing this gap in care, in March 2020, Health Canada issued a short-term subsection 56(1) class exemption under the CDSA and its Regulations permitting pharmacists to extend, transfer, receive verbal orders, and deliver controlled substances (Table 1) (Health Canada, 2020). This enabled them to expand their role as opioid stewards and provide much-needed support to people with OUD. The purpose of this study was to explore the expanded role of Canadian pharmacists in providing care to patients with OUD during the COVID-19 pandemic. This was part of a larger study that was conducted to better understand the impact of the exemption on the pharmacists' ability to provide patient care (Bishop et al., 2021).

2. Material and methods

We conducted qualitative key informant telephone interviews with Canadian pharmacists who 1) practiced in a community or primary healthcare setting, 2) had experience with using the CDSA exemption, and 3) were knowledgeable and up-to-date on evidence regarding appropriate opioid prescribing practices. We excluded pharmacists who were not licenced to practice in Canada.

A convenience sample of Canadian pharmacists was recruited through several mechanisms: i) online searches of pharmacists, ii) Canadian Pharmacists Association membership list, iii) social media (LinkedIn, Facebook, Twitter), iv) pharmacy bulletins, and v) snowball sampling. Recruitment continued until no new themes emerged and saturation was reached.

Semi-structured interviews were conducted by either one of the authors and took place between October 2020 to January 2021. All participants provided informed consent prior to the interview. We collected demographic questions and used a semi-structure interview guide with questions that explored their experiences with using the exemption in

Table 1
CDSA Exemption Defined[^].

Exemption category	Definition
Delivery of medication	Pharmacists may allow individuals to deliver controlled drugs to patients who are unable to travel to the pharmacy.
Receive a Verbal Order	Pharmacists may receive verbal orders for controlled drugs from a prescriber.
Renewing or extending prescriptions	The pharmacist may extend or renew a current prescription for a controlled drug when the prescriber cannot be reached.
Transferring prescriptions	Pharmacists may transfer an opioid prescription to another pharmacist.

[^] Provincial variations are described elsewhere (Bishop et al., 2021; Canadian Pharmacists Association, 2020)

relation to providing patient care, collaboration with other HCPs, barriers and facilitators for opioid stewardship, and other gaps in providing patient care related to opioid medication (Bishop et al., 2021). The focus of the questions varied based upon the experiences of the pharmacists. We digitally recorded the interviews and used Sonix® transcription software to transcribe the interviews, using pseudonyms to identify participants (Sonix, 2021). A research assistant reviewed the transcripts before sending them to the participants to verify accuracy.

We conducted thematic analysis of the de-identified transcripts, using NVivo® software to code, store, and manage the data (Qualitative Data Analysis Software | NVivo, 2021). The analysis was inductive and involved line-by-line coding of each transcript (Densin and Lincoln, 2021). Constant comparison looked for relationships between and across codes and categories. We independently coded the first three transcripts and then created a codebook which was updated until no new codes emerged. We discussed the codebook with the team to triangulate interpretation of the data and modified the codebook throughout the process based on the emerging themes. All remaining transcripts were split between both authors who took primary responsibility for coding, and discussed discrepancies with the team until consensus was reached.

This study received ethics approval from the Ryerson University Research Ethics Board and Newfoundland and Labrador's Health Research Ethics Authority. Some quotes have been edited for clarity.

3. Results

A total of 19 pharmacists working across different practice settings participated, with the interviews lasting approximately 45 min (Table 2). Pharmacists discussed how the pandemic affected patients with OUD and the expanded role they played in caring for patients especially through the use of the exemption. As one pharmacist stated: "The other applications of the CDSA exemption, I can take or leave, I think they're pretty good, but I think in particular with opioid recovery, is probably one of the most valid uses of it." [Logan].

The following three major themes emerged from the thematic analysis that captured the pharmacists' perspectives when providing care for patients with OUD during the pandemic: 1) Continuity of care, 2) Harm reduction, and 3) Access to care.

3.1. Continuity of Care

Ensuring their patients with OUD received uninterrupted care was a priority for the pharmacists who were interviewed. They discussed continuity of care through their ability to provide their patients with care through i) expanded scope and ii) clinical assessments.

3.1.1. Expanded scope

The exemption expanded pharmacists' scope so they could provide OAT more "comfortably and confidently" [Mika] allowing for enhanced patient care. As Mika also noted: "We were able to do the emergency supply for that patient for a week to bridge him, to be able to connect with a new doctor. So that was a very critical role for our patient because he needed that medication and was very appreciative of it."

Bob discussed how he was able to help a patient who was travelling by transferring their OAT: "We just had a situation where someone was up here for a funeral... there was somebody on Suboxone... we were able to get the prescription transferred up here."

While many pharmacists thought transfers were beneficial, a few pharmacists discussed the concern that patients may take advantage by requesting unnecessary transfers, take-home doses, or extensions. As Mary explained: "For opioid use disorder, like a methadone treatment, they [patients] think that they can transfer everywhere now, like every day if they don't just want to walk to their normal pharmacy."

The benefit of delivering methadone was highlighted by Julie: "Unfortunately, our pharmacy just doesn't have the capability to have a pharmacist go and deliver it. So being able to have a delivery driver do that, that's

Table 2
Characteristics of participating pharmacists.

Pharmacists' characteristics	n = 19
Average age, (range)	37.5, (28–48)
Gender (males)	8
Province [^]	
British Columbia	4
Alberta	2
Saskatchewan	1
Manitoba	2
Ontario	4
Quebec	2
New Brunswick	2
Nova Scotia	1
Prince Edward Island	1
Newfoundland and Labrador	2
Population [^]	
Town or rural area with fewer than 10,000 people	5
City or town with more than 10,000 but fewer than 100,000 people	3
City with more than 100,000 but fewer than 1 million people	6
City with one million or more people	5
Years of practice as a pharmacist	
0 – 10 years	10
11–20 years	7
21–30 years	2
Pharmacy Education [^]	
Bachelors	17
Masters	2
Doctor of Pharmacy	3
Enrolled in Doctor of Pharmacy Program	3
Hospital Pharmacy Residency training	3
Other Certificates/Training (e.g., Pain Management)	2
Pharmacist position [^]	
Academia	1
Manager	4
Owner	5
Primary healthcare team	3
Regular staff Pharmacist	6
Relief/Casual Pharmacist	3
Pharmacy practice setting [^]	
Independent or Banner pharmacy	14
Chain/Franchise pharmacy	7
Primary healthcare team	3

[^] some participants were captured in more than one category

special.”

Lance spoke about the convenience of receiving verbal orders for OAT:

Accepting verbal orders just really helps streamline, rather than having... a lengthy back and forth... It's nice to just pick up the phone and contact the prescriber and get it sorted out immediately.

One pharmacist thought that being able to accept fax and verbal orders may help reduce stigma for patients when seeking care. As Jeal discussed:

When a person shows up and [the] prescription is here, for example if it was faxed and verbally given over versus, 'oh, don't lose the paper, or if you lose the paper, it's going to be very hard to get'... So that made it less stigmatizing because it's just like any other medication.

Remote services were also identified as a facilitator of continuity of care. Some aspects of remote services were permitted through the exemption, such as telephone assessments and delivery of OAT to patients. While the exemption has improved continuity of care, John mentioned some potential future opportunities for pharmacists to remotely supervise OAT, “if the system was just set up in a way that patients are able to be remotely supervised [for] their doses, that could be a big opportunity.”

3.1.2. Clinical assessments

Throughout the pandemic, pharmacists have demonstrated their value in providing clinical assessments and thus ensuring continuity of care for patients with OUD. This was especially true when prescribers were unable to see their patients. Alex noted her role in assessing patients for OAT:

I can still do my own assessment there to say whether it's OK to continue to provide the dose until they can be seen by their physician. So, they feel a little bit more comfortable knowing that they're not sort of blindly extending a prescription. There's somebody... following up with them or at least assessing somewhat until they have a chance to assess themselves.

Since the exemption now permits the transfers of opioids, the pharmacist must assess patients to determine if it is appropriate and safe to transfer the medication. Rob highlighted a situation where he determined that it was not appropriate to transfer the patient's OAT as it would be filled too early:

...because of his travel and everything, he used to request early release on the medication,... when [the pharmacy] got the transfer, they said... how come now it's getting filled early? So, in that case, the pharmacist there did question that.

Some pharmacists also explained how the exemption enabled them to focus more on other aspects of care, thus improving the overall care for their OUD patients. As Jeal explained:

It's freed up my time to focus on the individuals I must assess, even more than the regular kind of look to see... The individuals that are not as stable, I focus my time on them. So, I've actually spent more time with them to assess other things than the opioid use disorder.

3.2. Harm reduction

The pharmacists interviewed commonly discussed their role in supporting harm reduction principles in their approach. As Alex pointed out, she was able to help prevent patients from seeking other drugs:

For some people, it's also a big trigger to potentially even go to the street and find something to use... So, I'm able to help avoid all of that by providing them with their usual therapy so that they're able to stay stabilized on the medication.

Susie Q highlighted her ability to provide a safe supply of opioids as a harm reduction strategy: “So the patient now gets like a day's worth of carries of hydromorphone and no witness dose. And we know for a fact that this patient is abusing the medication. at least it's kind of like a harm reduction kind of thing at this point”. However, Dawn raised her concerns regarding safe supply, “I am not witnessing consumption of the hydromorphone 8 mg tabs, like I do with methadone... They can sell them, they can be cutting them with fentanyl, they can be eating them.”

Some pharmacists expressed concern of the worsening opioid crisis as a result of the pandemic and highlighted additional opportunities for opioid stewardship that went beyond the exemption. The distribution of naloxone kits and providing patient counselling was discussed as ways that pharmacists can play a more active role as opioid stewards and help address the opioid crisis. Lee highlighted the need for “really getting back to the basics on counselling on naloxone... with any patient who has an opioid prescription or has an opioid in the house”.

3.3. Access to care

Pharmacists discussed the challenges that patients faced throughout the pandemic in accessing healthcare. The following two main sub-themes arose concerning access to care for OUD: i) access to other HCPs, and ii) access to the pharmacist.

3.3.1. Access to other HCPs

Pharmacists highlighted that they and their patients did not always have timely access to other HCPs during the pandemic. The exemption was especially helpful when prescribers could not be reached, as they were able to continue OAT for their patients. As Logan described: “[I was] unable to get in touch with their prescriber for methadone, for a new prescription. So, I... was able to provide them with the bridging prescription until they were able to speak with their prescriber.”

The value of good communication with prescribers was emphasized about accepting prescriptions verbally. Mika described how the exemption facilitated this:

I think the biggest gap is that the communication between the doctor and the pharmacist and the authority of the pharmacist to be able to take that communication with the doctor and turn it into action. So the CDSA does help because we can take the verbal orders and get it done right away with the patients in front of us.

Susan also discussed how the exemption facilitated the building of relationships with physicians regarding OAT, noting that most physicians were receptive to the collaboration, with the exception of one negative experience:

I think that it's important that you build those relationships with the physicians. But now, it's easier, I've had great feedback from the physicians, if I've called and I said, 'such and such happened on the weekend, patient was definitely due for their medication, they were not able to get in, I've prescribed an interim supply. They're going to reach out to you in the next couple of days. Hopefully you'll be able to continue it from there. Let me know if there's any issues.' Most times it's always, you know, thank you for the update. And, you know, rarely have I had, I had one negative experience with a physician who was not happy that I bridged the gap for their opioid replacement patient. but other than that, I've had nothing but positive results with any physicians that I collaborate with.

The exemption enhanced opportunities for interprofessional collaboration. For example, Mika discussed the benefit of working closely with a nurse when providing OAT. “I think having a nurse has been helpful because... sometimes they look at different things that a pharmacist will look at... But I think that the patients benefit from being able to talk to a nurse as well, not just a pharmacist.”

3.3.2. Access to the pharmacist

The ability of patients to access the expanded role of the pharmacist was noted by many. The pharmacists interviewed often expressed a desire to enhance their role in supporting or providing care to patients with OUD. As Carlos discussed, this can be facilitated by the accessibility of the pharmacist:

There's a pharmacy at every corner of every street or in every small town in the rural area where you don't have clinics, where you don't have other healthcare professionals... We need to empower them to be able to help patients.

Some pharmacists advocated for the permanence of the exemption so they could continue to provide this needed service to their patients. As Mika expressed:

It'll allow us to continue supporting people with opioid use disorder and the like. I think even without COVID, this is essential, and it should have been in place for a long time. So, if it's permanent, it'll continue empowering pharmacists to meet the needs of our patients and retain people in treatment.

The authority to initiate or increase the dose of OAT is not part of the current exemption but was suggested as a way to further expand pharmacist scope and improve patient access to care. As Tracy noted:

If we know someone's actively using, then the pharmacist could potentially start an induction on buprenorphine-naloxone in communication with the prescriber, but just giving the pharmacist more authority or to adjust doses like if the patient comes in and they're in withdrawal.

Mathew emphasized the benefit of an expanded role if given the opportunity to adjust doses:

My patients who are on these programs are severely being neglected right now. And I feel like I could play a huge role with that. But it's just not happening because I can't really do anything with their prescription other than extend it.

By expanding pharmacists' scope to allow for dose increases, it can “improve access to treatment and increase the likelihood that somebody can get to the target dose of their OAT” [Mika].

Barriers to providing OAT services through pharmacies were identified by some pharmacists. Tracy identified “a significant gap in care, in that many community pharmacies in the province do not dispense OAT and patients are left searching for a pharmacy.” In some situations, the pharmacy “just haven't had the demand for it” [David]. Despite the lack of need in their pharmacy, Lee valued the benefit of the service and referred to her previous experience with OAT: “I really enjoyed... developing those relationships with patients and kind of provides really good... patient service alongside good evidence-based medicine.”

Stigma was thought to be a contributing factor towards hesitation and resistance to providing OAT. However, Mary emphasized how being non-judgmental is essential and how the exemption can help facilitate care. “They want to be helped and the less you judge the more you help. So I think pharmacists need to remember that, and we have a new power that can help us help them...so we need to use it.”

It was suggested that “education plays a big role in opioid stewardship, and also OAT” [Maria], and is a way to increase pharmacists' comfort level and build capacity for them to work in this area. As Tracy noted, “By developing this education, hopefully that provides more support for the pharmacist, might be feeling more comfortable to work within the scope of the exemption.” Jennifer discussed how she had undergone training with the intent to implement OAT at her pharmacy. Her biggest concern was the ability to offer consistent access as her pharmacy was closed on the weekends “it is just a matter of if we can manage to do that, but not be open seven days a week.”

The time commitment required with OAT was noted as a barrier for pharmacists and the exemption was considered to be a way of streamlining this process. As Mika explained, “following up with the doctor and getting it fixed. But again, that creates a delay... if we can try to reduce some of these barriers to treatment of having to get a prescription all the time, I think it could help us to work towards the goal that we're trying to get to.” Tracy recognized that the exemption will “help pharmacists work more expanded in their scope,” and thereby assist in minimizing some of the barriers to the provision of OAT.

4. Discussion

Our study explored the expanded role of Canadian pharmacists in providing care to patients with OUD during the COVID-19 pandemic. Given the challenges in access to treatment, the Health Canada exemption enabled pharmacists to independently manage opioid prescriptions and provide continuity of care in a population at higher risk of negative health consequences (Bishop et al., 2021; Health Canada, 2020).

Maintaining long-term OAT requires a team effort with the expertise needed from various HCPs. Pharmacists are key members of the collaborative team, especially since they assess their patients frequently due to the daily or near-daily dispensing of OAT (CAMH, 2021). Throughout our study, pharmacists highlighted their role in clinically assessing patients for OAT, especially during the pandemic when both patients and pharmacists had challenges in accessing prescribers. Others

have also advocated for the expanded role of pharmacists given their clinical expertise, accessibility, and ability to develop longitudinal relationships with their patients (Cochran et al., 2020; Green et al., 2020; Peckham et al., 2021; Rosenberg-Yunger et al., 2021).

Pharmacists in Australia, Canada, and Europe have contributed to the treatment and care of OUD patients over the decades (Cochran et al., 2020). Nonetheless, OUD medications are often underutilized due to barriers which limit access to care (DeRonne et al., 2021). These barriers to care increased during the pandemic, which is why pharmacists' ability to provide continuity of care is so critical. Pharmacists in our study ensured their patients' access to care for OUD treatment by using the exemption for transfers, emergency supply, verbal orders, and delivery. Peckham et al. also noted the impact of the pandemic on reducing access to OAT and suggested leveraging pharmacists' role to help improve access (Peckham et al., 2021).

Pharmacists continue to have a role in reducing patient morbidity and mortality resulting from the opioid crisis (Bratberg et al., 2020). Specifically, pharmacists provide harm reduction services including the provision of unused needles, administration of opioid substitution therapy, and education of patients regarding harm reduction (Rosenberg-Yunger et al., 2018; Watson and Hughes, 2012). Our study discussed how Canadian pharmacists continued to provide harm reduction services during the pandemic and were able to utilize the exemption to prevent patients from seeking other drugs through the provision of a safe supply of opioids.

People with substance use disorder often experience stigma from their HCPs. This is a prevailing concern and may result in impaired patient relationships and lower quality patient care (van Boekel et al., 2013; Werremeyer et al., 2021). In our study, stigma was identified as a potential barrier to pharmacists offering OAT and the importance of providing non-judgmental care was emphasized. Time and workload associated with OAT were also identified as a barrier. However, many pharmacists interviewed thought that the exemption not only helped improve efficiency but also improved patients' timely access to care by enabling independent decision-making without necessitating contact with the original prescriber.

In our study, pharmacists demonstrated the ability to safely and independently manage their patients' therapy. However, additional education and training were suggested as a way to help pharmacists who were not engaged in OAT to become more comfortable with providing addiction services. Others have also highlighted the pharmacists' ability and expertise in providing OAT, but also recognized that more undergraduate and postgraduate training in substance use treatment would help improve the quality of care provided to patients with substance use disorder (Cochran et al., 2020; Fatani et al., 2019).

The pandemic has brought to light the essential role of pharmacists in helping support patients with OUD. It is evident that pharmacists can and should play a critical role as active members of their patient's healthcare team. This is not only because they can provide timely access to therapy and contribute to patients' continuity of care, but they are also medication experts who provide clinical support and expertise (Gondora et al., 2021). The pharmacist's role is essential in OUD where patients need more personalized care. In our study, the value of using the exemption to support the expanded role of pharmacists in providing OAT and supporting individuals with OUD was evident beyond the challenges related to the pandemic.

There were several limitations to our research. This study focused on the perspective of pharmacists' who provided expanded service through the use of the exemption. Therefore, perspectives of both pharmacists who did not use the exemption and other HCP's were not explored. Although there was cross-country representation, no one participated from the territories. In addition, the perceptions of pharmacists who were not receptive to providing OAT were not captured, so there may be additional barriers that were not identified. Since this research was focused in Canada, the finding may not apply to other countries.

Future research around the pharmacists' role in the opioid crisis

would help generate evidence to further support their expanded role. Firstly, research should more fully explore the barriers to pharmacists providing OAT. Secondly, it would be helpful to determine the impact of pharmacists' education on substance use disorders and their willingness to offer OUD services. Thirdly, an exploration into pharmacists' role in remotely supervising OAT is necessary to ascertain its impact on accessibility. Finally, research exploring expanding the pharmacists' scope of practice through the initiation of OAT would provide evidence of their ability to help fill the gap in patients' timely access to care.

5. Conclusion

Globally, jurisdictions should consider a transformational change in service delivery and care for patients with substance use disorder (Green et al., 2020). For pharmacists in Canada, the exemption enabled pharmacists to practice towards a more expanded scope which helped them provide continuity of care for people with OUD. Consideration should also be given to expanding Canadian pharmacists' existing scope to help address the health-system gaps in OUD treatment such as broadening the pharmacist's scope to include initiating therapy. Countries with similar healthcare systems should consider the Canadian experience and leverage the role of the pharmacist in helping to fill the OUD patient care gap.

Contributors

All authors made valuable contributions to the study. LB, ZRY contributed to the research design of the project, performed the data collection and analysis, and wrote the manuscript.

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Conflict of interest

Dr. Lisa Bishop received honoraria to present the findings of this research at national events and conferences (2020, 2021); she also served as an expert witness to provide expert opinion evidence for fentanyl (2018). Dr. Rosenberg-Yunger was a consultant for CPhA during the time the research was conducted. Dr. Shelita Dattani was a staff member at CPhA at the time the research was conducted, and serves on the advisory board for EBSI (Emergent Biosolutions).

Informed consent

The study was reviewed and subsequently approved by the Ryerson University Research Ethics Board (Toronto, Canada; approval number 2020-302) and Newfoundland and Labrador's Health Research Ethics Authority (approval number 2020-226), and written informed consent was received from all participants.

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