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## Slow implementation of mifepristone medical termination of pregnancy in Quebec, Canada: a qualitative investigation

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### ABSTRACT

**Objectives:** Mifepristone for first-trimester medical termination of pregnancy (MTO) became available in Quebec in 2018, one year after the rest of Canada. Using the theory of the Diffusion of Innovation (DOI) and the transtheoretical model of change (TTM), we investigated factors influencing the implementation of mifepristone MTO in Quebec.

**Material and Methods:** Semi-structured interviews were conducted with 37 Quebec physicians in early 2018. Deductive thematic analysis guided by the theory of DOI explored facilitators and barriers to physicians' adoption of mifepristone MTO. We then classified participants into five stages of mifepristone adoption based on the TTM. Follow-up data collection one year later assessed further adoption.

**Results:** At baseline, three physicians provided mifepristone MTO (Maintenance) and two were about to start (Action). Thirteen physicians at Preparation and Advanced Contemplation stages intended to start while, within the Slow Contemplation, two intended to start and ten were unsure. Seven had no intention to provide mifepristone MTO (Pre-Contemplation). Major reported barriers were: complexity of local health care organisations, medical policy restrictions, lack of support, and general uncertainty. One year later, ten physicians provided mifepristone MTO (including three at baseline) and nine still intended to, while seventeen did not intend to start provision. Seven of sixteen participants (44%) who worked in TOP clinics at baseline were still not providing MTO with mifepristone one year later.

**Conclusion:** Despite ideological support, mifepristone MTO uptake in Quebec is slow and laborious, mainly due to restrictive medical policies, vested interests in surgical provision and administrative inertia.

**Abbreviations:** CART: Canadian Abortion Research Team; CART-Mife-Study: CART-Mifepristone Implementation Study; CMQ: College of physicians of Quebec; DOI: Diffusion of innovation; FP: Family physician; MIFE-MISO: Mifepristone-misoprostol combination; MTO: Medical termination of pregnancy; OB: Obstetrician-gynaecologist; T1 MTO: First trimester medical termination of pregnancy; TOP: Termination of pregnancy; TTM: Transtheoretical model of change

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Abortion; mifepristone; medical termination of pregnancy; health services accessibility; qualitative research; Quebec; Canada

## Introduction

In 2012, there were nearly 101,000 voluntary terminations of pregnancy (TOP) reported in Canada, for a termination rate of 14.1/1 000 women aged 15–44 years [1,2]. At that time, most TOP were surgical (96%) [3], and medical terminations of pregnancy (MTO) were still performed using methotrexate/misoprostol or misoprostol alone [4]. British Columbia and Quebec were the only provinces where TOP services were equally located in urban and rural areas [3]. Owing to a long history of feminists' battles, favourable policies and governmental support [5], Quebec has 49 public TOP facilities, representing half of all facilities found in Canada in 2012 [3]; TOP stigma and harassment is almost

nonexistent [3]. In July 2015 [6], more than 25 years after France and China [4], Health Canada approved the mifepristone-misoprostol combination (MIFE-MISO) for first trimester MTO (T1 MTO). It was believed that MIFE-MISO would increase access to TOP care for all Canadian women and offer them a new early TOP option. However, while medication approval falls under federal jurisdiction, provinces are responsible for the delivery of health care and may impose their own restrictions. As seen in Table 1, Health Canada's initial approval was associated with several restrictions [7], two of which were in contradiction with existing policies in Quebec. Following availability of MIFE-MISO in Canada in January 2017 [8], Health Canada removed most of its restrictions, including mandatory online MTO

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**Table 1.** Changes of baseline restrictions of Health Canada (2015) [7,9,42] and the College of physicians of Quebec (2017)[11,25,43–45].

Topic	Health Canada baseline requirements July 2015	Date of removal	College of physicians of Quebec baseline requirements December 2017	Date of removal
Observed ingestion	Mifepristone must be taken in front of the prescribing physicians	October 2016	Not required	
Training*	Training and certification for pharmacists [10]	May 2017	Not required	
	Training and certification for prescribing physicians [9]	November 2017	Clinical training in surgical abortion; <i>modified in 2018 for Clinical training in abortion (MA and/or surgical) for physicians not already providing abortion or curettage</i>	
Registration	Registration of prescribers and pharmacists with the manufacturer	November 2017	None – Forbidden by law [44]	
Dispensing	Dispensing directly to patients by prescribing physicians	November 2017	None - Forbidden by law [44,45]	
Prescribing	Prescription by physicians only; <i>modified in 2017 to allow prescribing by knowledgeable healthcare professionals</i>	November 2017	Prescription by physicians only; <i>Modified in 2018 for prescription by physicians and nurse practitioners who practice under the supervision of physicians who have followed the required clinical training in abortion</i>	
Consent	Patient's signature of a manufacturer consent form	November 2017	Verbal consent and notification in patient's chart	
Gestational age	49 days from last menstrual period; <i>modified in 2017 for 63 days</i>	November 2017	63 days	
Ultrasound	Ultrasound dating to confirm gestational age and rule out ectopic pregnancy prior to prescribing	April 2019	Ultrasound dating to confirm gestational age and rule out ectopic pregnancy prior to prescribing	
Information sheet	Information sheet with prescribing physician's contact information given to the patient	May 2017	Information sheet with prescribing physician's contact information given to the patient	May 2018
Declaration	Not required		Annual declaration of medical and/or surgical abortion practice by physicians to the College	May 2018
Record	Not required		Record all patients' charts on medical abortion with health insurance number of patients, annually	May 2018

\*The training programme required for certification by Health Canada was provided by the Society of Obstetricians and Gynaecologists of Canada. [10] It is still available to all professionals as an accredited continuous medical education programme. Online training programmes are not recognised as sufficient to allow T1 MA practice with mifepristone by the College of physicians of Quebec which requires a clinical traineeship in abortion during medical residency or in an accredited abortion clinic for untrained practicing physicians.

training [9,10]. In December 2017, the College of physicians of Quebec (CMQ), the regulatory body for medical practice in Quebec, released its own guidelines, authorising availability of MIFE-MISO in Quebec (one year later than the rest of Canada), with its own restrictions, including mandatory TOP clinical training for physicians not already providing TOP or curettage [11].

Adoption of a new behaviour such as a new clinical practice is often variable amongst individuals. As shown by Prochaska and DiClemente with the transtheoretical model of change (TTM) [12], people move through a series of stages when modifying behaviour: Pre-Contemplation, Contemplation, Preparation, Action and Maintenance. A sixth stage may be added for Relapse [12]. The TTM recognises change as a process that develops over time. In parallel, Rogers' theory of the Diffusion of Innovation (DOI)[13,14] defines the adoption of innovation amongst individuals within a social system on the basis of their innovativeness, or in other words, on their rate of adoption of an innovation, also divided into five categories comparable to those of TTM. The theory of the DOI also provides constructs to capture determinants (barriers and facilitators) for implementation of innovations in health service delivery and health systems [14]. Given that prescribing MIFE-MISO for T1 MTOP would be a new practice for most Canadian physicians, our Contraception and Abortion Research Team (<https://cart-grac.ubc.ca/>)[13,14] decided to perform a national study [15], guided by Roger's theory, to understand health policy,

system and service facilitators and barriers to the implementation of mifepristone MTOP practice in primary care. Considering the particular situation of Quebec, CART researchers in Quebec proposed a secondary study where the specific barriers and facilitators of implementation of MIFE-MISO T1 MTOP in Quebec were guided by the theory of the DOI and classified using the TTM.

## Methods

This study is embedded in a larger observational mixed-methods programme of research, the CART-Mifepristone Implementation Study (CART-Mife Study) [15]. We (EG & MSW) performed and audiotaped 30–45 min semi-structured interviews in French with family physicians (FP) and obstetricians-gynaecologists (OB) from all Health Regions in Quebec between January and March 2018 (except for one interview in mid-October 2017). Recruitment was performed amongst members of various Quebec medical associations, participants to the quantitative component of the CART-Mife Study, and members of a community of practice for MTOP providers established for the CART-Mife Study (recruitment strategy thoroughly described in a previous publication) [16]. Nurse practitioners were not interviewed because CMQ did not allow them to provide MIFE-MISO without supervision of physicians trained to provide MTOP (Table 1).

The development of the 14-question interview guide [17] was based on Rogers' theory [13] and its application in

organisations [14]. This interview guide allowed us to capture the complex process of implementation of an innovation, on an individual and a system-wide basis. Key constructs such as characteristics of the innovation and the adopter, communication and influence, system antecedents and readiness, outer context and implementation process helped to generate evidence on the facilitators and barriers faced by physicians in adopting the new behaviour.

Confidential transcription of the Quebec interviews took place from April to October 2018 and thematic analysis [18] from October 2018 to March 2019. Through iterative reading, we (EG & MSW) separately organised the data into various themes describing facilitators and barriers; then, we compared our results for each theme and subtheme and resolved discrepancies through discussion to ensure accurate interpretation of the data. In parallel with the thematic analysis, we categorised participants into the five TTM stages defined by the characteristics in Table 2 [12]. Facilitators and barriers were compiled for each stage.

In April 2019, we invited participants to answer a 3-question follow-up survey by phone or email regarding: 1) whether or not they had adopted the new behaviour; 2) if they had done so, for how many patients had they provided MIFE-MISO T1 MTOP within the last year; and 3) if they had not started, what was their intention in the future. We calculated percentages and Chi square tests to compare participants who provided MIFE-MISO T1 MTOP with those who did not.

Ethics approval was obtained from the Behavioural Research Ethics Board of the University of British Columbia and the BC Women's Hospital and Health Centre, Vancouver (CW16-01006).

## Results

Interviews were conducted with 37 physicians (25 FP and 12 OB). Characteristics of participants have been described

**Table 2.** Description of participants according to the each stage of change [12].

Stage of change (TTM)	Description of participant
Maintenance	Those who had started the practice of MIFE-MISO T1 MA at least a few weeks before the interview, regardless of the facilitators or barriers they had faced
Action	Those who had the intention to provide MIFE-MISO T1 MA services, had prepared all the necessary material (evaluation form, consent form, protocol, etc.) and were ready to start
Preparation	Those who had the intention to provide MIFE-MISO T1 MA and had either followed the SOGC T1 MA training programme OR were preparing all the material to be able to start but were not yet ready to start
Contemplation Advanced	Those who had the intention to provide MIFE-MISO T1 MA and did not follow the SOGC T1 MA training programme AND were either potentially preparing material OR were actual surgical abortion providers
Slow	Those who did not follow the SOGC T1 MA training programme and were, either not sure of their intention in providing MIFE-MISO T1 MA, OR if they intended to, were not yet preparing any material to offer this service
Pre-Contemplation	Those who did not follow the SOGC T1 MA training programme and did not have the intention to provide MIFE-MISO T1 MA

in a previous publication [16]. In summary, 81% of participants were females; 46% were 50 years old or older; 43% were working in public TOP clinics; 60% did not provide either T1 MTOP or surgical TOP; and 14% had completed the online MTOP training programme [10].

### Baseline behaviour

The classification of participants according to TTM (Table 3) showed that, at the time of interview, only three participants were providing MIFE-MISO (Maintenance stage), and two were about to begin (Action stage). These five participants were already providing both medical and surgical TOPs. All other participants (86%) were either at the Preparation, Contemplation or Pre-Contemplation stages.

### Facilitators

As shown with representative quotations in Table 4, at all stages of change, participants were able to identify facilitators to this practice, such as influence or support of colleagues (« ... we turned to them [another clinic] to at least have the mechanics and have an idea of how they worked and now it's sure that it will be available, we're going to offer it... » (QC-NTNP-18)), requests from patients and colleagues (« ... women ask for it because they have heard about it ... » (QC-TP-2)), awareness of research and study and interest in a new practice. In spite of these facilitators, barriers to implementation were much more often discussed (Table 5).

### Barriers

#### Complexity of local health care organisation

Complexity of local health care organisation (mostly Centres intégrés de santé et de services sociaux which include hospitals and community services in each region) was mentioned by participants in all stages of the TTM. It included lack of administrative will to provide the service, confusion about the qualifications of physicians (FPs versus OB) for provision of MIFE-MISO, possible lack of available physicians because of administrative decisions, time-consuming approval of MIFE-MISO T1 MTOP protocol by multiple decision-making levels, difficulties in obtaining the drug from hospital or community pharmacies, complex drug distribution within the hospital, laborious access to ultrasound dating, serum BhCG or curettage, and difficulties in offering timely first visit and follow-up because of scheduling challenges. As mentioned by one participant: « ... We had a plan, but since the announcement of availability in December, I made some contacts with pharmacists in my hospital, I made contacts with my immediate superiors because I work in a health care organisation and, there, it is quite nebulous and not easy and I had an email telling me that no offer of medication should be made as long as we did not have structured directives from a committee that should be set up soon.» (QC-NTNP-18)

#### Lack of local resources and support of colleagues

Lack of local resources and support of colleagues, and uncertainty about such resources were frequently reported

**Table 3.** Classification of participants at baseline according to the five stages of change [12].

Stages of change	N	Profession	Completed SOGC training	Know of SOGC training	Provision of T1 MA	Provision surgical abortion	Offer MIFE-MISO T1 MA	Intention	Preparation of material
Does offer MIFE-MISO T1 MA Maintenance	3	FP: 3	1	3	3	3	3	N/A	N/A
Do Not Offer MIFE MISO T1 MA									
Action	2	OB: 2		2	2	2		2	Ready: 2
Preparation	5	FP: 2 OB: 3	4	5	1	5		5	Ongoing: 3 Potential: 2
Advanced Contemplation	8	FP: 4 OB: 4		7	1	2		8	Potential: 6
Slow Contemplation	12	FP: 11 OB: 1		5				2	
Pre-Contemplation	7	FP: 5 OB: 2		3		2		Not sure: 10	

**Legend:**

- Profession: Family physician (FP), Obstetrician-gynaecologist (OB).
- Completed SOGC training: value = those who have completed the SOGC T1 MA training programme, cells with no value = those who have not.
- Know of SOGC training: value = those who are aware of the SOGC T1 MA training programme, cells with no value = those who are not.
- Provision of T1 MA: value = those who actually provide 1st trimester MA, cells with no value = those who do not.
- Provision of surgical abortion: value = those who actually provide SA, cells with no value = those who do not.
- Offer MIFE-MISO T1 MA: value = those who offer MIFE-MISO T1 MA at the time of interview, cells with no value = those who have not.
- Intention: value = those who have the intention to offer MIFE-MISO MA services, Not sure = those who were not sure of their intention to offer MIFE-MISO services, cells with no value = those who have not.
- Preparation of material: ready = those whose material is ready for starting MIFE-MISO T1 MA practice, ongoing = those whose material is being prepared for starting MIFE-MISO T1 MA practice, potential = those who are thinking on what material to prepare, cells with no value = those who are not thinking nor preparing any material.
- N/A: Not applicable.

**Table 4.** Facilitators according to the five stages of change [12].

Facilitators*	Stages of change	Examples of quote
Influence or support of colleagues	All stages	'... we met, as a team, so the nurse who is the head nurse at the Centre de consultation des femmes with the managers all that, so we met and we are making prototypes, creating protocols so that it can be done, we wanted that before implementing it that it be really good, that we have a protocol and that the rules of use are clear and, but that's it, we're in the process of making protocols...' (QC-TNP-3) (PREPARATION)
Request of patients or colleagues	All stages	'A week or two ago, I dealt with a family doctor who was approached by a patient, a family doctor who is in X but does not provide abortions, who was approached by a patient because she absolutely wanted this pill and she was disappointed to know that it was not available at our place.' (QC-NTNP-17) (PRE-CONTEMPLATION)
Awareness of research or study	All stages but the slow Contemplation stage	'... mifepristone, I used it in the context of two or three studies...' (QC-NTP-16) (MAINTENANCE)
Interest for a new practice	Maintenance, Action and Slow Contemplation stages	'... it might also be a reason to change a little bit the way we do things here.' (QC-NTP-3) (ACTION)

\*Facilitators are presented in order of importance, i.e., number of participants mentioning this facilitator. Previous experience is also a facilitator but, in this article, it is treated as a basic characteristic of participants.

by participants in the Preparation and Contemplation stages. Health managers were said to be reluctant to accelerate the process of implementation; participants did not have receptionists and/or counsellors to help them; there were not enough nurses working in their medical clinics (« We only have two and a half nurses working with us ( $\approx 20$  family physicians)... who help doctors make adapted access. So it's not a lot of staff to assist the doctor, answer questions, answer the phone or transfer situations to us that would be problematic. » (QC-NTNP-23)); nurses had precarious working status or were exhausted; FP did not have the support of OB and vice-versa; some participants felt they were left on their own to organise MTOP care; some of their colleagues were against provision of MTOP to preserve existing services; and some OB refused to take care of MTOP complications.

### Confusion on practice policies

Confusion and uncertainty about practice policies from the CMQ were mentioned in all stages, and was reported as

one of the major barriers at the Action, Preparation and Advanced Contemplation stages. While some participants were unaware of these policies, others were confused, such as this physician: « ... what I saw from the Collège des médecins, was that they, in terms of online training, they didn't seem to be too much for that; maybe, I was wrong, they say that it would take doctors who are part of a family planning clinic and who perform [surgical] abortions and who have the expertise in the field to be able to prescribe the abortion pill. However, in my community, there is a doctor [a family physician] who does a lot of obstetrics, and who, for me, with a specific training on this subject, would perhaps be a good person to prescribe the abortion pill... » (QC-NTNP-4). Several participants did not understand who was allowed to prescribe MIFE-MISO. These policies deterred them from providing MTOP, in particular because of the length of the mandatory clinical training. Some participants had the impression that these policies were meant to slow down the implementation of MTOP. Participants felt there were too many regulations regarding this new medication. As one participant expressed: 'We must not exaggerate the



**Table 5.** Principal barriers according to the five stages of change [12].

Barriers*	Stages of change	Examples of quote
Complexity of local health care organisation	All stages	'It's the big health organisation machine that seems to me to be an obstacle there, because it's slow, everything is slow, we ask for something there, well we go to a meeting, instead of being every three months, our meetings are every six months because there is no way to plan them, and then when we come back there, nothing has advanced ... Then, the Minister does not have an umbilical cord with our health organisation, so we do not know ... Things are stagnating there, it makes it frustrating.' (QC-TNP-1) (PREPARATION)
Lack of local resources or support of colleagues	Preparation, Contemplation (advanced and slow), Pre-Contemplation stages	'... we have not secretarial services, no services, we are not equipped at our abortion clinic, we have no telephone operator, we have no receptionist to schedule appointments, to do telephone evaluations, because otherwise it is nurses and the social worker who do that, we have no secretary, we have not computer service to transcribe, if there are Excel files to edit, we have no one for us, so that's an obstacle for us ...' (QC-NTNP-2) (SLOW CONTEMPLATION)
Uncertainty/confusion re: practice policies	All stages	'... I've been confused in the last weeks about the information I've received from several different involved parties, it means that, yes, it's actually a barrier there ... it would have to be clearer in terms of training, what we really need to do, and you know, clearer in terms of who can really prescribe the abortion pill, is it just doctors of family planning clinics, or if it's more people, it would have to be clarified ...' (QC-NTNP-4) (ADVANCED CONTEMPLATION)
Uncertainty re: collaboration of personnel and colleagues	Preparation, Contemplation (advanced and slow), Pre-Contemplation stages	'My colleague had been alone at the Family Planning Clinic for five years, and she often asked that there be a gynaecologist from time to time who could come and do abortions, if she was less available or if there were more requests. And the gynaecologist team didn't want to get on board until now, so I know that she was a little apprehensive about talking to them about [the abortion pill] to see if they were going to get on board or not, since her other attempts in recent years hadn't been successful ...' (QC-NTNP-24) (ADVANCED CONTEMPLATION)
Uncertainty re: lack of information and experience in the practice	Preparation, Contemplation (advanced and slow), Pre-Contemplation stages	'I have no idea how to deal with [MA] ... how to do the abortion, the management, the follow-up with the abortion pill ... It hasn't broken through in my environment, so it's not something that's easy to start or initiate because we don't even have the information. It's not really getting to us ...' (QC-NTNP-27) (SLOW CONTEMPLATION)
Abortion services available nearby	Contemplation (advanced and slow), Pre-Contemplation stages	'What prevents me from giving it is precisely an easy access to people who have an interest in this field and for whom it's easy ... an accessibility that is easy for me. So it's more something that I have than something we don't have that's going to keep me from getting into this.' (QC-NTNP-28) (PRE-CONTEMPLATION)
Uncertainty re: people involved or could be involved in this practice	Maintenance, Contemplation (advanced and slow), Pre-Contemplation stages	'Right now, the people I work with are not exhausted, but let's say they're aging. So you know, I think the problem we're going to have eventually if it stays as it is now at the government and management level in relation to doctors' practices is that we're going to have a problem eventually to have doctors working on abortions.' (QC-TP-2) (MAINTENANCE)
Uncertainty re: organisational flexibility to provide this service	All stages	'... how do we keep it confidential when we don't have an abortion clinic and we have a clinic where at the same time as abortion there are also patients who come for all kind of other reasons ... and to keep discussions confidential ... and consent can be difficult in our communities right now ...' (QC-TNP-4) (PREPARATION)

\*Barriers are presented in order of importance, i.e., number of participants mentioning this barrier.

regulation of it to make it more complicated and thus, it will become inaccessible.' (QC-NTNP-10)

### Other barriers

The availability and close proximity of surgical TOP services was one of the most reported barrier for participants in the Pre-Contemplation stage. Participants in the Slow Contemplation and Pre-Contemplation stages also mentioned lack of information and experience in MTOP practice, low requests for TOP, uncertainty about future practice and ethical concerns. Some physicians, especially those working in TOP clinics, worried about the involvement of primary care professionals and thought that: '... many doctors, at least amongst the colleagues we know who do not work in family planning clinics, even if they work a lot in women's health, they are not used to doing these things [TOPs].' (QC-TP-2) Another physician also mentioned that it existed: '... a culture that was in favour of surgical abortion and that claimed that medical abortion meant bleeding a lot, and

hurting a lot ...' (QC-NTP-16), and this attitude meant that workers in TOP clinics '... weren't so eager to have access to mifepristone or to offer abortion by medication. We didn't feel it was a priority' (QC-NTP-16) Some physicians expressed concerns because of perceived additional counselling and required reorganisation for clinic functioning: '... what raises questions for me is the length of time it takes to explain to the patient ... How are we going to get around it with the patient, and the nurses are included in that ...' (QC-NTNP-15) In addition, a financial impact on the provider income was underlined by some who declared that '... some big, big, big surgical abortion clinics probably didn't like it [MIFE-MISO T1 MTOP] much either ... Because there are people whose livelihood depends on doing curettages ...' (QC-NTP-3)

### Follow-up behaviour

The number of physicians in our sample who provided MIFE-MISO T1 MTOP one year after baseline interviews

**Table 6.** Classification of participants at one-year follow-up according to the five stages of change [12].

Stages of change	BASELINE		1-YEAR FOLLOW-UP		Average number of MIFE-MISO T1 MA during the past year (range of 3 to 50)	
	N	Offer MIFE-MISO T1 MA	Intention	Offer MIFE-MISO T1 MA Yes		Intention of those who do not offer Yes
Maintenance	3	3		3	N/A	27
Action	2		2	2	N/A	6
Preparation	5		5	3	2	18
Advanced Contemplation*	8		8*	0	5	0
Slow Contemplation	12		2 Not sure : 10	2	2	12
Pre-Contemplation	7			0	0	0

**Legend:**

- Offer MIFE-MISO T1 MA at baseline: Value = those who offer MIFE-MISO T1 MA at the time of interview; cells with no value = Those who do not.
- Intention at baseline: Value = those who have the intention to offer MIFE-MISO T1 MA services, Not sure = those who are not sure to offer MIFE-MISO T1 MA services), cells with no value = those who do not.
- Mean number of MIFE-MISO T1 MA: mean number of MIFE-MISO T1 MA performed by participant who responded they offer MIFE-MISO T1 MA at the 1-year follow-up.
- \*: Missing data for one participant.
- N/A: Not applicable.

tripled ( $n = 10$ ) (Table 6) (response rate = 97%). Most of the new prescribers (5 out of 7) were in the Action and Preparation stages the year before, and were already providers of T1 MTOP and surgical ( $n = 2$ ) or surgical TOP only ( $n = 3$ ). Two new prescribers from the Slow Contemplation stage also started: one had experience in surgical TOP and the other provided patient assessment in a TOP clinic. All physicians in the Preparation stage who did not start and most participants in the Advanced Contemplation stage still intended to start. The majority of participants in the Slow Contemplation stage and all participants in the Pre-Contemplation stage either abandoned their intention or never intended to start since baseline. Seven of 16 participants (44%) who worked in TOP clinics at baseline were still not providing MIFE-MISO T1 MTOP one year later.

Participants who were providing MIFE-MISO T1 MTOP at one-year follow-up were almost equally FP ( $n = 7/25; 28\%$ ) and OB ( $n = 3/12; 25\%$ ). Compared to those who did not, participants who were providing MIFE-MISO T1 MTOP at one year had completed the online MTOP training at baseline (40% versus 4%;  $p = 0.004$ ); were working in TOP clinics (90% versus 35%;  $p = 0.006$ ); were already offering T1 MTOP (50% versus 15%;  $p = 0.026$ ) or surgical TOP (80% versus 33%;  $p = 0.011$ ). The number of MIFE-MISO T1 MTOP performed by these participants varied from 3 to 50 during the initial year.

## Discussion

This study shows that, in spite of a positive non stigmatised cultural context and a strong infrastructure of TOP clinics, implementation of MIFE-MISO T1 MTOP in Quebec was slow and laborious. Interestingly, Quebec has a public drug insurance plan that fully reimburses prescription medications for residents of Quebec, including MIFE-MISO, which was in place before the launch of the product. Also, to provide T1 MTOP, Quebec physicians have a remuneration equal to T1 surgical TOP or are paid on a salary basis. Nevertheless, more health system support appears needed to enable primary care physicians to provide MIFE-MISO in Quebec.

Complexity of local health care organisations was the most commonly mentioned barrier to implementation by all participants whatever their stage of change. Such administrative barriers were also seen at the time of MIFE-MISO introduction in England and Wales where some hospitals gave low priority to TOP services, and bureaucratic inertia discouraged providers from adopting this new practice [19]. In Australia, where, like Canada, MIFE-MISO was recently approved as a subsidised medicine provided by primary care professionals, institutional capacities, such as lack of a distinct TOP service system, absence of telephone or Internet service to inform patients about TOP facilities and lack of accountability in ensuring local service delivery were reported as key barriers to implementation [20]. Understanding the local context in which implementation takes place is a preliminary step when beginning a new practice; too much perceived local complexity may discourage those with limited motivation [12].

Lack of human and/or material resources, lack of support from colleagues and uncertainty about collaboration, primarily reported by participants in the Preparation and Contemplation stages, echo findings of Doran and Nancarrow [21] as well as those of Furedi of the British Pregnancy Advisory Service stating that staff support is the «absolute single main driver» explaining mifepristone use across providers [19]. As mentioned by participants working in Quebec TOP clinics, difficulties maintaining or recruiting medical staff appeared linked to recent Quebec governmental policy promoting a family physician (FP) for every citizen [22]. This policy requires FP to register at least 500 patients in their clientele and financial incentives are given to register more; therefore, they have limited time or interest to join existing TOP teams or engage in new practices. Similarly, in Australia, the need for partnerships or other collegial arrangements was cited in connection with busy workloads or stigma [20].

As shown in many countries, legal constraints are very influential on access to TOP services [19,23]. Health Canada had removed all restrictions to MIFE-MISO combination use as of April 2019 (Table 1) [9,24]. Yet, the CMQ still requires several of the removed restrictions such as mandatory ultrasound dating, clinical training in TOP before providing MIFE-MISO and no authorisation for nurse practitioners to

provide MIFE-MISO without physician's supervision of physicians trained to provide MTOP (Table 1) [11,25]. The CMQ also tightly regulates telemedicine which could otherwise be used in T1 MTOP [26]. Quebec, while being very supportive of TOP access [5], is not the only area in the world where restrictions are notable. In the United States (US), in 2019, where 21 states were hostile or very hostile to TOP rights [27], state policies imposed mandatory delays, need for in-person counselling, mandatory ultrasound, performance of MTOP by a licenced physician only, and prohibition of telemedicine use to provide MTOP [26,27]. Yet, the report of the National Academies of Sciences, Engineering and Medicine of the United States [28], like the publications and guidelines of many leading organisations [29–31], reaffirmed that: T1 MTOP is in the scope of family medicine; it can be provided without ultrasound dating but with appropriate medical history and gynecological examination [32–34]; trained nurse practitioners and physician assistants can provide T1 MTOP as safely and efficiently as physicians [35]; and it can be provided through telemedicine [36,37].

One year after the baseline interview, as predicted by the TTM approach, most participants who were in the Action or Preparation stages started providing T1 MTOP. Interestingly, 90% of them were already working in public TOP clinics. In this regard, they were already aligned with CMQ requirements and thus, had already overcome a major barrier reported by physicians who did not work in such settings. Nevertheless, 44% of participants working in TOP clinics still did not provide MIFE-MISO one year after baseline, illustrating how barriers may exist in a sensitive field monopolised by those who perform surgical TOPs. Communication with the director of the Fédération Québécoise du planning des naissances, a Quebec feminist organisation monitoring TOP services, indicated that, in April 2019, 23/49 public TOP clinics, mostly located in rural areas, were still not providing MIFE-MISO T1 MTOP [38]. The average number of MIFE-MISO T1 MTOPs provided by our participants did not exceed 27 MTOPs. This low number was corroborated by market shares of MIFE-MISO in 2017–2018 [39] and 2017 termination data showing that during the first year of access, MTOP represented approximately 9% of all TOPs in Quebec [40] compared to 30% or greater in Ontario and British Columbia [16]. As shown in a 2017 worldwide review [23], the proportion of all TOPs that were MTOP increased in most countries (proportions up to 59% in France and to 80% to 90% in Sweden and Finland). At the time of mifepristone introduction in Sweden, TOP providers' receptiveness to provide MTOP depended mostly on the interest of a particular facility's head and staff [19]. In Great Britain, local medical culture supporting MTOP was also very influential on providers' uptake of this practice [19]. On the contrary, the pace of increase was slow in Belgium, Germany, Italy and the Netherlands; MTOP represented less than 25% of all TOPs in these countries [23]. In the US [41], 14 years after mifepristone's approval, 23% of all TOPs were MTOPs. The predominance of surgical TOP in these countries, as in Quebec, was mainly due to restrictive policies, bureaucratic restrictions and preferences among providers or women for surgical TOP [23].

We acknowledge limitations to this study such as a plausible desirability bias and participating in this research

being a catalyst to engage in MTOP practice. Since this study was performed at the very beginning of the availability of MIFE-MISO in Quebec, it may have elicited more barriers than facilitators. Our follow-up survey was just designed to capture adoption of the new behaviour one year later and thus, was too brief to describe further facilitators and barriers to the provision of MIFE-MISO. Strengths of our study included a robust sample of 37 participants, representing all Quebec Health regions, through various recruitment strategies, and a theory-informed study and interview guide.

This study highlights several barriers to MIFE-MISO T1 MTOP implementation including additional regulatory restrictions imposed by a provincial jurisdiction, despite strong scientific evidence and Health Canada's support of its full accessibility in primary care. The province of Quebec is one example where additional regulatory restrictions are imposed by the medical regulatory body [28]. These medical policy restrictions act as a bottleneck to the resolution of other bureaucratic and system barriers. Potential avenues that could improve implementation of MIFE-MISO T1 MTOP in Quebec include enhancing physicians' and nurse practitioners' MTOP training, increasing perceived ease of MTOP, emphasising integration of MTOP training in family medicine residency programmes, consolidating surgical TOP clinics with provision of additional services such as treatment of first trimester pregnancy failures, reducing logistical barriers, fostering professional collaboration, and doing research on Quebec women's attitude towards medical versus surgical TOPs as well as on nurses' roles, needs and experiences regarding MTOP. Until barriers are addressed and strategies to support uptake of MTOP are implemented, access and choice for individuals in Quebec seeking safe and effective MTOP will continue to be hindered.

### Author contributions

WVN, EG, SD and SM developed the study concept and approach with input from all co-authors. SM & ESW developed the codebook with the contribution of EG and M-SW. EG and M-SW did data collection and analysis. EG wrote the first draft of the manuscript. All authors contributed to manuscript revisions and reviewed and approved the final manuscript.

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No potential conflict of interest was reported by the author(s).

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