Barriers and facilitators related to HCV treatment uptake among HIV coinfected populations in Canada: Patient and treatment provider perceptions

David Ortiz-Paredes MD, MSc¹, Afia Amoako MScPH², David Lessard PhD¹, Kim Engler PhD¹, Bertrand Lebouché MD, PhD¹,³,⁴, Marina B Klein MD, MSc⁴,⁵

ABSTRACT

BACKGROUND: Direct-acting antiviral (DAA) uptake is challenging across HIV-hepatitis C (HCV) coinfected populations. This study sought to identify barriers and facilitators related to DAA uptake in priority populations in Canada.

METHODS: This qualitative descriptive study included 11 people living with HIV with a history of HCV and 15 HCV care providers. Participants were part of either nominal groups (n = 4) or individual interviews (n = 6) in which they identified and ranked barriers and facilitators to DAA uptake. Consolidated lists of barriers and facilitators were identified thematically.

RESULTS: Patient participants highly ranked the following barriers: competing priorities and needs (ie, social instability and mental health), delays in care, lack of adherence, and polypharmacy. Provider participant top barriers were the following: competing priorities and needs (ie, social chaos), delays in care (eg, systemic barriers, difficulties engaging patients, lack of trained HCV providers), and HCV-related stigma. Patient participants identified having a strong network of health care providers, family, and friends, possessing intrinsic motivation, and DAAs being a simple and tolerable oral treatment as important facilitators. Provider participant top-ranked facilitators were having resources to identify hard-to-reach populations (eg, patient navigation, outreach), holistic care and addiction management, provider HCV education, and a strong network of interprofessional collaboration.

CONCLUSION: The barriers to DAA initiation addressed by patients and providers overlapped, with some nuances. Multidisciplinary care fostering a strong supportive network and intrinsically motivated patients along with HCV education emerged as key facilitators. This study provides insights for developing potential strategies to improve DAA uptake among HIV-HCV coinfected people in Canada.

KEYWORDS: direct-acting antivirals uptake; hepatitis C; men who have sex with men; MSM; people who inject drugs

Author Affiliation

¹Centre for Outcome Research and Evaluation, Research Institute of the McGill University Health Centre, Montreal, Quebec, Canada; ²Department of Epidemiology, Biostatistics, and Occupational Health, McGill University, Montreal, Quebec, Canada; ³Department of Family Medicine, McGill University, Montreal, Quebec, Canada; ⁴Department of Medicine, Division of Infectious Diseases/Chronic Viral Illness Service, Glen site, McGill University Health Centre, Montreal, Quebec, Canada; ⁵CIHR Canadian HIV Trials Network, Vancouver, British Columbia, Canada

Correspondence: Marina B Klein, McGill University Health Centre, 1001 Decarie Boulevard D02.4110, Montreal, Quebec H4A 3J1 Canada. Telephone: 514-843-2090. E-mail: marina.klein@mcgill.ca
INTRODUCTION

Individuals with hepatitis C (HCV) and Human Immunodeficiency Virus (HIV) coinfection represent a priority population for HCV elimination. They have faster progression of HCV-related liver disease and reduced survival compared to HCV mono-infected people (1–3). Worldwide, it is estimated that 2.3 million people live with both HIV and HCV (2). In Canada, between 20–30% of people living with HIV (PLWH) are HCV coinfected (4). This condition is particularly prevalent among PLWH who inject drugs and men who have sex with men (MSM), among whom the prevalence of HIV-HCV coinfection (hereinafter referred to as coinfection) is estimated to be 82% and 6%, respectively (2).

Recent evidence suggests that Canada is on track to eliminate HCV by 2030 as a public health threat, if the current levels of HCV treatment are maintained (5); however, treatment rates have begun to decline (6). Therefore, direct-acting antiviral (DAA) uptake is a key step of the care cascade for Canada to meet the World Health Organization HCV elimination targets (5,7).

As it is recognized that different groups may experience different challenges with respect to treatment access, one approach is to tailor interventions to key subpopulations—otherwise known as micro-elimination (8). Coinfected patients have high rates of diagnosis and engagement in care and, therefore, represent a reachable subpopulation in which DAAAs could be initiated as they are generally already engaged in HIV care (9). Overall, they have been found to have higher odds of initiating HCV treatment compared to their HIV-negative counterparts (10). However, DAA uptake has been challenging and uneven across diverse groups of coinfected populations (11). In the Canadian Coinfection Cohort, HCV treatment initiation was found to be significantly lower among people who inject drugs (PWID), Indigenous patients, and women (11). Being Indigenous, a PWID, and a woman was associated with the lowest probability (5%; initiation rate 3 per 100 person-years) of initiating DAAAs, while not having these characteristics carried a 35% probability of DAA initiation (30 per 100 person-years) (11).

Ccoinfected people are, thus, a key subpopulation to reach in the effort to eliminate HCV in Canada, among whom tailored interventions could be designed. However, the development of such strategies first requires a better understanding of their experiences accessing HCV care. The primary objective of this study was to identify barriers and facilitators related to HCV treatment uptake among coinfected people in Canada. Secondary objectives were to rank the identified barriers and facilitators and to contrast patients’ and providers’ perspectives on these issues.

METHODS

Methodology

Our study used a qualitative descriptive approach (12,13) to provide a comprehensive portrait of the factors that influence DAA initiation in coinfected people in Canada, which we sought to understand from the perspective of PLWH with a history of HCV infection and HCV treatment providers.

Research setting

The present research was conducted as a substudy of the Canadian Coinfection Cohort, which is an open prospective observational multicentre cohort study focused on HIV-HCV coinfection (14; www.cocostudy.ca). It has enrolled over 2,000 coinfected patients with diverse risk factors for HCV infection (eg, PWID, MSM, Indigenous people) who were recruited from a wide variety of urban and semi-urban centres to represent the Canadian epidemic (14). All participants for this study were recruited through this cohort.

Study population

Using a convenience sampling strategy, participants and HCV treatment providers affiliated with cohort sites were approached to participate in this study. Patient participants were eligible for this study if they were ≥ 18 years of age, living with HIV, had a history of HCV infection, received HCV treatment. Priority was given to those who had been treated with DAAAs over those treated with interferon-based regimens. HCV treatment providers were eligible if they had three or more years of experience working with HIV-HCV coinfected patients. Patients and providers received a monetary compensation of CAD $50 and CAD $90, respectively.

Data collection

Data collection methods included nominal groups, ie, focus groups that followed the nominal group technique (NGT), and individual semi-structured interviews. NGT is a method that allows the generation of ideas and priorities in response to a
given problem or situation (15). Nominal groups have been conducted with between 2 and 14 participants (16). Our goal was to recruit a maximum of 7 participants per group, as this is the maximum number recommended (16). The first author, DOP, conducted these nominal groups with the support of AA and DL. The nominal groups began with a conversation from which two preliminary lists of statements were developed—one containing barriers, and the other containing facilitators (see Appendix 1 and Appendix 2 for the interview guides). These lists were then discussed and refined among participants to generate final lists of statements. At the end of the nominal groups, each participant ranked the items on each list in order of priority, with a rank of 1 being the most important one.

Due to the COVID-19 pandemic and the social distancing recommendations, it was not possible to continue performing in-person nominal groups. Though we considered using a videoconferencing software as an approach to overcome this situation, patient participants expressed discomfort with this technology, and many did not have access to a computer. Instead, DOP performed 1-hour individual semi-structured interviews over the phone with them. These interviews followed the same interview guide (see Appendix 1) and approach described above for nominal groups, and the refinement of the preliminary lists was done between participant and interviewer.

Nominal groups and interviews were audio-recorded and transcribed verbatim. HCV treatment providers were given the opportunity to review the transcripts of their nominal group.

Data analysis
Ranking forms and transcripts were analyzed following the approach proposed by Van Breda (17), which brings together their quantitative and qualitative meaning. This analysis is achieved in four successive steps:

Step 1: Deductive thematic analysis. Each transcript was thematically analyzed using their respective final lists of barriers/facilitators as a coding framework. This analysis improved the understanding of each statement’s meaning and was conducted with NVivo 12® for Mac.

Step 2: Calculating average ranks and identifying the top statements. Participants’ rankings were entered into Microsoft Excel to calculate the average score for each statement. This calculation also allowed the identification of the top highest ranked barrier and facilitator statements in each group/ interview.

Step 3: Creating consolidated lists. Similar statements were combined into barrier/facilitator themes. This process was guided by the analysis performed in step 1 and was peer reviewed by AA.

Step 4: Ordering consolidated lists. A final score was given to each category created in step 3, which considered the average rank of the statements grouped under each category, the number of top statements included, and the number of statements contained. This final score determined the priority order. This process allowed for a ‘holistic and multidimensional combination’ (17 p10) of the qualitative and quantitative data gathered and resulted in a consolidated and prioritized list of categories.

Four sub-analyses were carried out: barriers perceived by patients, facilitators perceived by patients, barriers perceived by providers, and facilitators perceived by providers.

Strategies to ensure trustworthiness
To ensure trustworthiness, first, we opted to triangulate the data by recruiting two distinct stakeholder groups for comparison: HIV-positive patients with a lived experience of HCV and treatment providers. Secondly, honesty among participants was encouraged by offering them the opportunity to withdraw from the study at any point without repercussions. Thirdly, though DOP was the primary analyst for this research, frequent debriefing meetings were held with co-authors, who provided feedback. Lastly, the use of a qualitative software to analyze the data ensured a data-oriented audit trail.

Ethical approval
The McGill University Health Centre Research Ethics Board granted the ethical approval for this study in May 2019 (Reference number: MP-37-2019-4700). All participants consented to the use of their demographic data and deidentified quotes for academic purposes including the dissemination of results in scholarly journals.

RESULTS
A total of 26 participants (11 patients and 15 health care providers) were recruited (see Table 1 for the characteristics of study participants). Three provider-only nominal groups were conducted with all 15 recruited providers (n = 4, n = 7, n = 4; one
Patient-perceived barriers

A total of 41 patient-perceived barriers were identified by the patient participants, which were combined into six themes (see Table 2). They are explained in detail, in descending order of importance, according to the data analysis performed (see Methods).

1. Competing priorities and needs: Social instability

Social instability was the most important barrier for patients as it affected their capacity to initiate, adhere to, and complete their HCV treatment. Patient participants identified drug use, homelessness, and food insecurity as examples of key competing priorities, which contributed to their social instability.

2. Competing priorities and needs: Emotional malaise

Loneliness, anxiety, and feelings of fear were identified by patient participants as another important barrier. Patients related these emotions to diminished self-efficacy, motivation, and trust in HCV treatment, which impeded HCV treatment initiation. For some patients, having to deal simultaneously with HIV and HCV increased anxiety and stress.

3. Delays in care

Patient participants perceived that treatment initiation was delayed by three difficulties (see Table 2): late HCV diagnosis due to lack of systematic testing for people living with HIV, lack of insurance coverage for DAAs, which was an especially important barrier when these medications first came on the market, and restricted eligibility criteria that were in place at the time.

4. Lack of adherence and polypharmacy

Having to take medication for HCV and HIV, as well as for other conditions was identified by patients as a barrier that affected HCV treatment. Multiple treatment regimens entailed going to the pharmacy more regularly, which in turn demanded a great deal of energy from patients. Similarly, the more medications they had to take, the more difficult it was to follow the regimens.

5. HCV-related stigma

Perceived judgment from others was identified as a barrier to HCV treatment. Some participants also felt that they were treated differently because of their HCV infection; they felt they were a burden to

Table 1: Participant characteristics

| No. (%)* | Patients (n = 11) |  |
|---|---|---|
| Age, y, median (range) | 53 (38–68) |  |
| Female | 4 (36) |  |
| Ethnicity | |  |
| White | 9 (82) |  |
| Black | 1 (9) |  |
| Middle Eastern | 1 (9) |  |
| HCV risk group | |  |
| PWID | 8 (73) |  |
| MSM | 3 (27) |  |
| Blood exposure | 1 (9) |  |
| Currently taking ART | 11 (100) |  |
| HCV treatment undertaken | |  |
| DAA only | 5 (46) |  |
| IFN+DAA | 4 (36) |  |
| IFN only | 2 (18) |  |
| Providers (n = 15) | |  |
| Female | 11 (73) |  |
| Professional profile | |  |
| Nurse | 8 (53) |  |
| ID specialist | 3 (20) |  |
| IM specialist | 2 (13) |  |
| Pharmacist | 2 (13) |  |
| Years of experience | |  |
| 3–6 | 4 (27) |  |
| 6–10 | 4 (27) |  |
| >10 | 7 (47) |  |

* Unless otherwise indicated

ART = Antiretroviral therapy; DAA = Direct-acting antivirals; HCV = Hepatitis C virus; ID = Infectious disease; PWID = People who inject drugs; IFN = Interferon; IM = Internal medicine; MSM = Men who have sex with men

in-person, two online) and one nominal group was carried out with 5 patient participants. The remaining patient participants (n = 6) participated in 1-hour individual semi-structured interviews over the phone. Nominal groups and phone interviews were conducted between spring 2019 and summer 2020.

BARRIERS

Figure 1 contains the summary of the barriers identified by the two groups of participants.
their family and pitied. Stigma was also described as internalized by them. As a consequence, some participants wanted to keep their HCV diagnosis from others, including family and friends, which made confidentiality essential when seeking care.

6. Inadequate patient HCV literacy: Lack of information and support
Patient participants noted that they had insufficient information about HCV and its treatment. This barrier could also involve miscommunication with health providers. This failure in communication translated into mistrust of the therapy’s effectiveness and unreadiness to face side effects. In addition, a lack of communication was often paired with inadequate support from health care providers.

Provider-perceived barriers
A total of 34 barriers were identified by the provider participants, which were combined into 12 themes (see Table 3). Provider-perceived barriers are explained below in descending order of importance.
Table 2: Barriers of HCV treatment uptake for HIV-HCV coinfected populations according to patients

| Rank | Barriers                                      | Patients’ quotes                                                                                                                                                                                                 |
|------|-----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1    | Competing priorities and needs: Social instability | Most people who have an unstable life have no place to stay. And then (...) Most of the people on the streets who are unstable and are still using [drugs]; I don’t think they want their hepatitis C treatment. (50 years, PWID, IFN+DAA regimen) |
|      |                                               | You know, stability, good eating, and sleeping habits too. You know, I mean, you can’t—You can’t do a treatment like that, even if it’s not a treatment that’s painful or—You have to be stable every day [to] take the medication. You know, I mean, for a person who has no fixed dwelling or who takes a lot of drugs, it can be a problem. (43 years, PWID, DAA only regimen) |
| 2    | Competing priorities and needs: Emotional malaise | It’s people who still have mental health problems, who don’t have a follow-up and then they’re left to their own, you know. And then there are people who don’t want to get help, there are people who isolate themselves, there are people who shut themselves off. And there are some who are anxious. Some people have panic attacks. And then there are some who don’t dare to go; they are afraid of the doctor. (50 years, PWID, IFN+DAA regimen) |
|      |                                               | It [being HCV-HIV coinfected] impacted me mentally. Instead of dealing with one thing, I had to deal with two. It was hard. Especially because it was not long ago that I was diagnosed with HIV (...) I was more concerned, anxious about having to deal with hepatitis C. (43 years, MSM, IFN+DAA regimen) |
| 3    | Delays in care                                 | From 1987 until 2000, nobody decided to check for hep C; it was until I was going for my heart operation that they decided that they should check and see if I had hep C, and they came back positive. I’m going: ‘All this I’m HIV positive and you never checked for hep C at the same time? I don’t understand it.’ (59 years, MSM, INF regimen) |
|      |                                               | [My doctor] encouraged me to try and get on the treatment, but I could not get access to it, where it was covered, and I said, ‘Well I’ll wait until one comes along that is covered and works well and is easy to take.’ (54 years, PWID, DAA regimen) |
|      |                                               | I wasn’t sick enough to get the treatment. So that was the thing that was stopping me. I had to wait for a certain stage of the disease to have the treatment (...) My liver looked good; it wasn’t hardened. (...) I would have taken it [HCV treatment] right away in the beginning. But since I wasn’t sick enough, they didn’t think it was necessary to give it to me. (43 years, PWID, DAA regimen) |
| 4    | Lack of adherence and polypharmacy            | The hardest part for me was all the pills I had to take. (...) At one point, I was disgusted to take pills. (...) One prescription was ready to be picked up [at the pharmacy], the other 2 days later and then it wouldn’t end. (...) It was too much for me as a person who had never taken medication in his life. (...) It took a lot of energy to do that. (56 years, PWID, MSM, IFN regimen) |
|      |                                               | No, it was just a problem of remembering to take them. Because there were so many at the time. So, it was remembering the time. (60 years, PWID, DAA regimen) |
| 5    | HCV-related stigma                             | I had reasons why I wanted to keep it [the diagnosis] to myself. Because I hear people judging others for whatever sickness they have. I am already HIV-positive, and I know there is a lot of stigma regarding those who have STIs. So, I knew what I wanted to do. I had HIV and when I got diagnosed with Hepatitis C, I didn’t want to get judged. It was my privacy. (43 years, MSM, IFN+DAA) |
|      |                                               | It’s been hard, hard, hard. Because I saw the world looking at me but with sadness because they were sure that I was going to be out. Even my sister and my brother-in-law, they were sure that I was going to die in the same year. (56 years, PWID, MSM, IFN regimen) |
|      |                                               | I think I stigmatized myself more with it because when I was diagnosed with that [HCV], I wasn’t—I didn’t use needles, so I couldn’t understand where I had contracted it from. (59 years, MSM, IFN regimen) |

(Continued)
| Rank | Barriers                                                                 | Patients’ quotes                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|------|--------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6    | Inadequate patient health literacy: Lack of information and support      | I think [it] was not explained what I should expect, the injections or the percentage of people who have bad reactions to this treatment. I was not given this information, or it was not explained to me the way it should be. I was not prepared mentally. (43 years, MSM, IFN+DAA) And it’s like, I never got it [support]. I was put on this medication, [I was] told I had to take it for 48 weeks, it didn’t work out, I had to continue for another 24 weeks, but I really loved my doctors’ team, but I really never got the support that I needed through it. It was there, but it wasn’t there. (59 years, MSM, INF regimen) |
|      |                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

**Table 3:** Barriers of HCV treatment uptake for HIV-HCV coinfected populations according to HCV care providers

| Rank | Barriers                                                                 | Providers’ quotes                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|------|--------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1    | Competing priorities and needs: ‘Social chaos’                           | I totally agree with you, IV [intravenous] drug injection is not necessarily the barrier at all; the barrier is social chaos. You have to look at the individual person. (Nurse) I would add that often this population has many priority needs that can change. Sometimes, if you just address hepatitis C treatment and you don’t deal with housing, psychosocial problems, addiction (…), mental health. (ID specialist) If they don’t have food on the table, if they don’t have a house, and if they don’t have transportation, depending on where they’re going to get the medication from, especially living rurally, and getting into their pharmacy. (Nurse) |
| 2    | Delays in care: Systemic barriers                                        | The system as it is currently designed, I would say that it is an obstacle for this specific clientele. Multiple appointments, multiple interveners, they don’t understand each other in this maze. (…) Their minutes are limited. I would say that right now, the barrier to initiating treatment, specifically with this clientele, is the system as it exists now. (Nurse) It can take 6-8 weeks sometimes to get people covered under the provincial system which then leads itself to potentially losing people and lost to follow-up. (Nurse) When we get a person who gets reinfected, it’s a herculean task to get the funding to get them re-treated, at least in Canada right now. (ID specialist) |
| 3    | HCV-related stigma                                                       | I would also add that patients say, ‘I’m not worth this kind of treatment.’ Sometimes you hear that, and you think ‘My god’ they have such low self-esteem they tell themselves that. (Nurse) They have so much … It’s so stigmatized, it’s small communities and they don’t want to come into a waiting room where maybe they’re going to see each other. Now if you’re in a waiting room of people who have HIV, they’re going to think … It’s very touchy. (ID specialist) It’s about the stigma that ‘these patients shouldn’t receive treatment’ or ‘they’re just going to reinfect’ but they are actually our priority to treat. I think it’s other providers … even pharmacists have said to me, ‘I don’t think that we should be starting this patient, they are still injecting, we’re wasting dollars on treating them and they’re just going to reinfect,’ so I think it’s about the stigma as well. (Nurse) |
| 4    | Delays in care: Difficulties engaging and re-engaging patients           | There are those that have engaged in methadone and suboxone therapies and it just wasn’t their cup of tea. That group … my personal experience is there isn’t a plan B for them. They are just drifting out there. (…) I think that’s a barrier. What’s the plan B? I have actually spoken to suboxone and methadone physicians myself and said, ‘It’s wonderful that you have all these patients in your clinic who are on treatment but what do you do about those that start and then drift away? Is there a plan B?’ They don’t have a plan B, at least the ones that I have spoken to. (IM specialist) |

DAA = Direct-acting antivirals; HCV = Hepatitis C virus; PWID = People who inject drugs; IFN = Interferon; MSM = Men who have sex with men

(Continued)
| Rank | Barriers                                                                 | Providers’ quotes                                                                                                                                                                                                 |
|------|--------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 5    | Delays in care: Lack of trained HCV care providers and tailored models of care | We also had another situation of a fellow who lived on reserve who had been injecting but wasn’t engaged in any type of care, so he didn’t see anybody. (...) He ended up in rehab from a stroke. They tested him and he was hep C positive. (...) and he had liver CA [cancer] and [was] full of mets [metastasis] and died very shortly after that. (...) He doesn’t even know hep C is a thing, he’s injecting, he has no way to get tested, he doesn’t know he should be tested, no one … you can’t even get them to come in for testing. (...) Again, I think it’s an equitable access issue at least in First Nations communities in Saskatchewan. (Nurse) |
| 6    | Inadequate patient HCV literacy                                           | Doctors often won’t screen because often they don’t know what to do with it [test results]. General practitioners like at the [long-term facilities] or walk-in clinics, they’ll say, ‘what am I going to do with this? I don’t even know how to interpret the result.’ (Nurse) We don’t have local providers within those communities, not primary care folks that have risen up to it, so I don’t know what the experiences are in the West but in the East, we are still trying to engage primary care workers. (IM specialist) We put too many barriers too, I think, sometimes it could be the pharmacist or the nurse who could [prescribe DAAs] I think they have a lot of the skills. (...) I think yes there is a lack of expertise, [but] you don’t need to have a lot of expertise; you just need to update your knowledge to prescribe this treatment. (Nurse) |
| 7    | Lack of adherence and polypharmacy                                        | I think patient education around hep C treatment in general. A lot of patients are surprised that the duration is so short, that it’s easy. They are still thinking about the Interferon days, or they know somebody that has gone through treatment and not cured, so I think it’s about patient education. (Nurse) The attitude that there is only one treatment which is incorrect. I think that is what people think that you get only one chance because that sort of carried over from the past. That kind of goes along with the idea with the expense of treatment, I think. (Nurse) |
| 8    | Delays in care: Lack of reflex testing                                     | Getting them stabilized, getting them into the clinic, getting them stabilized on medication and that seems, I think that’s ongoing a barrier for starting hepatitis C treatment. (...) Then when it does come along, you’ve already got a problem in [which the client is] taking this HIV medication every day, do they want to add extra pills? (Pharmacist) Our biggest thing is that, in the compliance world as well, we want to make sure that those patients are as compliant as possible because we know the risks of treatment failure and really what are the options after we’ve already started that treatment? (ID specialist) |
| 9    | Delays in care: Paperwork and providers’ competing administrative responsibilities | My biggest obstacle in screening is finding them. As we don’t have the authorization from the laboratories to do the PCR reflex test yet, that’s another one [obstacle] ... to diagnose they have to do the PCR. They can do it afterwards, but if I have a positive HCV antibody, I have to find my patient to do the other [HCV RNA test]. If it was done right away in hospital, at worst I would only have to find him once. (Nurse) The paperwork is a pain and as I said if you’re an established treater and you know how to do it ... but I see it’s a major impairment to bring new people in. (...) It points out inefficiencies in the system, we could have higher throughput if we didn’t have to deal with basically not a medical task. (ID specialist) It’s true that for providers [the barrier] is paperwork (...) Maybe that alone can discourage a doctor from treating, ‘Oh well, I don’t have the time,’ and if there are no nurses to do his paperwork? (Nurse) |
| 10   | Delays in care: Pregnancy                                                  | The paper is a pain and as I said if you’re an established treater and you know how to do it ... but I see it’s a major impairment to bring new people in. (...) It points out inefficiencies in the system, we could have higher throughput if we didn’t have to deal with basically not a medical task. (ID specialist) It’s true that for providers [the barrier] is paperwork (...) Maybe that alone can discourage a doctor from treating, ‘Oh well, I don’t have the time,’ and if there are no nurses to do his paperwork? (Nurse) Any woman who is pregnant or breastfeeding, there is no evidence that we can treat safely yet in pregnancy with hepatitis C drugs. It kind of started to come up and then they come back 2 weeks post-partum and they go and see the NP [nurse practitioner] about starting Hep C treatment then to try and get them in between pregnancies because many women kind of cycle back and have multiple pregnancies and you want to really catch them as soon as you can before they are considering another pregnancy. (ID specialist) Pregnancy. Breastfeeding women. We see a lot of pregnant women that they were tested in prenatal and so that’s a barrier and they are lost to follow-up after they’ve delivered. That’s the barrier that we see. (Nurse) |
| Rank | Barriers                                      | Providers’ quotes                                                                                                                                                                                                                                                                                                                                 |
|------|----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 11   | Delays in care: Ineffective gatekeeping      | This is the issue we run into in British Columbia, (…) we say, “Oh all these GP [general practitioners] should learn how to do it,” and we all think it’s happening because we have a very simple approach—treat everybody—but then actually it is not happening because they have competing things. (ID specialist) A lot of physicians are not referring. They are saying, ‘This patient is not ready, there is no way that they could do this [HCV treatment].’ (Nurse) |
| 12   | Delays in care: Inadequate linkage to community | Another thing is that perhaps there’s not a great deal of connection with the organizations in the community that know them [vulnerable populations]. That those working in the current structure, for example, have more time to facilitate (…) I think that in these contexts, like [pharmacists] maybe have less time to make all the phone calls you need to make to find that patient. Contacting your street worker to tell her that he didn’t show up for his appointment. (Nurse) |

DAA = Direct-acting antivirals; HCV = Hepatitis C virus; ID = Infectious disease; IM = Internal medicine

1. **Competing priorities and needs: ‘Social chaos’**
   The most important barrier to HCV treatment uptake from the providers’ perspective was what they defined as ‘social chaos.’ This barrier referred to the many competing priorities associated with social determinants of vulnerability and health that make starting HCV treatment difficult for coinfected people. Issues such as homelessness, addiction to drugs, and mental health problems were mentioned in this regard. Social chaos also referred to the factors that directly affected patients’ motivation and access to DAA, including living far from services, mobility problems, and having a weak support network.

2. **Delays in care: Systemic barriers**
   Provider participants identified as the second most important barrier system-level hurdles. A nurse described the system as a ‘maze,’ which translates into delays in the cascade of care. For treatment initiation, specifically, this theme relates to delays for provincial coverage of DAAs and limited coverage for reinfected patients.

3. **HCV-related stigma**
   The third barrier includes HCV-related stigma, which could come from three different sources, according to providers. First, stigma could be internalized by patients, with low self-esteem translating into not feeling worthy of receiving treatment. Second, providers also recognized that there is societal stigma surrounding sexually transmitted diseases, which affected patients experience when using health services. Consequently, patients may not seek care fearing disclosure of their HCV-HIV coinfection status. Third, patients could experience misjudgments from HCV providers which could delay treatment due to provider concerns about re-infection. Hence, HCV stigma interfered with patients’ motivation to seek treatment and providers’ intention to prescribe treatment.

4. **Delays in care: Difficulties engaging and re-engaging patients**
   Provider participants recognized that some populations face barriers when accessing care, which delays HCV diagnosis and initiation. Whether it is because of drug addiction or a mismatch of cultural values between Western and traditional medicine, there are difficult-to-reach populations with whom providers cannot connect despite their efforts. In addition, providers recognized the lack of strategies put in place to re-engage patients that were lost to follow-up.

5. **Delays in care: Lack of trained HCV care providers and tailored models of care**
   Providers recognized that models of care were not tailored enough to the needs of patients, produced by a lack of health professionals who are both trained to treat HCV and motivated to work in community settings. For providers, having a larger pool of designated prescribers could facilitate the development of a primary care or community care models—thereby facilitating the implementation of tailored models of care.

6. **Inadequate patient HCV literacy**
   Provider participants mentioned that patients were ill-informed about HCV and its treatment.
For them, patients were not aware of the advantages of DAAs compared to interferon-based regimens, and so they did not see HCV treatment as a priority. In addition, inadequate patient health literacy could lead patients to believe that they had only one opportunity to receive HCV treatment.

7. Lack of adherence and polypharmacy
Some providers recognized that the challenges go beyond addressing the social chaos of coinfect patients and recognized that ensuring their compliance with treatment could become a barrier. This challenge is because treating HCV involves taking more pills in addition to their antiretrovirals. Providers feared a lack of adherence due to polypharmacy would lead into treatment failure.

8. Delays in care: Lack of reflex testing
Another barrier identified by providers was not having the possibility to offer reflex testing. This obstacle makes HCV diagnosis lengthy since patients need to present twice—first, to get the antibody test and second, to get the RNA confirmatory test. In a population with challenges in engaging with care, reflex testing would accelerate the identification of HCV positive cases.

9. Delays in care: Paperwork and providers’ competing administrative responsibilities
The decision to initiate DAAs often comes with a series of forms and paperwork to complete. This administrative portion of the act of prescribing HCV treatment was seen by providers as a barrier, which, paired with time constraints could discourage them from treating HCV-positive patients.

10. Delays in care: Pregnancy
Pregnancy and breastfeeding were recognized as a barrier since HCV treatment cannot be started during these periods. Not only does pregnancy prolong the period between diagnosis and treatment, it also could lead to patients being lost to follow-up.

11. Delays in care: Ineffective gatekeeping
An important proportion of HCV-HIV patients can be treated in primary care by general practitioners. In addition, these professionals have a role in referring patients to specialists and to other pertinent services and ancillary support when necessary. This role was described as gatekeeping. Providers perceived that gatekeeping was ineffective as some primary care providers were neither initiating HCV treatment nor referring patients. Therefore, primary care was seen as an important context where HCV treatment could be improved.

12. Delays in care: Inadequate linkage to community
Some provider participants recognized that nurses and pharmacists, due to lack of time, were not properly connected with community organizations, social workers, and street outreach workers, who are normally in closer contact with vulnerable patients. This lack of collaboration contributed to the risk for patients to be lost to follow-up and affected the continuity of care.

Facilitators
Figure 2 represents a summary of the facilitators identified by patient and provider participants.

Patient-perceived facilitators
Patient participants identified a total of 47 facilitators, which were combined into nine themes; explained in detail in descending order of ranked importance (see Table 4).

1. A strong network: Health providers, family, and friends
The most important facilitator from the patients’ perspective was having a strong, longstanding relationship with their health care team. Physicians, nurses, pharmacists, and social workers were mentioned as the professionals who usually form this support network. Patients valued that these professionals worked together, were committed, stayed well-informed, and were not judgmental. For patients, these support networks fostered provider-patient communication and encouraged them to start and complete treatment. Finally, for some, this network could also be formed by loved ones, like family and friends.

2. Intrinsic motivation
Patient participants identified their own inner motivation as important to initiate and go through the treatment process. Some described this facilitator as a personal attitude of being an advocate for yourself and getting involved in health decision-making, for instance, asking to get tested without waiting for providers to perform the screening. Others started treatment motivated by a desire for a healthier life and spend life with their families. In addition, having intrinsic motivation facilitated
the search for information and resilience during the treatment.

3. **Counteracting adherence challenges: A simple and tolerable oral treatment**
Patient participants recognized the advantages of interferon-free regimens as an important facilitator to HCV treatment uptake. They recognized that DAAs, with their simple and convenient oral administration method, were easy to take and to conceal for privacy. Similarly, patients appreciated the lack of side effects, which improved their experiences with treatment and capacity to adhere.

4. **Holistic care: Addiction management**
Discontinuing illicit drug use was seen by several patients as an important step that made it easier for them to begin HCV treatment. Addiction care and engagement in an addiction rehabilitation centre were, thus, facilitators to treatment uptake.
Table 4: Facilitators to HCV treatment uptake for HIV-HCV coinfected populations according to patients

| Rank | Facilitators | Patients’ quotes |
|------|--------------|------------------|
| 1    | A strong network: Health providers, family, and friends | They [providers] didn't point a finger at me because I was really beat up. I really didn’t smell like a spring rose. I smelled strong. I didn’t wash myself. (...) They could have said: ‘You’re disgusting, get out of here!’ But no! They took care of me, and they didn’t have any prejudices against me. They explained everything to me. The side effects, they explained everything to me. And then ... No, no, no, I had lots of good information. They gave me the forms. They gave me all the information I needed and then they took care of me. (50 years, PWID, IFN, DAA) So, when I decided to get out of it [drug use] and do the right thing, the kids were all around me. (...) During the treatment the children were there. The children, you know, came to see me. So, that’s pretty much it right there. That’s pretty much the most I could do [starting treatment], that was the best I could do. (43 years, PWID, IFN+DAA) |
| 2    | Intrinsic motivation | I was motivated in my head and then I was ready. And then I wanted to get rid of it [HCV], I didn’t want to have a liver problem later on. So, (...) I was decided, I was ready, then I wanted to do it [start treatment] and then ... I knew I had the will and then I had the strength. I was mentally ready for it. (50 years, PWID, IFN+DAA regimen) Because people thought that at the end I was to die. And then, I didn’t want them to win. (...) I’m the one who told them, ‘You saw that! I’m still standing!’ (...) That’s what helped me, because I thought, ‘They’re going to see that they weren’t right to be like that. And then they’ll see that I’m strong.’ (56 years, PWID, IFN regimen) |
| 3    | Counteracting adherence challenges: A simple and tolerable oral treatment | I just took one pill a day for three months, and that was it. (...) I was happy, you know, one pill a day and I can get rid of my hepatitis: fine great, you know. It was like a Godsend for me. (...) The side effects were minimum, as a matter of fact, I don’t think I suffer any side effects. (...) I think we’ve come a long way from back when you were being treated with interferon. (68 years, PWID, DAA regimen) The first treatment [keeping it confidential] was kind of difficult because included an injection treatment which had to be kept in the fridge. I had a roommate at that time. I wanted to keep it confidential which was a little hard where we only had one fridge in the house (...). With the new treatment, it was very simple. It’s like any other medication, you keep it with you or keep it in your room in a drawer. (43 years, MSM, IFN+DAA regimen) |
| 4    | Holistic care: Addiction management | I was clean at the time and taking my medication. I was fine and well. I would be wasting my doctor’s time if I did that [using drugs]. (60 years, PWID, DAA regimen) We sleep there [at the consumption centre], but we can go out during the day, do our things, go see our children. If we work, we continue to work. Besides, we have workers on site, we have people who cook for us, we have a bed, we have a room of our own. So, it’s tranquility. And then, peace of mind, like not having to ask yourself, ‘What am I going to do tomorrow?’ (43 years, PWID, DAA) |
| 5    | Connecting patients to health and social services: Community organizations | [The community centre] is an organization just for people who come from far away. But it’s a place where you can stay just for a month or a month and a half. Just until you find another place to stay. And then I was sent to XXXX, which is a shelter just for those who are HIV positive. Which is a long-term shelter. You can stay there for a year, a year and a half, two years. (...) It’s helped me a lot in the process of wanting to get off the street. I’m telling you, life is beautiful today. (...) They are connected with [the clinic]. (50 years, PWID, IFN+DAA regimen) |

(Continued)
| Rank | Facilitators | Patients’ quotes |
|------|--------------|------------------|
| 6    | Accessibility to DAAs: Medical coverage | In Canada, everyone is covered. I had no problem with the financial situation (...). The availability of the medication. The medical insurance [coverage], because I know it is a very expensive medication. What else? Yes, the availability of the medication and affordability. I could afford to get this medication. (43 years, MSM, IFN+DAA regimen) [Initiating treatment] was all done by itself, they took me on board and then they put me on my [HCV treatment] right away. The doctor told me: “We’re going to “check” that [coverage]. And then they saw all that and said, ‘Okay, fine, we’ll start your treatment.’ (...) Now it’s covered by the government. (50 years, PWID, IFN+DAA regimen) |
| 7    | Accessibility to DAAs: Participating in research | For me, I got it from Dr [last name], she said, ‘you can start on treatment right away and you will be put into a study,’ so I didn’t pay anything for the medication. (...) So the patients got it for free. So, I was lucky (68 years, PWID, DAA regimen) My doctor told me it was possible that if I contacted the drug companies, they may have a protocol where if you become part of a study, that you might be able to get the treatment for free. (54 years, PWID, DAA regimen) |
| 8    | Counteracting adherence challenges: Delivery of pills | I was at my wits’ end. That’s what was discouraging me [having to go to the pharmacy to often] until they said, “Can you get the pills delivered?” And now, they deliver them [pills] to me. (...) And every month, they would bring me all the injections. Ah, it was hell before! Well, just because there were too many things to take. (56 years, PWID, MSM, IFN) |
| 9    | Counteracting adherence challenges: Blister packs and alarms | My medications are given out in a blister pack by week, and it got morning, dinner, supper, and then nighttime. So, you know exactly which thing [to take] and you got it only for 7 days, your whole week. (68 years, PWID, DAA regimen) You have to leave them [blister packs] in a spot where you see them to remind yourself. (59 years, MSM, IFN regimen) These days you can set an alarm on your phone. I have an alarm set on my phone to take my HIV medication. You know, so most people have cellphones or some type of a system so it’s not very difficult (...) You have to set yourself an alarm of some kind. (54 years, PWID, DAA regimen) |

DAA = Direct-acting antivirals; HCV = Hepatitis C virus; PWID = People who inject drugs; IFN = Interferon; MSM = Men who have sex with men

Patients appreciated receiving holistic care as they found a place to stay, food, and a support network.

5. Connecting patients to health and social services: Community organizations
Community organizations were another facilitator to starting HCV treatment mentioned by patients. These organizations provided an entry point for patients who were in a vulnerable situation. The role of community centres was enhanced when they were well-connected with housing facilities and HIV or HCV clinics.

6. Accessibility to DAAs: Medical coverage
Patients recognized that HCV treatment was expensive. Therefore, having government funding for DAAs made treatment possible and was recognized as a facilitator that improved the accessibility of DAAs.

7. Accessibility to DAAs: Participating in research
Some participants received their treatment when it was still not widely available. For them, this barrier was overcome by enrolling in a research study. As a trial participant, they had privileged access to medications, which they otherwise could not afford.

8. Counteracting adherence challenges: Delivery of pills
As previously stated, patient participants mentioned having to take many pills due to coinfecction. Some benefited from the delivery of pills, which was described as a facilitator that improved access and adherence to treatment.
9. Counteracting adherence challenges: Blister packs and alarms
Patient participants identified blister packs as an important strategy to follow the multiple schedules of their medications, stressing the importance of making sure that these blisters packs are always visible. In addition, patients described setting reminder alarms on as another facilitator of adherence.

Providers perceived facilitators
Seven facilitator themes were identified after combining the 30 facilitators that were raised during the provider nominal groups (see Table 5). They are described in detail in descending order of importance.

1. Connecting patients to health and social services: Identifying hard-to-reach patients
The most important facilitator from the providers’ stance was having resources to identify and engage hard-to-reach HCV patients. These resources included peer navigation, outreach, and flagging high-risk patients on electronic medical records.

2. Holistic care: Addiction management
Accessible and adequate addiction care, including harm reduction, was regarded by providers as a facilitator for HCV treatment uptake. They recognized the positive effect that this care has on patient engagement, adherence, and risk of reinfection, which in turn gives them reassurance to start HCV treatment.

3. Education: Provider HCV training
Having primary care providers who are aware that HCV is now curable and simple to treat and who can also accurately interpret test results and provide addiction care was seen as an important facilitator. Furthermore, providers wanted incentives and access to updated educational resources on how to treat coinfected populations.

4. A strong network: Interprofessional collaboration
A relationship of cooperation between providers was seen as a facilitator. For providers, these relationships could create a network of specialists, primary care physicians, nurses, and pharmacists who share their expertise and work together in the interest of optimal and comprehensive patient care, with HCV as a priority.

5. Holistic care
Provider participants saw treating the whole person—as opposed to just attending to physical aspects—as a facilitator. This holistic focus requires a cultural shift from viewing HIV and HCV as separate entities to treating them as a whole while also addressing treating social aspects of patients’ lives, like food security. Providers recognized that having more time available during clinical encounters was needed to achieve this whole-person care.

6. Connecting patients to health services: Engagement in HIV care
Coinfected patients were regarded as a different group from HCV monoinfected patients. Some provider participants considered engagement in HIV care as a facilitator. The structure already in place for HIV care makes it easier to identify HCV positive patients and successfully treat them.

7. Education: Peer-driven education
Finally, providers highlighted the importance of having well-informed patients. Patient education was seen as a facilitator. It was described as counteracting insufficient health literacy and misconceptions about treatment, many of which arise from patient experience with interferon and no longer apply to DAAs. Providers also mentioned the importance of engaging peers to drive educational initiatives (see Table 5).

INTERPRETATION
HIV-HCV coinfected patients are a key population for HCV elimination efforts in Canada. In this qualitative descriptive study, we contrasted the views of PLWH who had a history of HCV coinfection with those of HCV care providers on the barriers and facilitators related to HCV treatment uptake.

This study’s findings suggest that HCV treatment initiation is hindered in Canada by five core barriers, namely, patients’ competing priorities and needs, delays in care, lack of adherence, inadequate patient HCV literacy, and HCV-related stigma. Although patients and providers expressed these problems differently, our analysis highlights that there was nevertheless considerable overlap in the barriers they addressed. Having both perspectives allowed for a more nuanced and comprehensive understanding of the challenges involved. For instance, what patients perceived as ‘delays in care’—a rather vague label—refers, in fact, to a
Table 5: Facilitators to HCV treatment uptake for HIV-HCV coinfected populations according to HCV care providers

| Rank | Facilitators                                                                 | Providers’ quotes                                                                                                                                 |
|------|-----------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| 1    | Connecting patients to health and social services: Identifying hard-to-reach patients | Having someone to drive them around and to remind them and bring them back. (IM specialist)  
I think outreach is key. I think outreach at a team level. I think we’ve had a lot of success with peers. Bringing people with lived experience both in addictions, and in HIV and hep C. (Nurse)  
But some of it can be an IT [information technology] solution because the majority of clinics use EHR [electronic health records] (...) if you built-in a flag, you know a flag of viremic coinfected it would flag every time they show up in the clinic. (ID specialist) |
| 2    | Holistic care: Addiction management                                          | I would actually look at one of the facilitators with people who use injection drugs; that is when people dispense methadone or suboxone. I find it’s a really good facilitator to them getting their treatment because they are going to pick that up and they have a reason to go to their pharmacy beyond their hep C treatment and that really actually helps. (ID specialist)  
It's having a vision of addiction and knowing that there are treatments that exist like methadone, suboxone, Campral, because, you know, there’s not just methadone or suboxone, (...) Having methadone and suboxone is very facilitating. (Nurse) |
| 3    | Education: Provider HCV training                                            | We do one-on-one preceptorships in our clinic so that is something... I mean the GPs [general practitioners] that we’ve trained are not treating at a large volume, but they are starting to get out there. (...) So, I think the preceptorships are [the] starting to see more treaters. (Nurse)  
They [general practitioners] should have a full-time addiction counsellor on staff. They should have all these other pieces in place. (Pharmacist)  
As practitioners just being educated around what is involved in treating [HIV-HCV coinfected] populations. To know where to get that information. (...) We have a lot of resources for pharmacists that are fairly widely known. (Pharmacist) |
| 4    | A strong network: Interprofessional collaboration                             | I think you need to be open to partnerships [with other providers] and not be too territorial. (ID specialist)  
I think it [working as a team] removes that barrier in ‘Oh well I don’t want to bother them’ or ‘They are the specialist in their way up here’ so I think it just makes it a lot easier to have that team-based approach. (Nurse)  
So, facilitator, teams coming together to co-manage in the community or just in the relationship building with providers that are designated, there’s not so many of us, so designated providers meeting or something where you can actually work as a group. (Nurse) |
| 5    | Holistic care                                                                | I wonder, and this is broad, not to point any finger at anybody, but changing the culture of the whole clinic, the nurses, the pharmacist, and everybody, looks at the coinfected patients and doesn’t think of them as just HIV but as having both pieces. (Nurse)  
I have also patients coming to the clinic with multiple issues, but the appointment focuses on one and there is, you know, it’s not purposefully neglected it’s just what happens and then I never discussed that visit. (ID specialist)  
Food security. If those things are met... so... we have a lady that [name] and [name] are starting [on Hep C treatment] (...) food security is a big thing for her, so we’ll be making sure that she has granola bars sent out to her with her medication because otherwise she won’t be... she won’t have any food to eat with the medication that she’s on. (Nurse) |

(Continued)
DAA uptake factors in Canadian HIV coinfected patients

| Rank | Facilitators | Providers’ quotes |
|------|--------------|------------------|
| 6    | Identification of patients: Engagement in HIV care | That may be the difference in the monoinfected; I find that it’s almost an advantage they have to be [HIV] coinfected because of the testing; they’re already in the system. Those who have HIV are always going to be tested for hepatitis C, they’re all going to be tested, treated, and followed up. (Pharmacist) Coinfected patients usually show up in HIV clinics, usually. I mean this could be an individual practice but … I think it’s important that these clinics not only screen their patients for hep C at intake, of course, they probably all do, but they need to rescreen the negative ones on a periodic basis. (ID specialist) |
| 7    | Peer-driven education | We’ve had really good success and there are these really organic, really wonderful conversations that happen on a community-level with people that are of the same knowledge, and it’s a nicer way to share information in a more … in a less formalized manner. I think utilizing peers in that approach … there is no one size fits all, so having a whole menu or a smorgasbord of what you might be able to consider. (Nurse) There is this concept in medicine that people tend to listen to their own peers a lot more than they listen to … I’m going to call it parallel providers. (IM specialist) |

GP = General practitioner; HCV = Hepatitis C virus; ID = Infectious disease; IM = Internal medicine

set of precise issues of which providers are aware. What providers perceived as inadequate patient-HCV-literacy, patients described as lack of information and support from the health care team.

Strong support networks, intrinsic motivation, and education are facilitators that stood out, as they could tackle several barriers simultaneously. Both patient and provider participants raised support networks, with each group providing nuances that explain the importance of these networks. For patients it was important to feel surrounded not only by family and friends, but also by health care professionals. Previous research has highlighted how empathy, respect, communication, and cultural sensitivity strengthen the patient-provider relationship and facilitate engagement in HCV treatment (18–20). Providers, for their part, added the notion of cooperation, where networks are built and nourished by the expertise that each professional brings. Interprofessional collaboration is, therefore, a strategy that, in addition to supporting HCV treatment uptake, could build a stronger, non-judgmental support networks for patients. In turn, these networks could help address patients’ social challenges and competing needs, reduce stigma, and improve their HCV literacy.

Our study highlights the importance of education. Provider participants brought up offering HCV education to family physicians, nurses, and other primary care providers. This education would translate into a more competent workforce, more efficient primary care, fewer care delays, and less stigmatizing attitudes towards PWID and HCV reinfection. Richmond and Wallace (21 p116) call for a ‘paradigm shift’ in which most of HCV care is decentralized and delivered in primary care and propose professional development initiatives and ‘professional champions’ to drive this shift. Community organizations and outreach were also identified as key factors that may have a role in providing education, diminishing delays, and improving DAA uptake.

Patient participants further highlighted the importance of intrinsic motivation to drive information seeking behaviours. In addition, intrinsic motivation allowed PWID to engage in addiction and HCV care, dampen social instability, and be resilient towards (internalized) stigma. In our study, intrinsic motivation was fostered by the desire to live a healthier life and to spend more time with family and friends. Intrinsic motivation has also emerged in other qualitative studies as a facilitator to HCV treatment uptake (18,20,22,23). Hence, it seems having a strong support network means more motivated patients.

The portrait provided by this study is a starting point for selecting potential promising strategies that could be prioritized to support DAA initiation among HIV-HCV coinfected patients in Canada. According to the identified barriers and facilitators, some of these interventions may include multidisciplinary teams, the decentralization of HCV care, and HCV education for patients and health care providers.
Limitations
The transferability of our findings might be limited as there was an underrepresentation of female patient participants, as well as immigrant populations. We also did not recruit Indigenous patients as this was the subject of a previous study by our group (19). Study participants had also heterogenous HCV treatment regimens ranging from interferon only, a combination of interferon and DAA, and DAA-only experiences. Despite this fact, the analysis showed that they experienced similar difficulties. Finally, all patients had received HCV treatment at some point, meaning barriers and their relative importance could differ among those who fail to access HCV care. Among providers, the majority were nurses, infectious diseases and internal medicine specialists, while no primary care physicians or gastroenterologists were included. Hence, barriers and facilitators that are more pertinent for these professionals were not captured in this study. Furthermore, due to the COVID-19 pandemic, the social distancing measures, and patient participants’ lack of access to and experience with technology, we could only carry out one in-person nominal group with this group. Therefore, the patient participants who were interviewed individually (6/11) could not explore and clarify their views by contrasting them with those of others. This limitation could affect the comparability of results between patients and providers. Nevertheless, several strategies were used to improve the trustworthiness of our research endeavour (see Methods). We also consider the NGT approach to be a strength of the present study, which allowed bringing together the quantitative and qualitative data gathered. This approach allowed comprehensive and nuanced results.

CONCLUSION
Despite the known benefits of DAAs, barriers to initiating HCV treatment continues to exist in HIV-HCV coinfected populations. Although patients and providers in this study expressed these difficulties differently, their experiences overlap as they referred to the same problems (ie, competing priorities and needs, delays in care, lack of adherence, inadequate patient HCV literacy, and HCV-related stigma). Multidisciplinary care fostering the construction of a strong supportive network around patients, HCV education, and intrinsically motivated individuals, emerged as key facilitators. Such an understanding provides insights for developing potential strategies to improve DAA uptake among HIV-HCV coinfected people in Canada.

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INFORMED CONSENT: We confirm that informed patient consent has been secured from all patients whose personal information is included in the manuscript or the parents or guardians of minors.

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APPENDIX 1: INTERVIEW GUIDE FOR PATIENT PARTICIPANTS

Part 1: Barriers to treatment uptake
1. As a person living with HIV and HCV, what has made it difficult for you to start treatment for HCV?
   a. Prompt: Before starting treatment, what difficulties have you faced (or are you facing) to start treatment for HCV?
2. People living with both HIV and HCV have mentioned other factors that make it hard for them to start HCV treatment such as stigma, fear of medication side effects, lack of counselling, information about treatment and its cost, when diagnosed with HCV.
   a. Can you share with us how stigma impacted the initiation of your HCV treatment?
   b. How about fear of medication side effects?
   c. How about lack of counselling or information about treatment?
   d. To what extent could financial issues become an obstacle for you to start HCV treatment?
3. What other things can prevent you from starting HCV treatment?

Part 2: Facilitators to treatment uptake
4. What has made it easier for you to start treatment for HCV?
   a. Prompt: What made it easier or could make it easier for you to start HCV treatment?
5. People living with both HIV and HCV have mentioned several factors that can make it easier for them to start HCV treatment. These include their interactions with health care providers (eg, physicians, nurses, social workers) and reminders in during treatment.
   a. How important are your interactions and conversations with your health care provider in your decision to start HCV treatment?
   b. What is one thing your health care provider can do to make it easier for you to start HCV treatment?
      i. Prompt: Are there things you want to hear more often from your health care provider when it comes to HCV treatment?
   c. How important would it be having reminders during treatment for you to start HCV treatment?
6. What other things can make getting started on HCV treatment difficult or easier for people living with HIV and HCV?

APPENDIX 2: INTERVIEW GUIDE FOR HCV/HIV CARE PROVIDERS

1. In Canada, what are some of the barriers to starting coinfected people on current HCV treatments?
2. In your opinion, what barriers to starting HCV treatment may be more specific to:
   a. People who inject drugs?
   b. MSM?
   c. Indigenous communities?
   d. Women?
3. In research, providers have identified high cost of treatment, paperwork, and lack of expertise as barriers to starting coinfected patients on HCV treatment. Currently in Canada, how much of a barrier is:
   a. High cost?
   b. Extensive paperwork?
   c. A lack of expertise?
4. What could facilitate starting coinfected individuals on HCV treatment?
5. In research, providers have identified access to training as a facilitator to starting coinfected patients on HCV treatment. Currently in Canada, how much of a facilitator is/would be:
   a. Access to training on HCV and its treatment?
   b. Access to training on addiction?
6. What other barriers or facilitators to starting HCV treatment among coinfected patients should be mentioned?