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Processes of development related with the implementation of the Icelandic prevention model in a rural Canadian community

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Abstract
The Icelandic Prevention Model (IPM) is a sequential 10-step community-driven collaborative intervention that is designed to support the prevention of substance use in youth by establishing healthy developmental contexts. The IPM has been implemented across Iceland for over 20 years and is now being implemented in other countries. Recognizing the need to explore how to adapt the IPM to new contexts and document the implementation of the model, this paper describes a process evaluation of the first three steps of the IPM within a Canadian rural community to capture experiences during the early development. Specifically, this study addresses the following research questions: (1) What are the processes of development and contextual features that influence the implementation of the IPM within Lanark County, Ontario? and (2) What adaptations are needed to successfully implement the IPM in Canada? Semi-structured interviews were conducted to examine experiences and lessons learned through the implementation of the model. Thematic analyses were completed using QSR NVivo. A deductive and inductive approach was applied, whereby some interview guide questions were derived from the IPM implementation steps and others were more exploratory, examining context and processes of development. Nine interviews were conducted with key partners who were leading the implementation of the IPM. Themes highlighting cultural factors that influence implementation, processes of development related to community engagement, and themes relating to youth participation, fidelity issues, fundraising, health equity and challenges related to the COVID-19 pandemic were identified. This paper contributes new scientific knowledge related to implementation processes within upstream prevention of substance use and practical information that is useful for communities interested in implementing the IPM.

Keywords Substance use prevention · Youth · Process evaluation · COVID · Health equity

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1 Introduction

Young people in Canada face increasing health inequities [1, 2], deteriorating mental health [3, 4] and an intensifying opioid crisis [5], with opioid-related deaths increasing among youth in recent years [6]. Direct and indirect costs due to substance use in Canada were estimated to have totaled $49 billion in 2020 [7] and between January 2016 and March 2021, there were nearly 23,000 apparent opioid-related deaths in Canada [8].

In the 2018 annual report, Canada's Chief Public Health Officer included the Icelandic Prevention Model (IPM) as a promising approach to the prevention of youth substance use in Canada [9]. The IPM is an evidence-driven approach that applies collaboration to strengthen protective factors and reduce risk factors and has been implemented in Iceland for over 20 years. The IPM is presently being adopted in over 16 countries across the world, and the Canadian government is now funding a national program to support uptake. Lanark County, Ontario was the first community in Canada to adopt the model. Recognizing that this site offers rich learning regarding how to implement the model within other Canadian regions, this study was developed to capture lessons learned in the process of adoption. This paper describes a process evaluation of the first year of IPM implementation in Lanark and presents findings that can be used to support adaptation and scaling within other Canadian contexts.

1.1 Youth substance use

Substance use in young people is associated with a range of risk factors, including social norms [10–12], stress [13], individual characteristics [14] and developmental factors [15]. Additionally, protective factors, such as feelings of autonomy, competence and relatedness among youth, can reduce the likelihood for young people to engage in substance use [16]. The more commonly used substances in Canadian youth are alcohol, cannabis and e-cigarettes and the prevalence of use has been changing over the past few years. In 2021, 31.8% of students in grades 7–12 in Ontario had used alcohol in the past year, 17% had used cannabis, and 15.3% had used e-cigarettes or vaping devices [17]. 21% of Canadian students reported engaging in high-risk drinking (drinking five or more drinks on one occasion) in 2021–22 [18], compared to a high of 39% reported in 2008–09 [19].The prevalence of vaping has significantly increased in Canada in comparison with other nations with stronger restrictions on marketing and allowable nicotine concentrations [20]. Cannabis was decriminalized and regulated in Canada in 2018, and the prevalence of cannabis use in the past year in 15–17 year-olds in 2019 was 22%, despite it being illegal for this age group [21].

Due to the potential harms of substance use to individuals, families, and society as a whole, it is critical to delay or prevent the onset of substance use in adolescents as long as possible [22–24]. Excessive consumption of substances in adolescence is associated with a range of harms, including poor school performance and greater dropout rates, self-injury, and vehicle accidents, to name a few [9]. At this stage of development, these harms have the potential to create lifelong challenges.

Differences have been identified in substance use behaviours among youth living in rural areas compared to urban areas. In Canada, students from rural schools were more likely to report using alcohol, heavy episodic drinking, and driving after consuming alcohol or cannabis, than their urban counterparts [25]. In order to reduce the prevalence of substance use at the population level, strategies that create healthy social norms, support protective factors and reduce accessibility to alcohol and other drugs should be applied [9, 26].

1.2 Icelandic prevention model (IPM)

The IPM is a community-based collaborative intervention that is designed to support the primary prevention of substance use onset and progression in youth by establishing healthy developmental contexts [27, 28] (see Table 1). The IPM is based on five guiding principles and ten core steps that are implemented in an iterative cycle [27, 28]. This involves an evidence-driven approach that is designed to support key community partners to engage in the development of tailored strategies focused on risk and protective factors that influence youth substance use and wellbeing. This approach aligns with socio-ecological theory as well as social determinants theories [29–32], in that the strategies are designed to influence the conditions where children and youth are developing, rather than placing the responsibility on the individual to influence behaviour change.

Table 1 Five guiding principles and ten core steps of the Icelandic prevention model

Guiding principles	
1	Apply a primary prevention approach that is designed to enhance the social environment
2	Emphasize community action and embrace public schools as the natural hub of neighborhood/area efforts to support child and adolescent health, learning, and life success
3	Engage and empower community members to make practical decisions using local, high quality, accessible data and diagnostics
4	Integrate researchers, policy makers, practitioners, and community members into a unified team dedicated to solving complex, real-world problems
5	Match the scope of the solution to the scope of the problem, including emphasizing long term intervention and efforts to marshal adequate community resources
Ten core steps	
1	Local Coalition Identification, Development, and Capacity Building
2	Local Funding Identification, Development, and Capacity Building
3	Pre–Data Collection Planning and Community Engagement
4	Data Collection and Processing, Including Data-Driven Diagnostics
5	Enhancing Community Participation and Engagement
6	Dissemination of Findings
7	Community Goal-Setting and Other Organized Responses to the Findings
8	Policy and Practice Alignment
9	Child and Adolescent Immersion in Primary Prevention Environments, Activities, and Messages
10	Repeat Steps 1–9 Annually

At the center of the IPM implementation is a comprehensive survey that local schools distribute to all accessible students in grades 7–12 (or a subset of those grades) to capture current youth substance use behaviours, as well as risk and protective factors related to the family, peer, school, leisure time and community context. Data is then rapidly analyzed and disseminated by researchers to a local coalition to facilitate collaborative community engagement that is tailored to priorities identified in the findings through a community feedback loop. Collecting and sharing this evidence is central to generating partner investment and community momentum [27, 33]. Examples of intervention strategies that have been applied during past iterations of the IPM include policy restrictions to reduce exposure and access to substances (e.g. regulations regarding advertisements, raising legal age limits), the development of population-wide programs to support youth participation in extra-curricular activity, and campaigns to support the development of positive parental norms [28, 34, 35]. The IPM has been implemented across Iceland for over 20 years and during this time period, analyses have identified a population-level decline in youth substance use. This includes a 86% decrease in 30-day alcohol intoxication rates across the country [36].

Over the last several years, the IPM has been implemented, in whole or in part, within several other countries and there is emerging evidence regarding how the model can be implemented in new contexts including Lithuania, Spain, Ireland and Chile. As part of the IPM in Iceland, the leisure card was used as a strategy to support extracurricular participation as a means of reducing substance use behaviours in Iceland [28].

1.3 Purpose

These studies highlight the unique contextual characteristics that influence the implementation of the model when it is applied within new cultural, political and economic settings. Researchers have identified that there is a need to explore how to adapt the IPM to new cultural contexts [37] and that the qualitative examination of social structures is a useful approach to examine these issues [33]. Findings related to these unique factors, as well as successful adaptations, will be useful to inform future implementation of the IPM within new contexts. Koning and colleagues [26] provide recommendations for future research to address to advance our understanding and transferability of the IPM, including examining the community participatory process and contextual features that influence the implementation of the IPM. Further, the examination of unique rural issues can inform future IPM implementation strategies within these areas [38]. In 2023, the Canadian federal government launched a national program to support the implementation of the IPM. It is of critical importance to capture local Canadian evidence to inform future implementation of the model and

the necessary adaptations that are needed for success in Canada. This process evaluation addresses these identified gaps and responds to the research questions: 1) What are the processes of development and contextual features that influence the implementation of the IPM within Lanark County, Ontario? What adaptations are needed to successfully implement the IPM in Canada?

2 Method

This paper describes an in-depth exploration of the processes of development during the implementation of the first three steps of the IPM within one rural Canadian community and is part of a larger case study focused on Lanark County [39–41]. Patton [42] has described process evaluation as going beyond outputs and outcomes and highlights qualitative methods as beneficial as they can capture how individuals interact with each other, personal experiences of initiatives, and the fluidity and dynamic nature of implementation. In the case of the IPM, a complex community system must be considered. Within complex public health interventions, qualitative process evaluations can support the description of the system, identification of complex mechanisms of influence, and capture changes in implementation and emergent findings [43].

2.1 Context

Planet Youth is an organization based in Iceland that implements the IPM through the Planet Youth Guidance Program and is supporting the scaling of the IPM worldwide. It should be noted that Planet Youth is a fee-for-service organization that supports the implementation of the IPM via its Guidance Program by offering support to administer the school survey and tailored coaching to community leaders. This organization was created in response to a growing international interest in the model and has been in operation for several years. Planet Youth did not develop the IPM and neither does it own the copyright of peer-reviewed IPM materials.

Lanark County is a rural region of nine municipalities with a population of approximately 75,000 that is located in southeastern Ontario. The Planet Youth Lanark County (PYLC) initiative is being led by the PYLC Steering Committee and at the time of this data collection, it involved local partnerships with Open Doors for Lanark Children & Youth, United Way East Ontario, the Leeds, Grenville & Lanark District Health Unit, the Catholic District School Board of Eastern Ontario, and the Upper Canada District School Board, among others. Lanark County was the first community in Canada to formally adopt the IPM through the Planet Youth Guidance Program and the evaluation approach served to inform a comprehensive evaluation guide developed by the Public Health Agency of Canada [44].

2.2 Procedure

Recognizing that the IPM is participatory and would be unpredictable in terms of the development process, we borrowed from developmental evaluation to inform our work [45, 46]. Developmental evaluation is an approach that is designed to support collaborative partners who are implementing an adaptive innovation within a dynamic and complex system to facilitate positive social change [46]. This approach integrates the application of utilization-focused evaluation, whereby intended users are the recipients of key results and findings are delivered in a timely manner. Developmental evaluation aligns with the practice of participatory co-creation and facilitates systems thinking. Following the developmental evaluation approach [46, 47], TH played an active role in the PYLC Steering Committee as both a member and evaluator. At the time of writing, TH had participated in 14 Steering Committee meetings since August of 2019 and attended key community events and relevant working group meetings. TH captured notes during each meeting detailing key issues, new insights and general observations. TH also provided her perspective with respect to emerging research in upstream prevention, youth engagement and evaluation of system-level efforts as well as on-going data collection.

PYLC membership is open to other community members, however, at the time of data collection, there were about 12 members who participated regularly. All 12 members were invited to participate and nine accepted the invitations to be interviewed. Interviews with PYLC Steering Committee members occurred about three years after efforts were initiated in the community (summer 2020–winter 2021). Interviews commenced about four months into Canada's response to the COVID-19 pandemic which created challenges in moving the project forward as a result of public health restrictions forcing school closures and diverting partner organizational efforts. As a result of public health restrictions, all interviews were conducted over the phone or virtually. Steering Committee meetings moved from in-person to online

as well. Further, survey collection had been primarily paper and pencil and it is now completed entirely online. At this stage, PYLC had signed the service agreement with Planet Youth and was in the process of completing the first three core steps of the IPM process focused on community capacity building (i.e., develop local coalition, identify local funding, and pre-data collection planning). They were preparing to send out surveys to grade ten students (i.e., step four of the IPM).

The interview guide included questions about the context and processes of implementation, with a subset of questions that were adapted from the Quality Implementation Framework [48]. Questions were designed to capture Steering Committee member perspectives of key successes and challenges related to the early stages of adoption of the IPM (see [49] for the interview guide). TH conducted all interviews over the phone or by Zoom, ranging in time from 39 to 95 min. Interviews were recorded and transcribed and participants were invited to review their transcript for accuracy. This research was approved by the Royal Ottawa Health Care Group Research Ethics Board and informed consent was secured from all interviewees.

2.3 Analysis

A thematic analysis was applied to the interview data [50, 51] that included a familiarization stage, followed by the generation of initial codes, refinement and revision of themes, definition of thematic concepts and development of the report. TH performed the initial coding on the full dataset, KM reviewed the codes and the two coders met to come to agreement on the final themes. MD and TH reviewed the final themes and drafted the report of the results. The results were presented to the PYLC Steering Committee in the fall of 2021. KM was a young person who had grown up in Lanark County and at the time of the data collection, was serving as a youth advisor to support the research and the youth engagement process for the Steering Committee. KM brought lived experience knowledge to her role as an advisor, as well as analyst. This supported better nuance of the themes focused on rural context as they were informed by her experiences growing up as a community member.

3 Results

Analyses resulted in three major themes: (1) Processes of development, (2) Challenges and (3) Community context (see Fig. 1; Table 2).

3.1 Processes of development

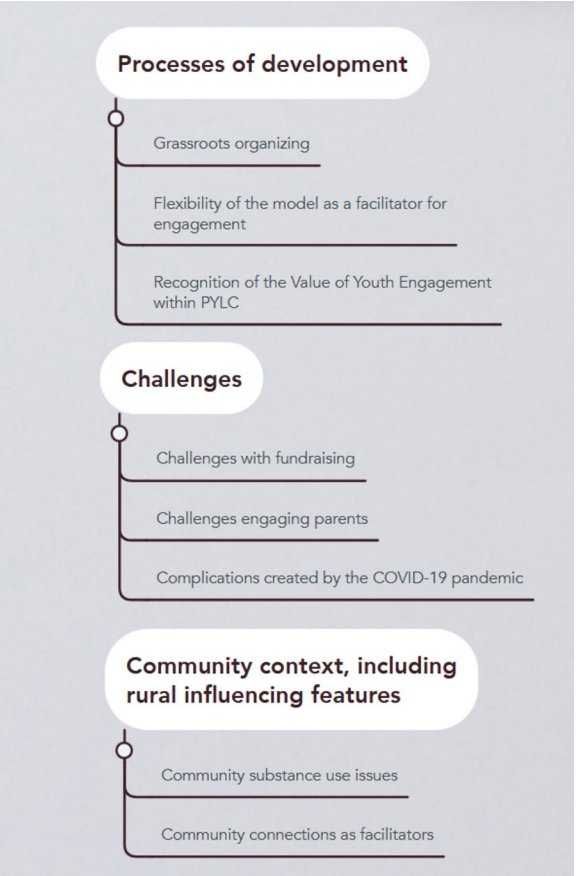
The origins of PYLC began at a town hall meeting in a church auditorium in 2017 that was being held to distribute and train community members on naloxone kits in response to a rising opioid overdose crisis in the community and across the country [40]. Efforts arose organically through collective interest in community advocacy and substance use prevention.

3.1.1 Grassroots organizing

"When we first started meeting, it was just people in [one town]" (SC9). PYLC eventually grew to include all nine municipalities encompassing Lanark County as the coalition developed. The primary reason cited by Steering Committee members for a collective push to tackle problematic substance misuse across Lanark County was the active efforts of several community champions who wanted change: "It's not that substance use is worse [in Lanark County] than anywhere else in Canada. It was just, that's where the people were who could start it… who had the desire to bring change to the community" (SC3). "[PYLC] arose from passion, concern and a vision that this could be a better community for kids and families" (SC4). Through the initial development, the Steering Committee comprised members from youth justice, the health sector, including public and mental health, non-profit, education, and church leaders, among others. Early members were keenly aware that "it's going to take the community" (SC9) to make a difference.

One of the founding members of the committee was recognized as a key influence in creating the movement "The intensity of [committee member's] passion" (SC3) was a key variable to the growth and success of the project: "I think because it was such a heartfelt motivation that they were certainly able to gather more support from a variety of community members" (SC5). One Steering Committee member suggested that the ultimate success of PYLC was due to having individual involvement before organizational involvement, "[Planet Youth was] amazed that this literally came back from

Fig. 1 Thematic map



interested community members. That's often the case with Planet Youth, but … there was no real organizations. All the people there were volunteers from the Municipal Drug Strategy" (SC2).

3.1.2 Flexibility of the model as a facilitator for engagement

Steering Committee members felt that the IPM enhanced community engagement because of its adaptability: "The beauty of [the IPM] is that it really is flexible" (SC3). "The nice thing about the IPM is that it's not a cookie cutter approach… You can really use it within your various communities… to really customize it to make it work for you and your area" (SC3). Steering Committee members stressed that crowdsourcing community members needs helped to facilitate community readiness. This adaptable approach helped to support broader engagement:

> If we are able to engage in that kind of dialogue about, what is it that you want in your community… to elicit that kind of a conversation… then the community is ready... If instead we go in and we exert our expertise and say, 'We can really reduce drug use in our community', then people stand back. (SC4)

3.1.3 Recognition of the value of youth engagement within PYLC

Not traditionally a part of the IPM process, Steering Committee members recognized the value of youth perspective and aspired to incorporate youth perspective within PYLC:

> [The IPM] historically hasn't really looked too much at involving the youth in the process of planning and the implementation of any initiatives. But… we've kind of always had that top of mind. Trying to get kids involved in the process will help make it a better program overall. (SC3)

At the time of the interviews, Steering Committee members were exploring how to bring young people into the process, recognizing that there can be challenges involving young people in a complex and long-term project: "I

Table 2 Selected additional quotes from supporting themes

Grassroots organizing
That was when it was more clear, and that's when all the groups started meeting in a larger space because there was more of us and getting more boots on the ground… And we did a lot of presentations to councils because really it's going to take the community and you needed the support of the municipalities. (SC9)
It was just a community interest group that expressed concerned about kids with too much time on their hands looking to recreational drugs to pass the time and was there something we could do about it. (SC4)
Flexibility of the model as a facilitator for engagement
Like, the framework doesn't come with this is what you do. It probably could, but it doesn't say, do this, this and this, it says, Okay, well, the evidence says that these three areas might be something you want to look at, and then the community decides how best to address that area. (SC 6)
That's built into the model that we get from Iceland from ICSRA. Is that is that they, they understand that the whole process is going to be different in Canada than it is in Iceland and different again, in Sweden or in Brazil. And that makes perfect sense. Of course, it's going to be different in different cultures in different parts of the world. And they've created a process that allows for that, for those differences to existence. (SC8)
Recognition of the Value of Youth Engagement within PYLC
If we want, if we truly want to say we've been, we've engaged youth we can't make the decisions and then share the decisions with the youth. They need to be part and parcel. (SC4)
I also think there might be a role for some dialogue, techniques of restorative justice, restorative practices, in engaging youth and community members in meaningful dialogue around solutions or elaborating upon concerns expanding on issues. (SC7)
Fundraising challenges
I would imagine funding was difficult at first, and it's never easy to get funding. I wasn't part of that process. But I can't imagine funding not at some point having been a barrier. (SC6)
Challenges engaging parents
… we have kind of an uphill battle to make sure parents really understand the results of the survey and it doesn't just get lost and it's not another survey that we just ask kids questions and then have done nothing with… parents have so much on their plates and are often running round with their kids so that could be more of a challenge (SC3)
[Described reaching out to parents with younger children and inviting them to participate] but they're not interested in being at Steering Committee meetings, they don't have time in their life for that right now, but they are interested in being part of the solution. (SC1)
Complications created by the COVID-19 pandemic
I think we've got to be flexible with this COVID piece because I guess if the schools aren't ready to let us in, I guess I think we need a plan B … So if the screening tool remains the way it is. For who can come to school and who can't, I think we just we may have a challenge with numbers of students present on that day. So I don't know what the solution is. (SC5)
Community substance use challenges
I certainly encountered disengaged youth, some of whom also were involved in not necessarily high level drug and alcohol abuse, but certainly some. And so that, that was a lesson that I took in my early learning about planet youth. And I thought, this is possibly another way we can reengage those youth, or for that matter, prevent them from going down that road. (SC7)
I think that there is a lot of denial too. Oh, like it is not happening in our school, or that only happens with the kids in that school, or whatever. And there is a lot of finger-pointing as opposed to, these are this is us like these are our kids right. (SC3)
Community connections as facilitators
I think that there needs to be a lot of community support. And that is easier to get in a smaller geographic area. And because it's a fairly intensive model that involves parents and the community partners. I think, I won't say it's easier, but I think there's a higher success rate, if that sort of is on a contained geographic area. (SC5)
I think we've adapted it already… typically, there's been some kind of organization that's brought this out and wanted to do it. This one has come up as an organic granular growth, from individuals within the community. (SC2)

think it would be important to have some youth at the steering committee table… because they always bring a slightly different perspective" (SC5). The timing of their involvement was also an important consideration:

> It's a catch 22... because we don't want to engage them too soon, and then have the project fall through or have delays, and disengage the young people as a result...[but] it does make it a little more difficult to kind of retro actively fit [in] youth engagement. (SC6)

3.2 Challenges

3.2.1 Fundraising challenges

As described above, having volunteers involved in the initial stages has benefits for building momentum, but it also brings challenges. "A lot of these kind of community projects get stuck in fundraising, finding the financial backing" (SC8). "… When you have volunteers, you don't have a lot of… goal setting or evaluation to see if the job is being done" (SC9).

At the time of interviews, the Steering Committee had raised sufficient funds to make payments for the Planet Youth five-year service agreement that provides support for survey collection and coaching to support community engagement. "There's been a fair bit of success in raising funds for the project…. we've started off very well; I think we've got a good basis for moving forward" (SC5). PYLC deployed multiple strategies for securing project funds. For example, a benefit concert was hosted to raise money. Some funding was secured through networking on behalf of PYLC: "[Steering Committee member] got some funding for us through one of her physician connections" (SC2). Individual community members contributed to the efforts with their own investments. PYLC received endorsement from each municipal council and received some financial support from the County.

The Steering Committee recognized the need to secure additional funding to support a paid coordinator, however, they were experiencing challenges securing the funds. Steering Committee members noted that challenges might be partly related to economic issues: "There probably is limited fundraising capacity in some parts of Lanark County, just because of the socio-economic status" (SC5). Another complication was related to the identified region and the fragmented nature of organizational mandates, jurisdictions and funding support:

> Jurisdictions cause a lot of problems. Keep your jurisdictions the same so that you're all working on the same page... Because one's got [this region] the other one's got [that region] and then then we get divided up, healthwise, to Lanark East and Lanark West. And there's monies coming in from [here and there]... none of them want to give up the power that they have in certain areas and redefine it, because people don't like change. But, really to make things work, come on, you got to. (SC9)

The Steering Committee was continuing to identify ways to secure funding to support sustainability and was exploring applying for "larger pockets of money" (SC5) such as government or corporate grants as a next fundraising step.

3.2.2 Challenges engaging parents

Although the IPM does not mandate specific interventions, one of four main risk and protective factor domains of the model concerns parents and family. As a result, most implementation sites attempt to reach out to, and engage with, parents and caregivers as key stakeholders. In Lanark County, the engagement of parents was one of the challenges that Steering Committee members were confronting, including recruiting parent perspective on the committee: "at one point or another, most of us, if not all of us, were parents, but we don't have a parent perspective right now" (SC4). Steering Committee members recognized that the parent stakeholder group is difficult to engage because they are already under so much pressure managing work and childcare:

> That's the real challenge, especially when it comes to parents who, like it's not their job, right? In my case, it is my job to look at this kind of stuff… but I mean a lot of parents wouldn't go to these various community meetings or want to do too much extra stuff which totally makes sense. I would struggle with that as well trying to juggle my own daughter's hectic schedule and trying to get to additional meetings and trying to learn additional things. Like, you're tired at the end of the day, right?... . (SC3)

Steering Committee members reflected on the range of parenting styles and how this might play out in the context of school involvement and potentially in the IPM process:

> Even within a single school community, you're going to get a range of opinions about whose job it is to assume responsibility for a child and when. So you get the extremes of parenting, you've got some parents, who are all in, almost to the point where they don't like releasing responsibility of any kind to anyone else. And you've got others who happily say, 'it happened at school, it's the school's problem. I don't have anything to do with this.' (SC7)

3.2.3 Complications created by the COVID-19 pandemic

Soon after the Steering Committee had received all necessary approvals to begin surveying grade 10 students, schools were shut down in response to the COVID-19 pandemic. There was a provincial job action in place within education in the months preceding the pandemic that had ruled out the possibility of collecting the data before the onset of public health restrictions. "We were pretty much staged to launch [surveys]… We certainly had fruitful talks with the boards and with principals… [and] there was, from that side, a willingness to participate" (SC4). "We were really going at a quick pace until COVID hit… and then everything came to a standstill" (SC3).

Steering Committee members were concerned about the surveys being a priority for schools in the wave of mounting short-term crises in the community: "So much going on, I'm not so sure it's a priority given that the demand of the education system… Critical issues are going to take precedence as opposed to data sourcing for this project. I'm concerned that [surveys] will be pushed back yet again just because of outbreaks" (SC4). Some Steering Committee members expressed concern that survey uncertainty would jeopardize the progress they had surmounted thus far: "If this depletes extra funds and pockets of funding that maybe they were saving, that might be an issue" (SC6).

Within public health, the majority of staff were pulled into COVID-19 response roles and were unable to engage in their usual responsibilities related to substance use prevention work. In effect, the pandemic slowed engagement processes: "Anything that slows the process down, especially a process that's driven by volunteers who are concerned and passionate about the issue makes it harder, right?… It's hard to maintain momentum" (SC8). Steering Committee members recognized that there would need to be some effort bringing engagement back to the initiative after the pandemic, "it [is] incumbent upon us to, with good timing, bring it back to focus again" (SC4).

3.3 Community context, including rural influencing features

There were distinctive features of the Lanark County context that influenced the processes of development of the IPM initiative. Some of these characteristics were related to the nature of substance use issues that motivated the initial efforts and other aspects related to community strengths that reinforced implementation.

3.3.1 Community substance use challenges

As we describe in a previous publication (36), Steering Committee members shared that Lanark was not dissimilar from other regions that were coping with the emerging opioid crisis.

> I don't think Lanark County is much different than other places. But there's certainly harm from problematic substance use and we know that there's an alarming rate of mental illness in the community… I mean there is some data out there that says that in some criteria, Lanark County is a little bit worse than other places, in some criteria is a little bit better. But in general, it's just a concern everywhere. (SC1)

Steering Committee members had experienced substance use issues affecting families from a range of socioeconomic status as, "there's a lot of diversity in families who've been negatively impacted by problematic substance use… I know well-paid professionals as well as people who've been living on meager incomes who've experienced harms." (SC1) Steering Committee members also noted that they witnessed marginalized families being affected by substance use issues:

> There are definitely needs in the Lanark area. So, for example, for a long time there was a lot of unemployment in Lanark County because the chocolate factory had shut down. And just, housing is cheaper and that kind of thing... And people often cope with substances when there are struggles like that, right? Not often, but they can choose to deal with various struggles with substances. (SC3)

Steering Committee members recognized the influence of some cultural norms on substance use in Lanark County. They highlighted levels of alcohol use and families enabling access to alcohol as an example. They felt that some of these norms are more typical of rural areas,

There's a high alcohol usage in rural settings. You just have to go through the parties that are around and you'll see it. And there's also some of it is approved by parents. Parents will still be in the house while the kids are outside drinking, which is really kind of mind-blowing to me." (SC2)

Steering Committee members explained how these cultural norms will likely influence the priorities and direction of the strategies:

Say we had a community called Springfield, and [the surveys] came back and said that the Springfield minor hockey is where the problem is, and the mayor is the president of the Springfield minor hockey league. That may not go anywhere. Because it's up to the community to decide what they want to do. And some communities have traditions entrenched in their culture, like giving kids booze when they're 16 years old after winning a hockey game. (SC9)

Finally, Steering Committee members shared that families in smaller communities can experience intense stigmatization when they are affected by substance-related issues which may limit whether they share this information with others.

Families who had people, individuals or children die, didn't want the known cause of death to be opioids. They didn't want that to be listed. It's a real difficult thing to have people in a small community to say 'Yes, my son died of an opioid overdose'. I think it's easier in major cities. (SC2)

In addition, front-line providers were sometimes unwilling to recognize the issues, "I [did] a presentation at the school for parents. And [the vice principal] actually said that there was no problem at her school… Oh my God, let's call a spade a spade here, you know? We got to get the information out that this is actually happening [here]." (SC9).

3.3.2 Community connections as facilitators

Steering Committee members reflected on how a rural setting can influence IPM implementation in positive ways: "The [IPM] model is actually a good fit for smaller communities" (SC8). The strong shared identity and connection to community was one of the features of the Lanark community context that influenced the implementation of the initiative. Rural communities often afford a strong sense of identity that serves to define and unify members:

[There is a] sense of identity that people can articulate... an understanding by people who live in the community, that the community is one community, and not a whole bunch of communities gathered up in kind of an urban agglomeration, as happens in a larger city. (SC8)

The higher degree of community connectedness was viewed as an advantage for rural areas:

People know one another, because they shop in the same store, and they participate in the same curling club and their kids play on the same hockey team… [these] informal connections cross professional and sectoral boundaries that are harder in a larger urban environment. (SC8)

As a result, Steering Committee members were able to gain access to authorities who could support the process more easily,

I was worried that maybe [the IPM] was a better fit for an urban area…. But I've shifted my thinking on that because of a few things. One of them is the level of personal support that we've received from, for example municipal governments and from the school boards as well. I think that actually might be more difficult to get in a larger community. (SC1)

Steering Committee members described how the collaborative was able to use their networks to draw in community support:

… if there was a problem that came up, that somebody needed to invite somebody to a meeting, it would be kind of, whoever knew them. Or knew somebody who knew them, you know? It was not up to one person. So, fitting the need with the person with the experience. (SC9)

4 Discussion

This paper describes a process evaluation examining the first three steps of the IPM that includes an in-depth examination of community context through the perceptions of members of the steering committee responsible for its implementation. The findings outline the complex financial, social, and cultural factors that were perceived to influence implementation of the model in a rural context which may be helpful for other rural and non-rural communities implementing the IPM. Key findings relate to grassroots processes of development, characteristics of the model that support adaptation, development of youth engagement processes, contextual influences and challenges related to fundraising, parent engagement and the pandemic.

4.1 Navigating the path to support effective adaptation of systems-level efforts

In Lanark, the implementation of the IPM was largely a grassroots process that was influenced by concern regarding community substances use and collaboration among community networks to address the concern. Flexibility of the IPM was a key factor identified by participants for generating community buy-in. As we have discussed previously, this aspect also poses a challenge as the open-ended process creates doubt in some stakeholders as there is no fixed prevention strategy to follow within the ten steps [40]. This challenge has been previously identified with respect to the IPM [26]. Yet, participants felt that this aspect helped stakeholders to engage in strategic planning and adaptation to existing needs and assets. Researchers examining the implementation of other community collaboratives have highlighted the importance for initiatives to be adaptable to context in order to be successful [48, 52, 53]. This is likewise the case with the IPM [54]. There are several interventions that were implemented in Iceland along with the ten core steps that would have a higher likelihood of success in creating population-level outcomes, including the environmental restrictions, parental monitoring, alcohol-related policy and increased leisure participation [26]. It may be useful for community leaders to promote universal strategies such as these, while offering flexibility and choice among them to support incremental development and buy-in.

Factors related to the implementation of the IPM have been previously examined within North American rural context [24]. Similar to our research, they identified that there is a need for improved transportation and lack of extracurricular opportunities [41]. In a study designed to assess the potential feasibility of the implementation of the IPM within a rural community in the United States, stakeholder data suggested that lack of extracurricular activities and transportation options contributed to youth substance use [37]. Relatedly, the leisure card is a grant program that provides approximately €400 a year for each young person between the ages of 6–18 to support payments for sports and extracurricular activity costs [55]. In Franklin County, Kentucky, United States, the community has been piloting a voucher-based option to boost participation in organized activities titled the YES! card, which is similar to the leisure card voucher approach [35]. Over a one-year period, researchers found that students who received the YES! card were over twice as likely to participate in extracurricular activities than the students who did not receive the voucher.

In our current findings, we identified contextual factors that influence substance-related behaviours, including the national opioid crisis, socio-economic factors, the normalization of alcohol use and stigma. Other research on the IPM has identified similar social norms related to drug and alcohol use in Chile [56], Scotland [22] and Holland [57]. In addition, we identified that there are issues related to parents sanctioning alcohol use in their children. This is not unique to Lanark County as researchers in Ireland noted that about 18% of survey participants reported getting alcohol from their parents [23]. Youth who received alcohol from their parents were 1.8 times more likely to have been involved in binge drinking.

Another cultural norm that was alluded to was the drinking culture related to hockey. This association between sports participation and substance use has been identified within other regions implementing the IPM, including Lithuania [58], Spain [37] and Ireland [23]. There have been some recent scandals surrounding Hockey Canada [59], but more broadly, research has highlighted some negative attributes of hockey culture, including parental aggression [60] and alcohol use [61]. The cultural context around sport varies significantly, and leisure-focused interventions should ensure that positive adult supervision becomes an integral component [62, 63].

4.2 Challenges related to community-led transformation efforts to support prevention

One of the main struggles for PYLC has been the difficulties in securing sufficient and sustained funding. The challenge of fundraising has been experienced in other regions implementing the IPM internationally [22, 54, 56]. Prevention funding is limited and many grant application requirements tend to steer prevention strategies into a narrow clinical or individualized focus [64]. Currently, there is a critical lack of funding for prevention and there are numerous calls for increased investment [65–68].

Our research captured PYLC Steering Committee members' experience navigating the pandemic. In comparison with other provinces, Ontario implemented the most extensive public health restrictions [69] with 27 weeks of school closures between 2020 and 2022 [70]. This resulted in a two-year delay in data collection, and as the pandemic continued, surveys were finally collected in the middle of the Omicron wave in 2022. This clearly disrupted the process as it did in other regions implementing the IPM [56]. Relatedly, many educators experienced burnout as a result of the additional pressures placed on them through public health restrictions [71] and are now contending with learning loss [72]. These pressures diminish the motivation and capacity for schools to engage in additional projects and can create challenges for ongoing implementation in an initiative that is already difficult to maintain momentum with partners [54].

Youth mental health has been deteriorating over the last 15–20 years [73–76] and this decline increased over the pandemic [77, 78]. There are many mechanisms that have been identified, however, screens are one of the implicated factors that appears to have an influence that has not receded with the termination of public health restrictions. The impact of screens and technology use has now been identified as a major contributor to this public health crisis [79–81]. Until we recognize that the technology industry represents a commercial determinant of health that is impacting child and youth mental health significantly [82, 83] and address this issue through policy that mitigates tech industry influence, young people will continue to suffer. Challenges related to youth mental health will continue to cause ripple effects in these communities and the work of the IPM collaboratives should consider local opportunities to diminish the negative impacts of technology, such as within schools, to complement broader policy efforts.

4.3 Issues related to the engagement of young people and families

Our findings highlight the importance that PYLC placed on incorporating youth perspectives within the IPM. Similar to Lanark County, other communities across the world have acknowledged the opportunity to engage young people to support efforts [22, 56]. They also highlight the importance of considering the timing of youth involvement. We would argue that high capacity youth should be closely involved for the duration of the project and can offer significant insight to planning and decision-making at many levels [84]. When working with young people who have less experience working within system-level issues, it is important to ensure that their time is spent productively and that their work is sufficiently structured to ensure their meaningful engagement. The timing with respect to this form of engagement would likely vary based on the objectives of their involvement.

Since the writing of this paper, efforts related with youth engagement within PYLC have advanced significantly [84]. PYLC implemented a youth-led asset mapping in 2022 and broader youth consultations in 2023. Further they held a youth summit in the summer of 2023 with a second event planned for October of 2024. Finally, a youth advisory ACHIEVE was formed in the fall of 2023 and they have been involved in supporting decision-making with respect to community implementation as well as research and evaluation initiatives. In particular, youth engagement has been benficial for PYLC as it has increased involvement of youth perspectives from equity-deserving groups, it has supported validation of the survey findings, it has offered deeper insight into the mechanisms of influence related to substance use and it has supported the prioritization of community strategies [84].

As we have discussed elsewhere [40], we recognize the integration of youth engagement to be an effective strategy. However, we also stress that engaging young people must be accomplished in ways in which the youth who hold decision-making power with respect to strategy development, are informed about the challenges related to lifestyle drift and individualized approaches. Lifestyle drift is a process whereby initiatives start off with a focus on upstream factors, only to be drawn downstream to individual-focused interventions and programs targeted toward smaller at-risk groups [85]. Lifestyle drift poses a risk to all implementations of the IPM, as efforts may be drawn downstream toward individual interventions, including harm reduction [40], educational campaigns or targeted programming that

cannot be scaled to influence the whole population. The risk of lifestyle drift is as relevant to participatory engagement with young people, as it is to engagement with individuals from other stakeholder groups.

Similar to other international IPM initiatives [56, 86] our findings highlight that garnering parental support has proven difficult. In particular, it has been identified that it is most difficult to engage families experiencing health inequities [22, 54]. Koning and colleagues [26] have suggested that differences in parental engagement may be influenced by population size, whereby smaller populations maintain stronger social relations and higher perceived quality of social support. This aligns with our findings that Steering Committee members were able to use their networks to move the IPM initiatives forward. However, this was not the case for engaging parents.

Other researchers have noted that socio-economic differences among families may contribute to a lack of parental engagement in IPM efforts [22, 54]. This may be a more salient issue when comparing parents from Iceland with parents abroad as they are better supported and able to contribute. Icelandic children, along with other social democratic states, such as Finland, Sweden, and Denmark fare better than Canadian children on a number of indicators as reported by UNICEF, and countries with lower income inequality have better child well-being outcomes [87]. This may be a result of a more equal distribution of wealth and better support for their families [88]. Raphael [88] argues that there is a need to invest in public policy that supports the social determinants of children's health, notably, income, employment, food security, housing, early child development and systemic influences related to social location (e.g. race, disability, gender, Indigenous status):

> It is only in the liberal nations such as Canada, the United Kingdom, the United States, and Australia that the belief is often stated that a well-functioning and profitable economic system will serve to meet the most important needs of the citizenry. Such a view is patently untrue. It should not be surprising then that nations that do intervene in the operation of the economic system are the ones that provide children and their families with the conditions necessary for health. (p. 228)

These inequities have been increasing [1, 65, 68]. Canadians are now accessing food banks more than ever before [89]. Unsurprisingly, societies experiencing greater inequities have lower levels of volunteerism [90]. It is unrealistic to expect families that are already under significant strain to carry the load of these interventions without broader structural action that supports their living and working conditions. Stress related to poverty affects health [68], as well as the ability to engage in health-related behaviours [91, 92], such as substance use. Therefore, action focused on improving the social determinants of health may be an essential component to support effective implementation of the IPM in Canada, if family participation is needed for success.

4.4 Opportunities and recommendations

This research highlighted several local advantages that serve as opportunities to support collaborative, system-level efforts. Participants described deep community connections that drove passion and commitment to a greater purpose. This salience of community belonging and connections has sustained PYLC efforts and facilitated partnerships and efficiencies that may not be feasible in collaborative models within larger urban centres. In research examining community-based collaborative efforts focused on youth substance use prevention, community capacity (a measure of a communities' ability to mobilize to support health promotion) was associated with lower odds of alcohol and tobacco use [93].

Another strength of the PYLC initiative is the integration of youth engagement. The involvement of young people can add depth to the survey findings, support the identification of priorities and enhance feasibility of the intervention [84]. It is very important to engage young people with lived experience of health equity issues within IPM efforts to ensure that community strategies reduce health disparities across the population. Findings related to the implementation of the Communities that Care within an equity-deserving community highlight the importance of aligning intervention priorities with the lived experience of community members, and the need for strategies to integrate policy solutions focused on addressing social and structural determinants of health [94].

There are several recommendations that can be drawn from this research. Recognizing that the traditional approaches used to engage parents/caregivers in Iceland are not as feasible in Canada and elsewhere, we recommend that IPM initiatives utilize alternative strategies to engage families. The family advisory model that is implemented within Integrated Youth Services [95, 96] may be a promising approach to apply within IPM coalitions. In addition, we argue that some interventions can be tailored to support both young people as well as their families, such as the leisure card [84]. This should be considered when identifying goals and strategies. Relatedly, communities that are championing the IPM within the north American context should also recognize and invest in interventions and policies that are focused further

upstream that can impact health equity issues within the community such as housing, education and food security. Although these strategies may not align as closely with youth-related outcomes, they will promote healthier community contexts, and will, by extension, contribute to better health and wellbeing for young people and reduced likelihood of experiencing substance-related harms.

Traditionally, implementation science follows a linear approach [97] and there is a need for more frameworks that can be applied to enhance fidelity to flexible, collaborative models [40]. In order to enhance implementation integrity, we recommend that communities incorporate a systematic monitoring of implementation using the evaluation tools developed by Mann and colleagues [98]. This can ensure that communities are implementing the IPM with fidelity and will highlight where further development is needed. These assessments are similar to the implementation tool described in the Public Health Agency of Canada's evaluation guide [40] that was based on the practice profile [49, 99]. The concept of lifestyle drift is closely related to fidelity of implementation within upstream prevention. The development of a measurement scale or rubric that can limit lifestyle drift within implementation will enhance the fidelity and impact of upstream prevention initiatives, such as the IPM.

4.5 Strengths, limitations and future directions

We offer an in-depth qualitative description of some of the implementation challenges within a Canadian rural region. This research addresses several critical gaps in the literature related to the IPM and the implementation of a community-driven prevention of youth substance use. These findings are useful to inform practice and future research in upstream prevention and have the potential to support broad system-level changes. In particular, this research brings attention to cultural, political and economic issues that interact to influence the implementation of the IPM. Further, it highlights the dynamic nature and complexity inherent to the implementation of system-level primary prevention. In particular, applying a developmental evaluation approach supports reflection on critical mechanisms of influence throughout implementation and offers the opportunity to support adaptation to enhance success. Despite these strengths, there are some limitations. First, our findings are centred on the first three steps of the IPM and we have yet to observe how these processes will inform and influence later steps of the implementation. We offer information from Steering Committee members only, therefore other perspectives from the community are not included in these findings. Future research should capture a broader range of perspectives, including, youth, families, school representatives and policy-makers and capture longitudinal data to examine the full process and dynamic issues.

The lead author was an active member of the Steering Committee and therefore considered an internal evaluator. This role comes with both challenges and opportunities: "External evaluators are presumed to have more independence, and therefore more credibility when answering accountability questions, or making summative judgments. Internal evaluators, in contrast, are expected to have more knowledge about what's going on with staff, more sensitivity to internal program dynamics, and a longer-term commitment to the program, all of which, it is hoped, increase, trust, relevance, and use" ([45], p. 65). Finally, our data collection coincided with the pandemic, therefore, the process was under significant and unique pressures that would not be typical within other processes of development. Many working habits changed permanently with the pandemic, as Steering Committee meetings continue to be held online. This is not unique to PYLC, as many work environments have now adopted hybrid or virtually supported practices. Virtual work comes with some shortcomings (such as challenges in creating and maintaining relationships), but also opportunities (greater accessibility and ability to reach a larger audience). Looking ahead, there continues to be a need for further examination of implementation issues related to the IPM to inform planning going forward.

5 Conclusion

We describe the dynamic interactions that influence the implementation of the IPM in Canada as well as the complex social and contextual issues that are implicated in the process. Key findings describe social norms and community features that influence implementation, as well as challenges related to public policy and the pandemic. This research contributes to the expanding literature on the implementation of population-level primary prevention in youth substance use and offers practical information for communities implementing the IPM in similar contexts.

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Data availability The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

Declarations

Ethics approval and consent to participate This study protocol has been approved by the Royal Ottawa Health Care Group Research Ethics Board. Ethical approval will be extended to cover the full time frame of the study. Informed consent was received from all participants. All procedures were performed in accordance with relevant guidelines.

Competing interests The authors declare no competing interests.

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