

Integrated Virtual Care (IVC)

**An innovative hybrid model of primary care,
combining in-person and virtual care options,
in Renfrew County, Ontario.**

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Summary of Integrated Virtual Care (IVC)

Background

Renfrew County is the largest geographic county in Ontario with a dispersed and diverse population. There are insufficient family physicians and other primary care providers to meet the needs of its residents. IVC aims to address this problem by enrolling unattached individuals to a family physician who works predominantly remotely. This enables family physicians from across Ontario to join the program and work a flexible schedule that aligns with their individual professional and personal circumstances.

IVC Structure

The IVC family physicians are embedded within existing, local interdisciplinary primary care teams (IPCTs). Patients receive comprehensive, team-based primary care, through a hybrid of in-person, at-home and virtual care options, depending on their individual needs and preferences. Virtual care options include secure messaging, telephone and video encounters from the patient's home, and enhanced telemedicine options at a local IPCT. Partnership with the existing community paramedicine program allows a range of at-home and remote care monitoring options for vulnerable, home-bound patients. Other physicians, nurse practitioners and interdisciplinary health professionals in each local group, provide additional in-clinic care options.

Identifying and enrolling unattached residents

The Renfrew County Virtual Triage and Assessment Centre (VTAC) is leveraged to identify unattached patients who are accessing care through VTAC, with the offer of joining the IVC program extended to any additional unattached members of their household. Additional unattached residents are identified through Ontario's Health Care Connect (HCC) program and offered attachment through IVC. Further potential exists to identify and prioritize specified groups of higher needs, unattached patients. New IVC patients complete an onboarding process that includes digital processes for the collation of their medical history followed by a review of their existing medications by a pharmacist. A medical chart and cumulative patient profile are completed prior to their first encounter with their new family physician. Patients have access to the full suite of services provided by their local IPCT. Additional nurse practitioner time is protected for IVC physicians to request in-person assessment for specific issues as required and on-site group physicians are also available to provide in-person care. Patients book appointments with their family physician by calling the front desk, or through an online appointment booking platform.

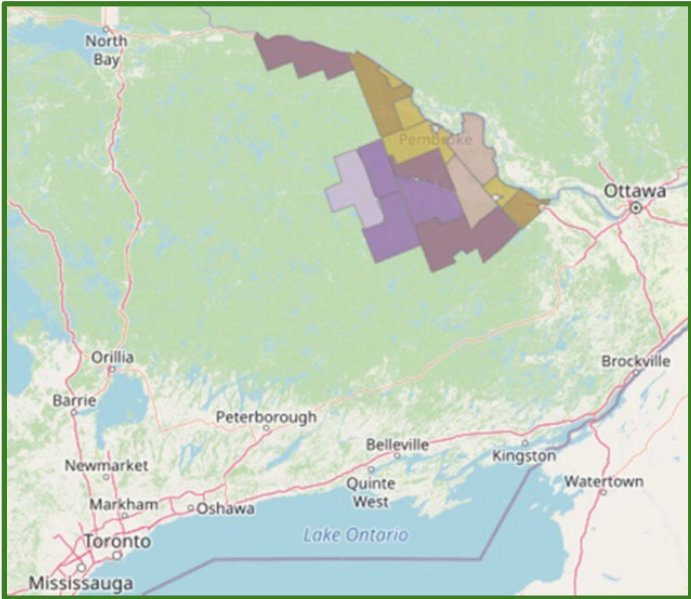
Evaluation

IVC aligns with the principles of Ontario's Digital First for Health strategy. As of March 31, 2025, 6804 previously unattached residents are attached to 19 IVC family physicians embedded in three IPCTs. Formal evaluation of patient, clinician and non-clinical staff, showing impressive levels of satisfaction, have been completed and submitted for publication. IVC has contributed significantly to improving cancer screening rates, smoking cessation referrals and evidence-based diabetes care for previously unattached residents.

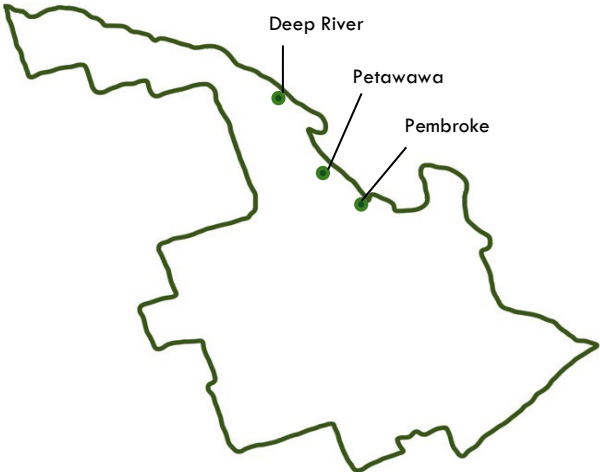
Clinical Overview and Patient Care Metrics

Setting

The IVC program is based Renfrew County, Ontario’s largest geographic county and home to approximately 109,000 residents. The Petawawa Centennial Family Health Centre (PCFHC) is the lead organisation for IVC, supporting a blend of semi-urban and rural residents, including many military families associated with the nearby Garrison Petawawa. IVC patients access in-person care at one of the IVC partner IPCTs; PCFHC in Petawawa, the North Renfrew Family Health Team in Deep River or the West Champlain Family Health Team in Pembroke.



Map of Renfrew County



Outline Map of Renfrew County

IVC Workforce

A diverse and collaborative workforce of physicians and interdisciplinary health professionals (IHPs) deliver IVC. The IHP team comprises nurse practitioners, nurses, dietitians, pharmacists, social workers, respiratory therapists, midwives, and community paramedics. Physicians work remotely from across Ontario, supported by group physician colleagues on-site locally. To further enhance convenient access to comprehensive, team-based care, some IHP services are also offered through virtual options such as video based mental health counselling.

Site	Number of non-IVC physicians (FTE)	Number of IVC physicians (FTE)	Number of IHPs (FTE)
PCFHC	2 (1.7)	15 (4.0)	11 (8.6)
NRFHT	1 (1.0)	3 (0.9)	6 (4.85)
WCFHT	6 (5.3)	1 (0.3)	8 (7.5)
Total	9 (8.0)	19 (5.2)	25 (20.95)

Table 1. Number and FTE of Health Professionals at IVC sites

Clinical Outputs

Since its inception in 2021, IVC has conducted **46,559** clinical assessments, including cancer screening tests for hundreds of patients.

Provider	Number Of Appointments (%)
Patient's Own Physician	30,373 (65.2%)
Same Group PCP	4837 (10.4%)
IHP (Total)	11,349 (24.4%)
IHP Appointments by Provider	
RN/RPN	7281 (15.6%)
Pharmacist	707 (1.5%)
Registered Dietitian	1317 (2.8%)
Social Worker	1158 (2.6%)
Midwife	821 (1.8%)
Chiropody	7 (<1%)
Occupational Therapy	58 (<1%)

Table 2. Clinical Appointments by Provider Type

Completed Procedures/Appointments	Total
Pap Test	950
Mammogram	660
FIT/FOBT	769
Smoking Cessation Referrals	202

Table 3. Preventive Care Clinical Appointments

Patient Experience

Patient Experience Survey Overview

Between October and December 2022, survey links were sent via OceanMD, a secure, digital platform for collecting patient feedback, to 790 adults aged 18 years and older who were enrolled to the IVC program at the PCFHC site between its inception in November 2021 and June 2022. A total of 198 respondents completed the survey, with a response rate of about 25%.

Survey respondents (N=198) were predominantly female (62%), aged 55-64 (28%), and English-speaking (98%). Most identified as white (88%), had no difficulty paying bills (76%), and reported good or excellent health (55%). The majority lived within 10 minutes of PCFHC (81%).

Overall Patient Experience

The survey suggests that satisfaction with IVC was high, with about 86% of respondents reporting being “Very Satisfied” or “Satisfied” with their care from IVC. Overall satisfaction was high across visit modalities (86%), regardless of whether the appointment was with a family physician (FP), nurse practitioner (NP), or interdisciplinary health professional (IHP).

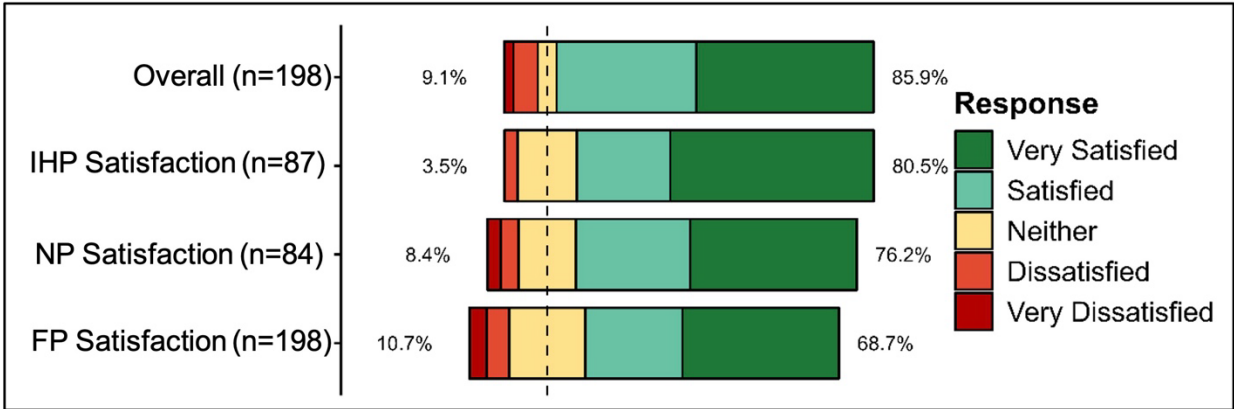


Figure 1. Patient Satisfaction with IVC by Visit Modality: Overall Satisfaction and Experience with Interdisciplinary Health Professionals, Nurse Practitioners, and Family Physicians.

Accessing IVC

Regarding access to IVC, about 79% of respondents were “Very Satisfied” or “Satisfied” with their ability to book an appointment on their preferred day. The majority of IVC users agreed that virtual care saved them time (82%) and money (73%).

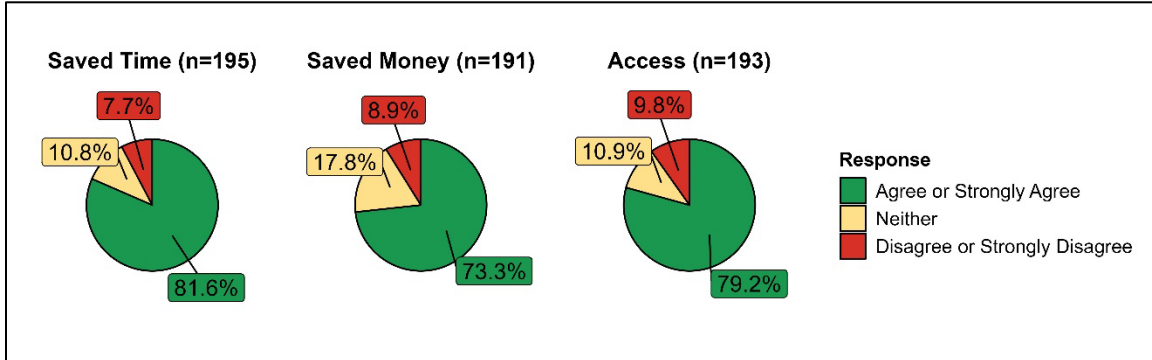


Figure 2. Perceived Time and Cost Savings with IVC and Appointment Booking Preferences.

Trust in IVC Physician

Patient trust in IVC FPs was high across survey questions ranging from 72% to 78%, a result that is comparable to findings from other surveys, reporting trust levels between 59% and 90% with variation based on age, income and race⁶. Most respondents agreed or strongly agreed that they trusted their family physician’s judgments about their medical care (78%), consistently followed their physician’s advice (71%), felt involved in decisions about their care and treatment (83%), had opportunities to ask questions about recommended treatment (89%), believed their physician provided transparency about mistakes (75%), and felt their physician spent enough time with them (82%).

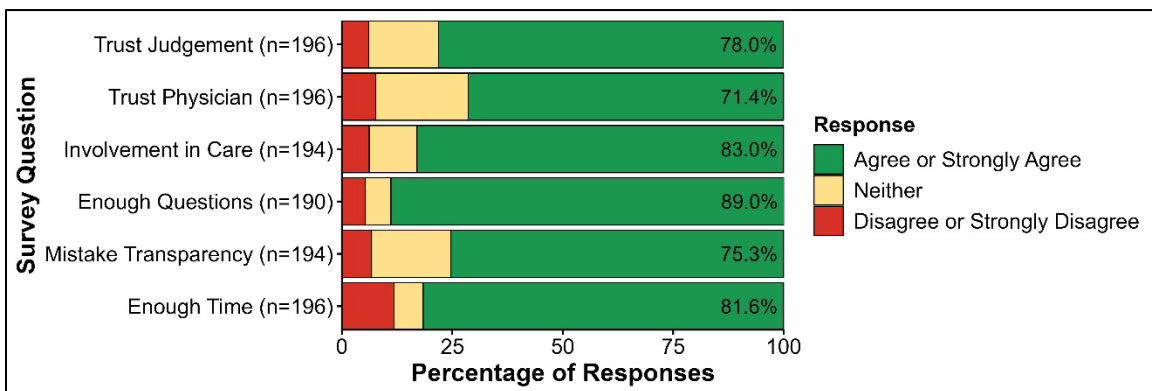


Figure 3. Trust in the IVC Physician: Responses to Survey Questions on Medical Judgement, Involvement, Transparency, Time Spent.

Patient Experience with Virtual Care

Consistently high levels of patient experience were reported on all questions related to virtual care. Most respondents had a positive experience, with high agreement on their health concern being adequately addressed during the virtual visit (84%), effective communication of their health concerns (71%), feeling safe during their appointment (93%), appropriate privacy and confidentiality (92%), and ease of use (88%).

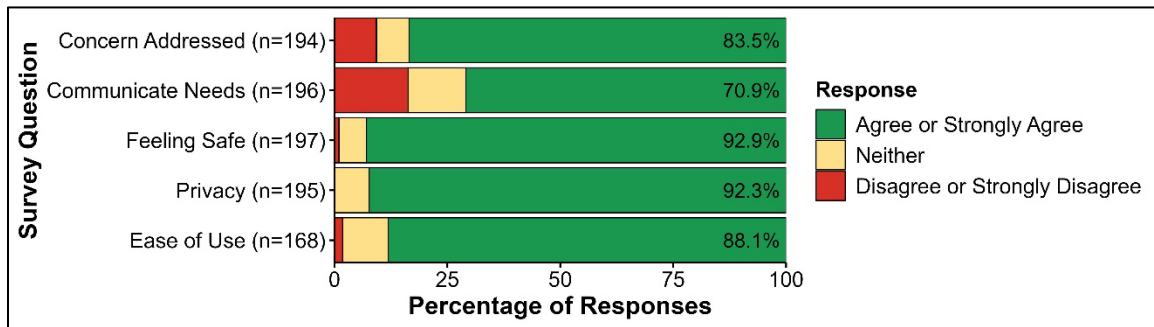


Figure 4. Patient Experience with Virtual Care: Perceptions of Effectiveness, Communication, Safety, Privacy, and Technology Ease of Use.

Almost 77% of IVC patients reported no issues using virtual technology and 85% did not require an in-person follow-up visit. Barriers to virtual care were minimal, with the most common challenges being limited access to a computer, telephone, or internet (6%) and discomfort with technology (6%). Other issues, such as unclear instructions (2%), connectivity problems (2%), platform issues (2%), and difficulty receiving phone calls (1%), were reported less frequently.

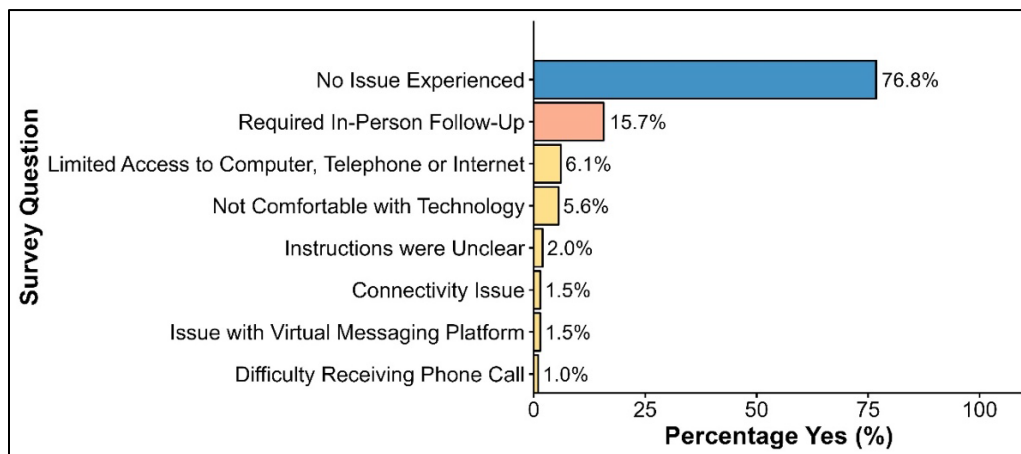


Figure 5. Occurrence of Virtual Care Issues with IVC: In-Person Follow-Up Requirements and Specific Concerns.

The high levels of satisfaction with IVC and trust in its physicians observed in this study suggest a willingness to embrace hybrid care. These results are consistent with findings from studies in Canada and the United States⁷, and reinforce the growing acceptance of hybrid, team-based care models in primary care.

Provider Experience

Evaluating the provider experience of IVC

The experiences of providers and individuals working in the health system is seen as an integral part of providing care, with staff and provider satisfaction being linked to patient experiences.

Approach

To evaluate the experiences of health providers and administrative staff working in the IVC program, we conducted one-on-one semi-structured interviews with IVC physicians, interdisciplinary health professionals who work with IVC patients, and administrative staff (reception, leadership, quality improvement) who work with IVC patients and who are involved in the program. Interviews were conducted via videoconferencing software in October 2022 to January 2023. An interview guide asking about overall satisfaction, teamwork, challenges, and professional autonomy was used. The interviews were recorded, transcribed verbatim, and analyzed.

In total, 16 individuals were interviewed:

- 3 physicians
- 7 interdisciplinary health professionals
- 6 administrative staff

IHPs included nurse practitioners, registered practical nurses (RPNs), pharmacist, midwife, dietitian. Most of the providers and staff interviewed had been with IVC since the program's inception. Physicians resided between 1 to 6 hours' drive away, and administrative staff and IHPs worked at the clinic in person and thus lived closer to the clinic.

Findings

Experiences with the Development of IVC

Interviews were conducted just over one year following the IVC program inception, thus, in considering their experiences, administrative staff and IHPs discussed how they contributed to the program as it was developing. They described their motivations for spending extra time contributing to the program in terms of making a meaningful difference in the community and the innovative nature of the IVC was also referenced as a factor that made it interesting for participants to contribute to.

"I just thought it was something great to be a part of that would involve me more in the community and help, you know, connect with the people that need family doctors."

Administrative staff.

"Was that something I was interested in? Of course I was. Not just because it's innovative, but because I thought it was important." Administrative staff.

Experiences of Interdisciplinary Health Professionals

IHPs reported a shift in their roles and responsibilities when caring for IVC patients, noting that it often required them to broaden their scope of practice beyond their usual duties.

“It means that people have embraced it and are using the family health team services.” IHP

Experiences of physicians

IVC physicians noted having a prior connection to Renfrew County through their residency programs and described their experience of delivering primary care primarily through virtual means, sharing that they developed strong rapport with their patients:

“I did my training in the Petawawa area, so when I heard about this program, I was excited to help out.” Physician

“I have a very good relationship with them. I feel like the patients do feel connected to me. Whether that's because of my demeanor, or whether they haven't had a doctor and they're just happy to have one, you know, after such a long time, I'm not sure.” Physician

Communication within IVC

All participants (physicians, IHPs, and reception staff) discussed how communication was facilitated by the EMR, and how important it was, particularly given that physicians worked predominantly off-site. Physicians described the efficiency and ease of communication.

“So, the turnaround time in terms of communication is very quick, and they're very flexible, whether that's through text messages, you know, messages through the EMR or email, it's been a very pleasant experience working with everyone.” Physician

Challenges of Working in IVC

Some challenges of working in IVC were shared by physicians, IHPs, and reception staff.

- Physicians felt that in some cases, learning to use the electronic medical record (EMR), was challenging.
- Physicians reported challenges in accessing results and ensuring consistent information flow across different clinical sites.
- NPs initially described some challenges with understanding their role within IVC- for example providing care and support for patients attached to a physician rather than serving as the responsible care provider themselves.
- There was a reported increase in overall workload due to attaching many more previously unattached patients.

Enablers to Delivering Care in IVC

Benefits of working in IVC, and enablers to contributing to care were identified.

- Physicians, IHPs, and administrative staff all described how they felt supported by leadership, that they could bring challenges to them, and work through them to find solutions.
- Physicians also described the support from the IHP and administrative teams in navigating the local context of delivering care in Renfrew County.
- Caring for complex patients with multimorbidity was facilitated by team supports and video technology. In particular, having patients attend in-clinic video appointments facilitated by nursing staff was seen as especially beneficial.

Conclusion

Integrated Virtual Care (IVC) in Renfrew County demonstrates that a hybrid model of in-person and virtual care can deliver a highly effective and widely accepted approach to primary care in underserved communities. Findings from multiple evaluations highlight high levels of patient satisfaction, trust in IVC physicians, and broad acceptance of virtual care as a viable and effective modality. Patients reported feeling well-supported, engaged in their care decisions, and appreciative of the convenience and accessibility provided by virtual visits, complemented by in-person care when necessary. Most experienced minimal barriers to technology use, and many expressed gratitude for the reduced travel burden in accessing care. The clear ability to foster meaningful patient-provider relationships through this model reinforces the program's efficiency and reach.

All clinicians and non-clinical staff recognized and valued the role of IVC in increasing patient attachment and providing more equitable access to primary care in their communities. Physicians noted strong patient relationships and appreciated the flexibility of remote care delivery. Interdisciplinary Health Professional expressed pride in contributing to a community-focused initiative, even as they adapted to expanded roles and responsibilities. While challenges such as increased workload and integration into existing clinical teams were acknowledged, participants emphasized the importance of team-based care, leadership support, and streamlined communication enabled by technology.

As IVC continues to evolve, this innovative hybrid care model may offer a scalable and sustainable solution for addressing healthcare gaps and promoting more equitable access to team-based primary care in remote, rural, and underserved communities.

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