

### Editor's key points

- ▶ Virtual visits—conducted using synchronous video or audio communication, or asynchronous messaging—are being recognized as ways to improve access to care for patients. However, there is little evidence regarding how virtual visits can best be integrated into primary care in Canada.
- ▶ This qualitative study identified primary care physician (PCP) perspectives on the clinical utility of virtual visits, with a unique focus on identifying appropriate (vs inappropriate) use cases. While PCPs felt virtual visits could be used effectively to manage a variety of clinical encounters, their comfort in using them varied.
- ▶ Most PCPs preferred asynchronous messaging because of its convenience and flexibility.
- ▶ Participants indicated that virtual visits could help improve care access and continuity of care for patients who experience logistical barriers to accessing services or who have chronic conditions.

# Redesigning primary care

## Provider perspectives on the clinical utility of virtual visits

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### Abstract

**Objective** To explore primary care physician (PCP) perspectives on the clinical utility of virtual visits.

**Design** Qualitative design involving semistructured interviews.

**Setting** Primary care practices within 5 regions in southern Ontario.

**Participants** Primary care physicians representing different practice sizes and remuneration models.

**Methods** Interviews were conducted with PCPs who were involved in a large-scale pilot implementation of virtual visits (patient-provider asynchronous messaging, or synchronous audio or video communication). The first phase involved a convenience sample of users in the first 2 regions where the pilot was initiated; after implementation in all 5 regions, purposive sampling was used to ensure diversity within the sample (eg, physicians representing different use frequencies of virtual visits, regions, and remuneration models). Interviews were audiorecorded and transcribed. An inductive thematic analysis was used to identify prominent themes and subthemes.

**Main findings** Twenty-six physicians were interviewed. Fifteen were recruited using convenience sampling and 11 through purposive sampling. Four themes regarding the clinical utility of virtual visits were identified: virtual visits can effectively resolve many patient concerns, with some variation in PCP comfort using virtual visits for specific conditions; virtual visits are beneficial for a range of patients but some patients might overuse or inappropriately use them; PCPs prefer to use asynchronous messaging (eg, text or online messaging) because of its convenience and flexibility; and virtual visits can provide value at the patient, provider, and health system levels.

**Conclusion** While participants believed that virtual visits can be appropriately used to resolve a variety of clinical concerns, they found in practice that virtual visits are fundamentally different from face-to-face encounters. Professional guidelines on appropriate use cases should be established to develop a standard framework for virtual care.

# Réorganisation des soins primaires

## Points de vue des médecins sur l'utilité clinique des visites virtuelles

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### Résumé

**Objectif** Explorer les points de vue de médecins de soins primaires (MSP) sur l'utilité clinique des visites virtuelles.

**Type d'étude** Une conception qualitative comportant des entrevues semi-structurées.

**Contexte** Des pratiques de soins primaires dans 5 régions du sud de l'Ontario.

**Participants** Des MSP représentant des pratiques de différentes tailles et ayant divers modes de rémunération.

**Méthodes** Des entrevues ont été effectuées avec des MSP qui participaient à un projet expérimental à large échelle portant sur les visites virtuelles (messagerie asynchrone entre le patient et le médecin, ou communication synchrone audio ou vidéo). La première étape impliquait un échantillonnage de convenance dans les 2 premières régions où le projet pilote a été amorcé; après l'implantation dans les 5 régions, un échantillonnage intentionnel a été utilisé pour assurer la diversité au sein de l'échantillonnage (p. ex. des médecins représentant différentes fréquences d'utilisation des visites virtuelles, diverses régions et différents modes de rémunération). Les entrevues ont fait l'objet d'un enregistrement sonore et d'une transcription. Une analyse thématique inductive a servi à dégager les principaux thèmes et sous-thèmes.

**Principales constatations** Un total de 26 médecins ont été interviewés. Quinze ont été recrutés par échantillonnage de convenance et 11 par échantillonnage intentionnel. Quatre thèmes ont été cernés concernant l'utilité clinique des visites virtuelles : les visites virtuelles peuvent répondre efficacement à de nombreuses préoccupations des patients, mais le degré d'aisance à utiliser les visites virtuelles variait pour certains problèmes précis; les visites virtuelles sont bénéfiques pour certains patients, mais d'autres pourraient les utiliser à l'excès ou de manière inappropriée; les MSP préfèrent la messagerie asynchrone (p. ex. messages textes ou en ligne), parce qu'elle est plus pratique et flexible; et les visites virtuelles peuvent apporter une valeur au niveau du patient, du médecin et du système de santé.

**Conclusion** Même si les participants estimaient que les visites virtuelles peuvent être utilisées adéquatement pour résoudre diverses préoccupations cliniques, ils trouvaient que dans la pratique, les visites virtuelles sont fondamentalement différentes des rencontres en personne. Il faudrait élaborer des lignes directrices professionnelles sur les cas où leur utilisation convient, dans le but d'établir un référentiel standard pour les soins virtuels.

### Points de repère du rédacteur

► Les visites virtuelles, effectuées par voie de communication vidéo ou audio synchrone, ou encore par messagerie asynchrone, sont reconnues comme des moyens pour améliorer l'accès des patients aux soins. Par ailleurs, il existe peu de données probantes pour étayer les façons de mieux les intégrer dans les soins primaires au Canada.

► Cette étude qualitative a permis de dégager les points de vue de médecins de soins primaires (MSP) concernant l'utilité clinique des visites virtuelles en cernant plus précisément les cas d'utilisations appropriées (par rapport aux inappropriées). Même si les MSP jugeaient que les visites virtuelles pourraient être utilisées efficacement pour gérer une diversité de rencontres cliniques, leur degré d'aisance à y avoir recours était variable.

► La plupart des MSP préféraient la messagerie asynchrone en raison de son caractère pratique et de sa flexibilité.

► Les participants ont indiqué que les visites virtuelles pourraient aider à améliorer l'accès aux soins et la continuité des soins pour les patients qui ont des obstacles logistiques à l'accès aux services ou qui ont des problèmes chroniques.

**T**imely, high-quality primary care is critical for achieving a high-performing health system,<sup>1</sup> as studies consistently demonstrate a relationship between enhanced access to primary care and improved health outcomes.<sup>2,3</sup> However, access to primary care in Canada is comparatively worse than that of our international peers, and the need for better access is growing due to the increasing burden of chronic conditions,<sup>4</sup> the aging population,<sup>5</sup> and a shortage of primary care physicians (PCPs) in rural and remote areas.<sup>6</sup> However, patient access to primary care is further exacerbated by logistical barriers to in-person appointments, such as time off work, child care, and transportation costs, which are often magnified among those with lower incomes, disabilities, and mental health conditions.<sup>7</sup>

As a result of these challenges, there have been increasing investments in virtual visits (also termed virtual care or electronic visits [e-visits]),<sup>8-10</sup> which offer patients the ability to interact with a provider using asynchronous (eg, text or online messaging)<sup>11</sup> or synchronous modalities (eg, telephone, video, or Web chat communication), all of which can be accessible from a personal communication device.<sup>12,13</sup> Previous studies have demonstrated that virtual visits improve convenience and access to care<sup>14-20</sup> without compromising quality<sup>20</sup> or increasing costs.<sup>21</sup> The shift to virtual care has been accelerated by the COVID-19 pandemic<sup>22</sup> and the introduction of provincial and territorial billing codes allowing physicians to receive compensation for telephone and video visits.<sup>23</sup> However, given that virtual visits are fundamentally different from traditional face-to-face encounters,<sup>24</sup> there is a need to identify PCP attitudes about how to appropriately integrate virtual care in comprehensive primary care.

Previous studies on virtual primary care have focused on PCP acceptability, feasibility, and adoption,<sup>10,25-28</sup> but there is limited research examining PCPs' views on the clinical utility of virtual visits, evidence that could provide insight on implementation, particularly within the Canadian context. Although few studies have assessed the quality of virtual visits compared with face-to-face encounters,<sup>13,29</sup> there are few studies that have explicitly investigated Canadian PCP views on appropriate utilization of virtual visits.

Using data from a pilot implementation of virtual care across 5 regions in Ontario, herein we report on a subset of the qualitative findings regarding PCP views on the use and clinical value of these modalities, with a focus on understanding the more acceptable uses of virtual primary care. Findings from this study can help inform professional standards, policies, and strategies to promote high-quality, ubiquitous, and effective virtual primary care, which could maximize access and convenience for patients.

## — Methods —

### Study background

Physician perspectives were collected from the Enhanced Access to Primary Care (EAPC) pilot project implemented by the Ontario Telemedicine Network (OTN) and funded by the Ontario Ministry of Health and Long-Term Care.<sup>30</sup> The project was introduced in 5 regions in southern Ontario, including urban, suburban, and rural areas. The OTN partnered with local administrative and clinical leaders from each region to recruit, enrol, and train PCPs to use a Web-based platform that enabled electronic communication with patients. Enrolled PCPs invited and registered patients with whom they had established clinical relationships. Registered patients and PCPs could request a visit by detailing the medical issue and preferred communication modality (asynchronous messaging or synchronous telephone or video calls) using a Web-based application. The platform also enabled patients and providers to send images and attachments. Primary care physicians were advised to respond to patient requests within 2 business days and could accept and choose the most appropriate form of communication to support the virtual visit. Once the visit had been completed, the provider could bill for the visit using billing codes provided to support the pilot.

During the study period (September 2017 to March 2019), 194 PCPs and 6355 patients participated in at least 1 virtual consultation. Overall, 81% of visits were conducted via messaging alone; the remainder occurred using online audio or video calls, or a mix of both.

### Recruitment and data collection

Primary care physicians were recruited by 2 researchers (J.K.F. and L.K.). Initially, convenience sampling was used within 2 regions where the EAPC was first implemented. After the pilot was implemented in 3 additional regions, purposive sampling was used to ensure a generally representative sample, wherein participants were sought from a variety of practice types (ie, solo, group, fee-for-service, and capitation practices) to reflect the broader population. All participants in the pilot program provided informed consent to be contacted for research purposes prior to enrolment. Interview requests were delivered by e-mail using contact information supplied by 2 vendors, Think Research Corporation and Novari Health. Implementation teams involved in the project also identified appropriate participants.

Telephone interviews were conducted by 3 researchers (J.K.F., M.N., and L.K.) and lasted 30 to 60 minutes. The interview guide was semistructured and explored providers' experiences with virtual visits. To understand the clinical utility of virtual visits, the researchers asked PCPs to comment on which patient conditions or characteristics would be the most appropriate to address using virtual communication, as well as their experiences with each

modality. Questions included, “What kind of patients do you think will mostly benefit from virtual care?”, “Do you think it is more appropriate for acute or chronic care or both?”, and “Is virtual care valuable in your opinion, and if so, in what ways?” This study was reviewed by the chair of the Research Ethics Board at Women’s College Hospital in Toronto, Ont, and was deemed exempt from approval.

## Data analysis

All interviews were audiorecorded and transcribed verbatim. We used inductive thematic analysis, rather than a deductive, theory-driven approach,<sup>31</sup> to identify prominent themes and relationships between themes. This approach involved identifying patterns in the data using line-by-line coding and close analysis of the data to discern themes and subthemes. Two researchers (J.K.F. and M.N.) independently and inductively coded 3 transcripts to develop a preliminary coding framework using NVivo 12 qualitative data analysis software. The coding framework was applied to the remaining transcripts by 3 researchers (J.K.F., M.N., and M.P.) and was iteratively revised to reflect emergent and recurring themes. After all transcripts were coded, 4 researchers (J.K.F., M.N., M.P., and P.A.) thematically mapped the codes into superordinate themes and subthemes through discussion and negotiated consensus.

## — Results —

Twenty-six participants were interviewed: 15 were recruited using convenience sampling and 11 through purposive sampling. Three PCPs from the same practice requested to be interviewed collectively, while the remainder of the participants were interviewed individually. Twenty-three participants were part of a capitated funding model and 3 were part of a fee-for-service practice.

Four interwoven themes emerged from the thematic analysis of the transcripts that related to the clinical utility of virtual visits (**Table 1**).

**Theme 1. Virtual visits can effectively resolve many patient concerns, with some variation in PCP comfort in using them for specific conditions.** Most participants stated that technology could be leveraged to manage a range of patient-provider interactions because many in-person appointments do not require a physical assessment (**Box 1**). Generally, participants agreed that virtual visits are a clinically effective alternative to in-person visits to manage nonurgent, low-acuity illnesses. Participants highlighted the efficiency of asynchronous messaging, indicating that it could resolve some issues faster than telephone or e-mail exchanges (eg, follow-up on laboratory tests, medication renewals, specialist referrals).

However, their level of comfort with virtual visits varied for some conditions, such as new diagnoses, mental health concerns, or palliative care. For instance, some

physicians commented that patients seeking care for mental health issues could strongly benefit from virtual visits, particularly those patients with anxiety or depression who might lack the motivation to attend office visits or be less comfortable disclosing information in person. Others articulated that virtual visits might not be suitable for mental health appointments, especially for managing severe symptoms, whereas in-person consultations could be more therapeutic and provide important visual cues when assessing a patient. Participants generally viewed virtual care to be highly beneficial for patients with complex and chronic conditions who require frequent routine appointments and do not always require physical examination.

**Theme 2. Virtual visits are beneficial for a range of patients, but PCPs are concerned some patients might overuse or inappropriately use them.** While few participants stated that virtual visits might not be appropriate for certain subpopulations (eg, older patients or individuals who cannot afford connected devices), most stated that all patients could benefit. Furthermore, several PCPs challenged the notion that older patients would not be accustomed to using technology to receive care. However, important prerequisites for use included the physician having a pre-established relationship with the patient and a strong understanding of the patient’s medical history.

Among physicians who chose to selectively offer virtual visits to patients at their discretion, some took into account patients’ personality styles in an effort to avoid overuse or inappropriate use. For example, some PCPs described pre-selecting patients who they felt were more responsible, but did not offer the tool to patients they considered to be highly anxious about their health.

**Theme 3. Primary care physicians prefer asynchronous messaging for its flexibility.** The overwhelming preference for asynchronous messaging was driven by the convenience of being able to respond whenever and wherever. It allowed them time to formulate a thoughtful response, which they believed improved the quality of care. Asynchronous messaging, with the occasional telephone call or sent image to clarify issues, was viewed to be sufficient for addressing most clinical concerns. While participants stated that synchronous audio communication was beneficial in some cases, they perceived the audio feature on the platform to be less convenient to use than regular telephone lines. They expressed that the coordination of video calls was less convenient due to logistical barriers, such as scheduling and Web camera and microphone issues. However, despite their limited use of video communication in virtual visits, many PCPs commented on how the video function could expand the clinical application of virtual visits by enabling a visual assessment when needed (eg, mental health follow-up, dermatology concerns, palliative care).

**Table 1. Quotations from participants, by theme**

THEMES	QUOTATIONS
<p>Virtual visits can resolve many patient concerns effectively, with some variation in PCP comfort using them for specific conditions</p> <ul style="list-style-type: none"> <li>• Suitable for a range of low-acuity, nonurgent use cases that do not require a physical examination</li> <li>• PCP comfort and preferences drive beliefs about use for some conditions</li> <li>• Beneficial to manage complex, chronic conditions with frequent interactions</li> </ul>	<ul style="list-style-type: none"> <li>• “For a family doctor visit, a lot of things you don’t have to see face to face. Some of the things, like minor things, or skin things, they can have a picture, show me, or send me a video clip, then I can make a suggestion that I would if they were there”</li> <li>• “I think what it’s good for are for your own patients that are needing refills or [have] chronic conditions”</li> <li>• “There is a huge scope for doing mental health visits online because, especially if I did them by camera and stuff, there is nothing I do in a mental health visit that can’t be done online”</li> <li>• “And mental health I find that I prefer to have an in-person appointment”</li> <li>• “I think there are certain places where it [virtual visits] would work, and maybe palliative would be one of them”</li> <li>• “Complex patients, I believe they should have access to this virtual care because in between their regular checkups they might have a quick question about something and that might save them a visit to the office”</li> <li>• “I have a lot of [patients who have diabetes and] ... you have to see them once a year to do their blood pressure and height and weight and all that, check their feet and that kind of thing. But other than that, it’s all just talking, so that has been really easy to use [for virtual visits]. A lot of my patients have hypertension and a lot of my patients have blood pressure machines, so they just send me a picture of their readings, and we can manage blood pressure that way”</li> </ul>
<p>Virtual visits are beneficial for a range of patients but PCPs are concerned some might overuse or inappropriately use them</p> <ul style="list-style-type: none"> <li>• Virtual visits are suitable for a diverse demographic of patients</li> <li>• Clear benefit for patients with established barriers to access</li> <li>• Concerns about overuse or inappropriate use</li> </ul>	<ul style="list-style-type: none"> <li>• “I think it could be used for everybody. Really, I’m not that specific in the certain type of persons that I ask to come on [in]. I’m pretty all access. As long as they can use a computer, I’m like, here, this will probably be worth it for you”</li> <li>• “My initial expectation was that younger patients were more friendly with technology and would be using this. Although I have had patients who are older, over 65, using this successfully as well. I think in today’s age everybody is comfortable with using a computer and logging into a website and sending a message”</li> <li>• “Geriatric patients are people who have more needs, basically, which tends to be the older patients, the anxious patient, the young mom or the new mom with young kids, somebody with patients that are disabled that they are taking care of”</li> <li>• “I’m also picking people that live further away. So, people that live at a distance where if they needed something as simple as a medication refill, I could probably handle that through an [electronic visit]”</li> <li>• “I guess there are people that need constant reassurance in stuff for whatever reason, whether it’s mental or physical, and come to the office a lot. Those are people that I think, in general, might overuse it [virtual visits], and I think they’re probably better assessed in the office face to face”</li> <li>• “I think part of it comes down to patient education, just like anything else, maybe, providing access to that anxious patient. If there is abuse or overuse of it or misuse of it [virtual visits], then it’s educating the patient or even taking that privilege away”</li> </ul>
<p>PCPs prefer to use asynchronous messaging for its flexibility</p> <ul style="list-style-type: none"> <li>• Asynchronous messaging can resolve many clinical issues in a way that is convenient and efficient</li> <li>• Telephone and video visits are less convenient but might expand the clinical application of virtual care</li> </ul>	<ul style="list-style-type: none"> <li>• “When [telephone] and voicemail come in the [telephone] messaging is not necessarily clear. And sometimes we do not necessarily hear what people are saying to us. And we have to answer in real time, which forces us to not necessarily give the best response ... [W]ith asynchronous text messaging, e-mail, or otherwise—you get to wait, you get to sit. You do not have 3 other patients asking you questions while they are sitting in the front. So, you can wait and take a deep breath and then answer these questions”</li> <li>• “I like the asynchronous messaging. I like that it gives me time to come back and finish the encounter when needed, when I have time”</li> <li>• “I’m less willing to use the video and the [telephone], because the [telephone] is harder to schedule ... whereas with messaging, I’ve got a distinct question to answer and I can constrain it [the visit] better”</li> <li>• “I think if you just have texting or messaging, there would be some limitations in what you could do. While video is used in a minority of cases, those are probably important cases, and that likely avoids an in-person visit, which is what we’re trying to do”</li> </ul>

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THEMES	QUOTATIONS
Virtual visits can provide value at the patient, provider, and health system levels <ul style="list-style-type: none"> <li>Improved convenience for patients and efficiency for providers</li> </ul>	<ul style="list-style-type: none"> <li>"I really love that there is an option for my patients other than necessarily trying to get through on the [telephone] at certain times, which is not convenient for them. And I love the fact that it's convenient for them and it's also convenient for me because I can do it when it's good for me"</li> <li>"It's a workload and time saver for the way that patients otherwise would access that kind of service, right, which is through my office staff and I think a huge waste of time with multiple layers of communication that's required in order for me to answer one of their questions"</li> <li>"I see it [virtual visits] more of getting rid of a lot of the menial work that patients come and book a 5-minute appointment for, and then end up asking 2 or 3 other questions that, in and of themselves would never be a visit ... and so, it helps to speed up the process, helps to improve wait times because now it's not being looked at with all this other stuff, and it helps [with] patient satisfaction because now they feel like they have a direct connection to physician"</li> </ul>
<ul style="list-style-type: none"> <li>Improved continuity and reduced duplicate visits at a system level</li> </ul>	<ul style="list-style-type: none"> <li>"For practices that don't have good access for patients, I would hope that by improving patients' access to ask questions, clarify things, do some virtual primary care, that it would decrease walk-in utilization and then hopefully decrease emergency [department] visits"</li> <li>"I think I've had people that would have made an appointment, but because ... we were able to do it virtually, it saved them from booking an appointment or possibly going to even a walk-in clinic"</li> <li>"I know that if my patients go to the walk-in [clinic], 50% of those visits will be repeated. If they see me, they often don't have to repeat their visit. So, as much as I can do to keep it within the house, it improves my access bonus, which is good, but more importantly it keeps the continuity of care, which has been shown very clearly to improve outcomes for patients. It's the most efficient, most effective system"</li> </ul>

PCP—primary care physician.

**Theme 4. Virtual visits can provide value at the patient, provider, and health system levels.** Despite varied perceptions on the clinical application of virtual visits, most participants felt that this service improved access and wait times, resulting in greater convenience and patient satisfaction. Instead of requiring patients to take time off work or secure reliable transportation to attend an office appointment, virtual visits allowed patients to receive care in their preferred settings. Many PCPs commented that online visits could increase the number of patients receiving care in a day, translating into clinic efficiencies and higher remuneration. Also, many appreciated that virtual visits allowed them to get compensated for telephone- or e-mail-based care, services for which they had not previously been paid. Most participants believed virtual visits could replace both unnecessary in-person visits and walk-in clinic usage, which would reduce costs for the whole health system.

## — Discussion —

This qualitative study found that PCPs view virtual visits to be effective in resolving a range of nonurgent clinical concerns, including chronic disease management, medication follow-up, and assessment of simple rashes. Similar to responses in other studies,<sup>9,11</sup> the participants in our study expressed that asynchronous messaging had high utility due to the convenience of being able to respond anywhere and at any time. Many stated virtual visits could reduce barriers to care for certain populations,

### Box 1. Participants' views on appropriate and inappropriate use cases for virtual care

#### Appropriate use cases

- Present laboratory results
- Medication renewals
- Follow-up on previous diagnosis
- Specialist referral
- Nonurgent concerns (eg, rash or cold)
- Chronic disease management
- Routine check-ins
- Assessment of visual signs (eg, cellulitis, rash)

#### Mixed perceptions on appropriateness

- Mental health follow-up
- Palliative care
- New diagnosis
- Providing care to infants or pediatric patients

#### Inappropriate use cases

- First visit with a new patient
- Cases where physical examination is needed
- Urgent care
- Providing bad news via asynchronous messaging
- Managing patients with severe mental health symptoms or addictions
- Prescribing narcotics

such as older adults with mobility issues. Also, most agreed virtual visits were not appropriate for care of a new patient with whom they had no prior relationship. There were also mixed perceptions of its appropriateness for use in mental health, pediatric, or palliative care.

To our knowledge, this is the first study to explore physician preferences in Canada regarding the use of virtual care (ie, asynchronous messaging, and synchronous video or audio communication) for specific clinical uses. Our study aligned with evidence that virtual visits work best for consultations about chronic conditions where the physician and patient have a pre-established relationship and ongoing assessment does not require physical contact.<sup>32</sup> Similar to the findings of prior research on the use of asynchronous messaging for chronic disease management,<sup>9,33</sup> participants in our study felt messaging was an efficient way to deliver care and might provide system-level cost benefits. However, while most participants felt virtual visits were effective for a diverse population, their selection of patients might have been susceptible to implicit biases, as this selectivity might have been driven by concerns of overuse among certain patient populations, as expressed by a few participants in our study.

Other studies have found inequitable distribution of virtual health services, with demographic differences among users and nonusers,<sup>34-36</sup> and potential barriers for patients with certain disabilities (eg, visual or hearing impairments). Moreover, few studies have compared outcomes for patients who have received virtual care versus traditional in-person visits, highlighting uncertainty regarding overall impact.

Virtual visits allow patients and providers to be separated both physically and temporally, presenting new opportunities and challenges for the delivery of care. This study characterized physician views on their level of comfort in using virtual visits and highlighted the role of the PCP as a gatekeeper in determining which patients could engage and how. Professionally endorsed standards and policies regarding appropriate use might help ensure consistency in the use of virtual visits and could help mitigate the exacerbation of health inequities. Additionally, formal training outlining appropriate use cases for virtual visits would improve PCP comfort and competencies when performing such consultations.<sup>24,37</sup> Recognizing this need, the College of Family Physicians of Canada, the Association of Faculties of Medicine of Canada, and the Royal College of Physicians and Surgeons of Canada are currently investigating core competencies and necessary adaptations to the current CanMEDS roles and accreditation standards to ensure virtual visits are used effectively by physicians.<sup>38</sup> Patients might also benefit from proper education on virtual visits to manage their expectations regarding use. While future research is needed to identify best practices regarding patients' suitability for virtual visits, PCPs in this study expressed motivation to integrate virtual care into their practices and see doing so as an important measure to both improve access to care and promote sustainable health systems.

## Limitations

This project was implemented within 5 regions at different time points; thus, participants had variable exposure, with some using the platform for only a few months. Further, participation was voluntary and those who were included in the study might have been more open to technological innovation or changes in practice than their peers. While we attempted to capture nuances in the PCPs' experiences during interviews, we were unable to discern how contextual factors (eg, organizational culture or implementation approach) influenced their views. We did not systematically collect demographic information such as age or gender, and thus could not conclude if these characteristics influenced perceptions. Additionally, most participants practised in clinics close to urban centres and were part of capitated funding models. Therefore, the findings of this study are not likely to be representative of all PCPs across Ontario and Canada.

Moreover, our study was conducted prior to the COVID-19 pandemic wherein there was a surge in the uptake of virtual visits. While the findings of this study may not reflect current usage trends, they still offer relevant and valuable information regarding the clinical value of virtual visits.

## Conclusion

While the use of virtual visits in primary care is still fairly new in Canada, most PCPs interviewed deemed virtual visits to be a viable alternative to many in-person interactions. Physicians indicated that virtual care was useful for patients with chronic conditions and could reduce logistical barriers in accessing care. However, physicians had concerns regarding overuse or inappropriate use, resulting in selectivity when offering virtual care to patients. Since this medium of communication is different from face-to-face communication, virtual care professional guidelines and formal training are needed to ensure consistency, competency, and comfort. 🌿

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**Contributors**

All authors contributed to the concept and design of the study; data gathering, analysis, and interpretation; and preparing the manuscript for submission.

**Competing interests**

None declared

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**References**

- Shi L. The impact of primary care: a focused review. *Scientifica* (Cairo) 2012;2012:432892. Epub 2012 Dec 31.
- Starfield B, Shi L, Macinko J. Contribution of primary care to health systems and health. *Milbank Q* 2005;83(3):457-502.
- Gulliford M. Access to primary care and public health. *Lancet Public Health* 2017;2(12):e532-3. Epub 2017 Dec 5.
- Public Health Agency of Canada. *Prevalence of chronic diseases among Canadian adults*. Ottawa, ON: Government of Canada; 2019. Available from: <https://www.canada.ca/en/public-health/services/chronic-diseases/prevalence-canadian-adults-infographic-2019.html>. Accessed 2022 Aug 11.
- Canada's population estimates: age and sex, July 1, 2018. Ottawa, ON: Statistics Canada; 2019. Available from: <https://www150.statcan.gc.ca/n1/en/daily-quotidien/190125/dq190125a-eng.pdf?st=LqwLE30g>. Accessed 2022 Aug 11.
- Shah TI, Clark AF, Seabrook JA, Sibbald S, Galliland JA. Geographic accessibility to primary care providers: comparing rural and urban areas in southwestern Ontario. *Can Geogr* 2020;64(1):65-78.
- Corcadden L, Levesque JF, Lewis V, Strumpf E, Breton M, Russell G. Factors associated with multiple barriers to access to primary care: an international analysis. *Int J Equity Health* 2018;17(1):28.
- Pearl R. Kaiser Permanente Northern California: current experiences with internet, mobile, and video technologies. *Health Aff* (Millwood) 2014;33(2):251-7.
- Dixon RF, Rao L. Asynchronous virtual visits for the follow-up of chronic conditions. *Telemed J E Health* 2014;20(7):669-72. Epub 2014 May 2.
- Atherton H, Pappas Y, Heneghan C, Murray E. Experiences of using email for general practice consultations: a qualitative study. *Br J Gen Pract* 2013;63(616):e760-7.
- Hoonakker PLT, Carayon P, Cartmill RS. The impact of secure messaging on workflow in primary care: results of a multiple-case, multiple-method study. *Int J Med Inform* 2017;100:63-76. Epub 2017 Jan 18.
- Fagerlund AJ, Holm IM, Zanaboni P. General practitioners' perceptions towards the use of digital health services for citizens in primary care: a qualitative interview study. *BMJ Open* 2019;9(5):e028251.
- Hammersley V, Donaghy E, Parker R, McNeilly H, Atherton H, Bikker A, et al. Comparing the content and quality of video, telephone, and face-to-face consultations: a non-randomised, quasi-experimental, exploratory study in UK primary care. *Br J Gen Pract* 2019;69(686):e595-604.
- Agha Z, Schapira RM, Laud PW, McNutt G, Roter DL. Patient satisfaction with physician-patient communication during telemedicine. *Telemed J E Health* 2009;15(9):830-9.
- Perle JG, Langsam LC, Randel A, Lutchman S, Levine AB, Odland AP, et al. Attitudes toward psychological telehealth: current and future clinical psychologists' opinions of internet-based interventions. *J Clin Psychol* 2013;69(1):100-13. Epub 2012 Sep 13.
- Polinski JM, Barker T, Gagliano N, Sussman A, Brennan TA, Shrank WH. Patients' satisfaction with and preference for telehealth visits. *J Gen Intern Med* 2016;31(3):269-75. Epub 2015 Aug 13.
- Viers BR, Pruthi S, Rivera ME, O'Neil DA, Gardner MR, Jenkins SM, et al. Are patients willing to engage in telemedicine for their care: a survey of preuse perceptions and acceptance of remote video visits in a urological patient population. *Urology* 2015;85(6):1233-9. Epub 2015 Apr 8.
- LeRouge CM, Garfield MJ, Hevner AR. Patient perspectives of telemedicine quality. *Patient Prefer Adherence* 2014;9:25-40.
- Bishop TF, Press MJ, Mendelsohn JL, Casalino LP. Electronic communication improves access, but barriers to its widespread adoption remain. *Health Aff* (Millwood) 2013;32(8):1361-7.
- Albert SM, Shevchik GJ, Paone S, Martich GD. Internet-based medical visit and diagnosis for common medical problems: experience of first user cohort. *Telemed J E Health* 2011;17(4):304-8. Epub 2011 Apr 1.
- Mehrotra A, Paone S, Martich GD, Albert SM, Shevchik GJ. A comparison of care at e-visits and physician office visits for sinusitis and urinary tract infection. *JAMA Intern Med* 2013;173(1):72-4.
- Greenhalgh T, Koh GCH, Car J. Covid-19: a remote assessment in primary care. *BMJ* 2020;368:m1182.
- Health Services Branch. *INFOBulletin. Virtual Care Program—new virtual care billing codes effective (April 1, 2020)*. Toronto, ON: Ontario Ministry of Health and Long-Term Care; 2020. Available from: <http://health.gov.on.ca/en/pro/programs/ohip/bulletins/4000/bul4750.aspx>. Accessed 2022 Aug 14.
- Sharma R, Nachum S, Davidson KW, Nochomovitz M. It's not just FaceTime: core competencies for the medical virtualist. *Int J Emerg Med* 2019;12(1):8.
- Johansson AM, Lindberg I, Söderberg S. The views of health-care personnel about video consultation prior to implementation in primary health care in rural areas. *Prim Health Care Res Dev* 2014;15(2):170-9. Epub 2013 Feb 12.
- Dixon RF. Enhancing primary care through online communication. *Health Aff* (Millwood) 2010;29(7):1364-9.
- Donaghy E, Atherton H, Hammersley V, McNeilly H, Bikker A, Robbins L, et al. Acceptability, benefits, and challenges of video consulting: a qualitative study in primary care. *Br J Gen Pract* 2019;69(686):e586-94.
- Randhawa RS, Chandan JS, Thomas T, Singh S. An exploration of the attitudes and views of general practitioners on the use of video consultations in a primary healthcare setting: a qualitative pilot study. *Prim Health Care Res Dev* 2019;20:e5. Epub 2018 Jun 18.
- Hertzog R, Johnson J, Smith J, McStay FW, da Graca B, Haneke T, et al. Diagnostic accuracy in primary care e-visits: evaluation of a large integrated health care delivery system's experience. *Mayo Clin Proc* 2019;94(6):976-84.
- Women's College Hospital Institute for Health Systems Solutions and Virtual Care. *Enhanced Access to Primary Care: project evaluation final report*. Toronto, ON: Ontario Telemedicine Network, Ministry of Health and Long-Term Care; 2019. Available from: <https://otn.ca/wp-content/uploads/2019/08/eapc-evaluation-report.pdf>. Accessed 2023 Mar 27.
- Braun V, Clarke V. Thematic analysis. In: Cooper H, Camic PM, Long DL, Panter AT, Rindskopf D, Sher KJ, editors. *APA handbook of research methods in psychology, vol 2. Research designs: quantitative, qualitative, neuropsychological, and biological*. Washington, DC: American Psychological Association; 2012. p. 57-71.
- Shaw S, Wherton J, Vijayaraghavan S, Morris J, Bhattacharya S, Hanson P, et al. *Advantages and limitations of virtual online consultations in a NHS acute trust: the VOCAL mixed-methods study*. Southampton, UK: NIHR Journals Library; 2018.
- Chung S, Panattoni L, Chi J, Palaniappan L. Can secure patient-provider messaging improve diabetes care? *Diabetes Care* 2017;40(10):1342-8. Epub 2017 Aug 14.
- Ipsos MORI; York Health Economics Consortium; Salisbury C. *Evaluation of Babylon GP at hand: final evaluation report*. London, Engl: Ipsos MORI Social Research Institute; 2019. Available from: <http://allcatsrgrey.org.uk/wp/download/informatics/Evaluation-of-Babylon-GP-at-Hand-Final-Report.pdf>. Accessed 2022 Aug 14.
- McGrail KM, Ahuja MA, Leaver CA. Virtual visits and patient-centered care: results of a patient survey and observational study. *J Med Internet Res* 2017;19(5):e177.
- Cheung L, Leung TI, Ding VY, Wang JX, Norden J, Desai M, et al. Healthcare service utilization under a new virtual primary care delivery model. *Telemed J E Health* 2019;25(7):551-9. Epub 2018 Sep 7.
- Atherton H, Ziebland S. What do we need to consider when planning, implementing and researching the use of alternatives to face-to-face consultations in primary healthcare? *Digit Health* 2016;2:2055207616675559.
- Lemire F, Sisler J. Integrating virtual care in family practice. *Can Fam Physician* 2020;66:152 (Eng), 151 (Fr).

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