

# From 0-50 in Pandemic, and Then Back? A Case Study of Virtual Care in Ontario Pre—COVID-19, During, and Post—COVID-19

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## Abstract

We review the evolution of virtual care (VC) in Ontario. Pre—COVID-19, the primary focus was on patients in remote and underserved areas who went to host sites for care. Ontario's vision pre-pandemic was for a gradual increase in VC by physicians registered with the Ontario Telemedicine Network (OTN), using OTN-approved video technologies; some accommodated patients and doctors wherever they were. Less than 1% of care was virtual pre-pandemic. We discuss how policies that altered access to in-person care (pandemic lockdowns and guidelines to seek and provide care virtually), compensation policy changes (allowing any Ontario physician to be compensated for VC), and policies allowing common technologies not previously allowed (including, importantly, the telephone), drove and enabled a rapid shift to >50% of care being virtual at the start of the pandemic, leveling off to ~30% over time. We review policy changes in late 2022 and predict these will result in a drop in VC compared with the policies during the pandemic, particularly for walk-in clinic patients, in a province where 2.2-4.6 million people do not have a primary care doctor and presumably use walk-in clinics. This is because, going forward, physicians will be compensated less for telephone care than for in-person or video care for rostered patients, and because compensation will be less still for telephone or video care provided to walk-in patients. Through this case study we develop a visual model of how these key policy and technology factors influence the provision of VC.

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Provision of virtual care (VC) shifted upward sharply with the COVID-19 pandemic in many countries, with a question by Webster of “(whether) these measures will stay in place after the pandemic subsides.”<sup>1</sup> To better understand and learn from the sudden pivot to VC, it is important to assess the factors that drove, enabled, and shaped VC provision, as evidence suggests VC provision differed in Australia, Canada, the United Kingdom, the United States, and in other countries during the pandemic.<sup>2,3</sup> Answering Webster's question requires an understanding of the measures that influenced VC during the pandemic, the outcomes of these measures, and what is happening post-pandemic.

The Canada health transfer ensures predictable federal financial support for universal

care for citizens and residents as put forth by the Canada Health Act, but tasks each of the 13 provinces and territories (P and Ts) with providing policies, funding, and care that meet federal requirements. Virtual care policies are set by P and Ts. Shared federal and local jurisdiction over health care is common; for example, in the United States, policies, including those about private payer telehealth reimbursement, are governed by the federal and state governments. Policies regarding VC can vary greatly across states; for example, 32 states plus the District of Columbia require payment parity for virtual and in-person care, although there are differences in implementation.<sup>4</sup>

We provide a case study of VC in Ontario and, from that, derive a model of the key policies and other factors that shape the provision

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of VC within a health care system. We discuss the evolution of Ontario VC pre-pandemic, the vision proposed just before the pandemic, and the sudden shift to VC at the start of the pandemic. We examine the policy changes that shaped the sudden shift. We look at lockdowns and directives to seek or provide VC as drivers of the shift and examine billing and technology policy changes that enabled compensation for VC that was not permitted pre-pandemic. On the basis of this case study, we propose a model of key factors that shape VC provision, discuss policy changes in December 2022, and using the model predict that there is likely to be less VC in Ontario going forward. This model can be applied to understand VC in other systems.

### Literature Search Strategy

Because of the narrative case study nature of this paper, we searched online, such as Google Scholar and PubMed, for early and recent academic articles and government or other publications on VC in Ontario. We worked backward from references in current articles and reports to find past work describing initiatives or historical information. We found little published on Ontario VC. For information since the pandemic, we reviewed the Ontario Health Insurance Plan (OHIP) INFO Bulletins and Ministry of Health (MOH) physician guidance. Key VC terms are defined in Table 1.<sup>5,6</sup>

### The Evolution of Ontario VC

Table 2<sup>6-19</sup> summarizes the evolution of VC in Ontario, Canada's most populated P and T (15,386,407 people) with a land area of 354,341.78 square miles.<sup>20,21</sup> We could not find information on the total number of patients or providers involved in the early years;

we report from published research to give a sense of early programs and scope. Telemedicine was introduced in the late 1970s to increase access to care for underserved patients in remote rural areas who might otherwise have to travel great distances and instead drove to host sites with technology to facilitate video consultations.<sup>11,8,9,22</sup> Over time, it expanded to urban areas, still with more focus on the North where providers were few, providing primary care, specialty care, etc.<sup>10,12</sup> In the late 2010's, technologies that would allow video visits from wherever patients and OTN-registered providers were located were approved.<sup>13</sup>

In November 2019, Ontario's MOH announced its digital first for health strategy with intentions to expand the availability of virtual tools for physicians, implement online appointment booking, increase patient access to their health data, and redesign electronic medical record systems.<sup>23</sup> Three areas of modernization were planned for over the next year as follows: (1) incentivize physicians to provide video visits; (2) approve and incorporate additional video technologies; and (3) allow visits using audio calls and secure messaging.<sup>24</sup> Key objectives were ending hallway health care (patients receiving care in hospital hallways because of lack of beds) and streamlining digital health delivery.<sup>25</sup>

Fewer than 1% of family physician consultations and fewer than 1% of all physician services were provided virtually through early 2020 (Figures 1 and 2).<sup>26,27</sup> Figure 1 shows the number of visits in family medicine and the number and percentage of virtual visits out of total family medicine visits between April 2019 and December 2020.<sup>27</sup> Figure 2 shows the total number and the number and percentage of all physician services provided

TABLE 1. Definitions of Terms in this Article

Virtual care	"Any form of health care delivered without the patient and the clinician being present in the same physical location." <sup>5</sup>
Telehealth	"The various digital communication modalities and applications that empower care to be delivered irrespective of space and time." <sup>5</sup>
Telemedicine	"Under the umbrella of telehealth and refers specifically to clinical services." Often used interchangeably with the term 'virtual care.' <sup>6</sup>
OHIP	Ontario Health Insurance Plan—provincial health insurance plan that covers all Ontarians and pays for all insured care provided by OHIP-insured care providers.

TABLE 2. Detailed History of Ontario Virtual Care Pre–COVID-19 Pandemic<sup>a</sup>

Period <sup>b</sup>	Virtual Care Programs/Pilot Projects/Research	Type of Care Provided	Technology	Patient focus	Number of Patients or Number of Telehealth Services	Where did Patients Receive Telehealth Services?	Number of Physicians Providing Telehealth Services	Where the Physician Provided Telehealth Services?
Late 1977-1980	Published research on the Sioux lookout zone hospital <sup>7</sup>	Emergency care, primary care, and specialty care.	Two-way slow-scan video network. Speaker telephone for voice communications	Residents of the Sioux lookout zone and the surrounding area (Hudson, Pickle Lake, Savant Lake, and the First Nation communities). <sup>7</sup>	Five hundred thirty-two sessions between northern stations and Sioux lookout; 429 sessions between Sioux lookout and Toronto. <sup>8c</sup>	Three nursing stations and 2 health aide stations in remote regions of northern Ontario. <sup>8</sup>	Typical staffing levels in the nursing stations, health aide stations, and Sioux lookout zone hospital are 4 family physicians, 18 nurses, and 33 health aides. <sup>8</sup>	Sioux lookout zone hospital and tertiaries in Toronto, Thunder Bay, Dryden, and Winnipeg.
March 1998-December 1999	Published research on the northern Ontario remote telecommunication health (North) network <sup>9</sup>	Primary care and specialty care.	Two-way video or audio communication. Television monitors, cameras, and microphones allowed patient and physician to see and hear each other.	Patients living in rural or remote communities in northern Ontario.	Fourteen teleconsultations with burn patients in 1999. <sup>9</sup>	Lady Minto hospital in Cochrane, Timmins and district hospital, Sudbury regional hospital, Thunder Bay health sciences North, Nipissing university in North Bay, and Sault Ste. Marie. <sup>9</sup>	NA	Toronto Sunnybrook site
2006-present	Ontario Telemedicine Network (OTN)	Most common services: mental health and addictions, internal medicine, oncology, and operations.	Videoconferencing, various medical devices, and store-and-forward technologies provided by OTN. Store-and-forward technologies are used to support active tele-dermatology and tele-ophthalmology programs.	Patients living in rural and remote areas in Ontario, particularly in the North. Also available to patients in the more populated southern regions. <sup>10</sup>	In fiscal year (FY) 2011–2012, OTN facilitated 204,058 patient telemedicine consultations. <sup>11</sup>	2,026 OTN patient host sites across Canada in 2015; 25% of sites, and 43% of services were in the North, where 6% of population lived. <sup>12</sup> In 2014, 86% of Northern Ontario communities were within an hour's drive of an OTN unit. <sup>12</sup>	In fiscal year (FY) 2011–2012, services were provided by 1,685 consultants in nearly every therapeutic area of care. <sup>11</sup>	1,463 hospitals and health care sites equipped with 2,630 video conferencing systems sites across the province. <sup>11d</sup>
2014	OTN invite (home video visit pilot project) <sup>13</sup>	Primary care, specialty care, follow-up visits, mental health care delivery, cognitive behavior	An OTN-approved videoconferencing system that provides a mobile alternative to	Patients living in Ontario	NA	Connect from home or any location in Ontario.	NA	Connect from home or any location in Ontario.

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TABLE 2. Continued

Period <sup>b</sup>	Virtual Care Programs/Pilot Projects/Research	Type of Care Provided	Technology	Patient focus	Number of Patients or Number of Telehealth Services	Where did Patients Receive Telehealth Services?	Number of Physicians Providing Telehealth Services	Where the Physician Provided Telehealth Services?
		therapy, and counseling sessions.	traditional OTN studio-based video conferencing.					
2017-March 2019	OTN's e-visit primary care program (pilot project launched by OTN)	Primary care, specialty care, follow-up visits, mental health care delivery, cognitive behavior therapy, counseling sessions, etc. <sup>15</sup>	Leverages 2 customized third-party platforms that provided access to care by secure asynchronous messaging, video, and audio. <sup>14</sup>	Patients who live in remote areas; are new parents; have reduced mobility; are living with chronic disease. <sup>15</sup>	Sixteen thousand virtual visits in the pilot project (32,000 enrolled patients). <sup>15</sup>	Connect from home or any location in Ontario.	In 2018/19, there were 278 primary care providers registered. <sup>15</sup>	Connect from home or any location in Ontario.
November 2019	Ontario virtual care program (supported by OTN) <sup>6</sup>	All kinds of care.	Host sites; direct-to-patient; all using approved OTN software and OTN-registered physicians.	Host sites: any patient without access to inperson care direct-to-patient: any patient rostered with a provider	Of Ontario residents, 1.3% received at least 1 virtual visit in 2019.	Host sites; direct-to-patient: connect from home or any location in Ontario.	NA	Host sites, connect from home or any location in Ontario.
March 2020—world-wide COVID-19 pandemic declared								
March 2020—November 2022	Virtual care during pandemic <sup>17</sup>	All kinds of care	Secure messaging, calls, and video using approved OTN technologies or non-OTN technologies including telephone	Patients living in Ontario	Of Ontario residents 29.2% received at least 1 virtual visit in the second quarter of 2020. <sup>17</sup>	Connect from home or any location in Ontario.	Of providers (85.9%) delivered virtual care in the second quarter of 2020. <sup>17</sup>	Connect from home or any location in Ontario.
March 2020—November 2022	Virtual "walk-in" clinics <sup>6</sup>	Primary care. Also some specialty care.	Non-OTN network platforms that allow patients to go online to connect with a physician through secure messaging (chat), telephone, or video.	Patients living in Ontario. Some walk-in clinics required self-pay, but many were compensated by OHIP.	NA	Connect from home or any location in Ontario.	NA	Connect from home or any location in Ontario.

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TABLE 2. Continued

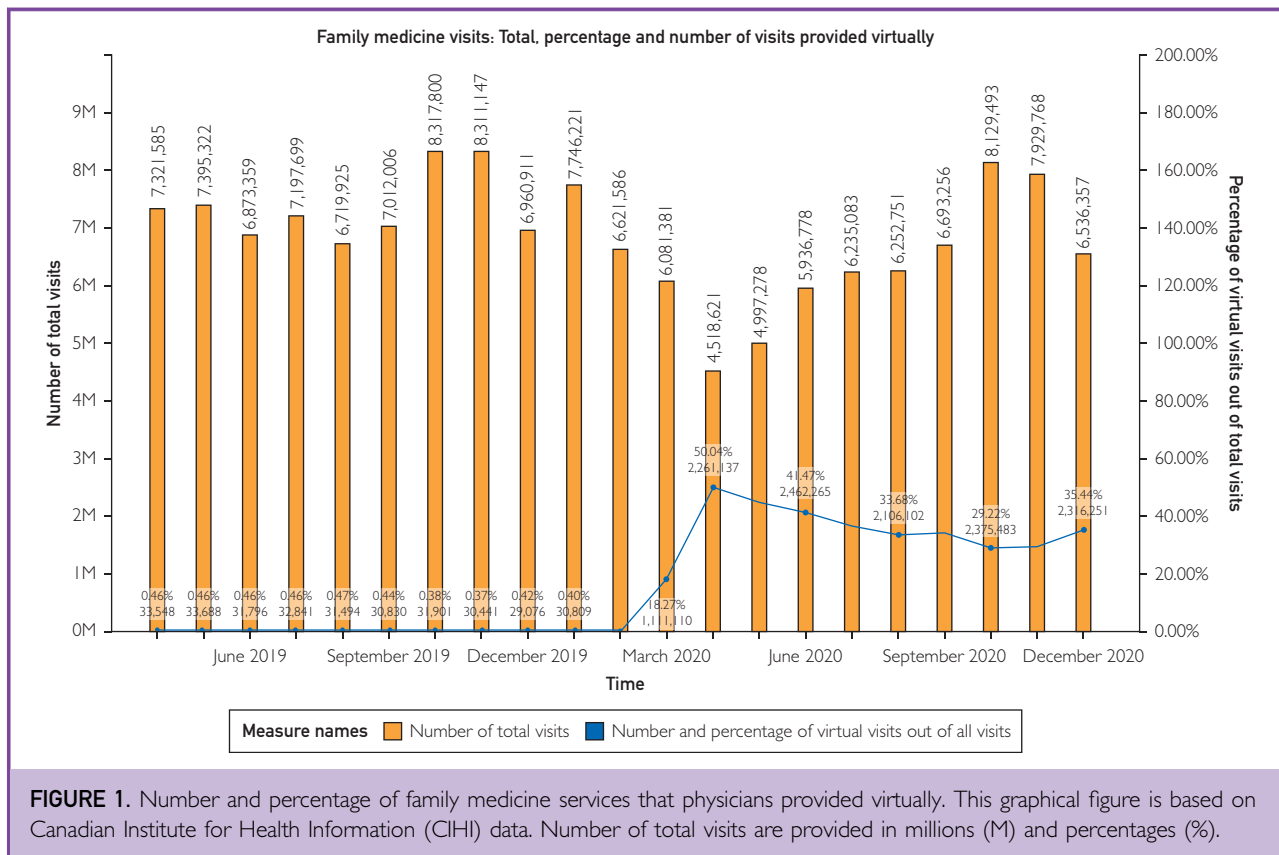
Period <sup>b</sup>	Virtual Care Programs/Pilot Projects/Research	Type of Care Provided	Technology	Patient focus	Number of Patients or Number of Telehealth Services	Where did Patients Receive Telehealth Services?	Number of Physicians Providing Telehealth Services	Where the Physician Provided Telehealth Services?
March 2020—world-wide COVID-19 pandemic declared, continued								
December 1, 2022	New OHIP Virtual Care Funding Model <sup>18</sup>	All kinds of care	By telephone, or by a verified video solution, as defined by Ontario Health. <sup>19</sup>	Patients living in Ontario	NA	Connect from home or any location in Ontario.	NA	Connect from home or any location in Ontario.

<sup>a</sup>Note providers in Ontario work under numerous billing models. It is beyond the scope of this paper to delve into how specific providers were affected by billing changes regarding virtual care. The billing information provided here captures the large-scale changes relating to virtual care growth. The completeness of the table is limited by available data and information.

<sup>b</sup>We could not find information on total number of patients, providers, or sites in early years. We report examples from published research to give a sense for programs and scope.

<sup>c</sup>The northern stations are backed up by Sioux Lookout Hospital and Sioux Lookout Hospital receives specialty support from tertiaries in Toronto, Thunder Bay, Dryden, and Winnipeg.

<sup>d</sup>Including 155 hospitals in the province and 65 community care access centers, 62 specialist clinics, 71 clinician offices, 72 community health centers, 111 community support services, 25 educational facilities including medical and nursing schools, 125 primary care teams, 94 long-term care facilities, 335 mental health or addictions agencies, 28 nursing stations on aboriginal reserves (in collaboration with Keewaytinook Okamakanak Telemedicine Network), 14 professional organizations, 55 public health unit and regional infectious disease units, 14 regional health offices, 15 rehabilitation facilities, and 13 federal and provincial prisons



**FIGURE 1.** Number and percentage of family medicine services that physicians provided virtually. This graphical figure is based on Canadian Institute for Health Information (CIHI) data. Number of total visits are provided in millions (M) and percentages (%).

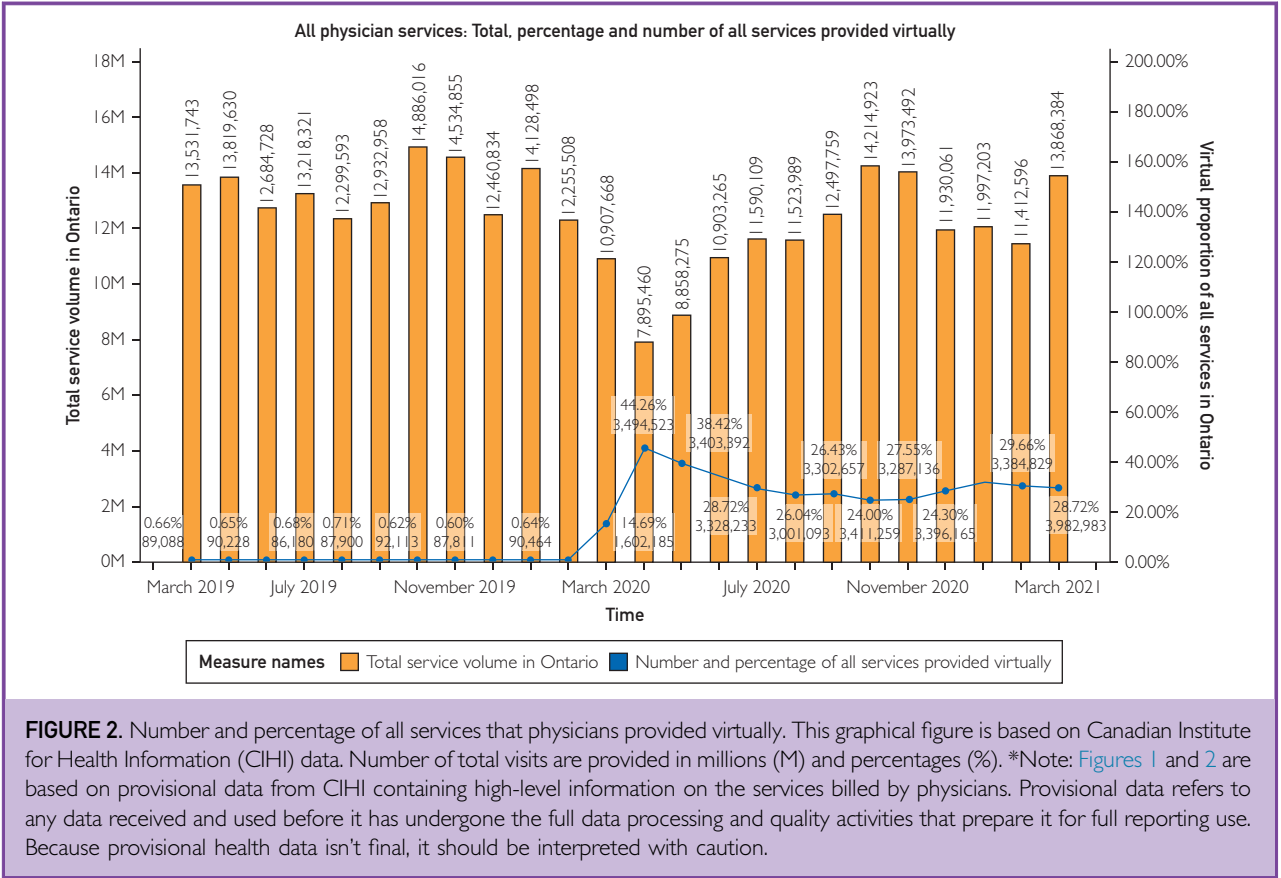
virtually for April 2019–March 2021 (both figures use provisional data from the Canadian Institute for Health Information; CIHI).<sup>26,27</sup> Total visits dropped drastically with the pandemic's onset. The percent of all services that were virtual went from 0.65% in 2019 to 44% in April 2020; in family medicine, the percent of visits that were virtual increased from 0.5% to 50% in April 2020.<sup>26</sup> Other studies suggest even higher rates of VC in Ontario, with Bhatia et al<sup>17</sup> reporting that 70% of all ambulatory visits in 2nd quarter of 2020 were virtual, and Glazier et al.<sup>28</sup> similarly reporting 71% of all visits. All data point to a drastic, sudden increase in VC. The trend seen in Ontario is similar to that reported elsewhere, for example in 3 geographically dispersed health care systems in the United States, all operating under the umbrella of a large health care consortium.<sup>29</sup>

#### Drivers and Enablers of the Shift

A key driver of the sudden shift was the Ontario government's mandated pandemic

lockdowns. Stay-at-home orders were implemented, and the province advised physicians to implement a system for virtual or telephone consultations when and where possible.<sup>30</sup> In summer and fall 2020, the province was largely open because of low COVID case counts, and by fall the total number of services increased to about the same level as the year before (Figure 2). Total visits decreased again when movement restrictions were reinstated in much of the province, including lockdowns in densely populated areas, during November 2020–March 2021. The percent of virtual visits in family medicine declined from the initial peak in April 2020 but never dipped below 29%. In November 2020–December 2020, when restrictions were reinstated, the percent of virtual visits increased again to 35% in family medicine and 27% in all services. In summary, total services decreased and percent virtual increased when COVID-19 public health restrictions became more restrictive.

A key enabler of the sudden shift was MOH's decision to allow providers to provide

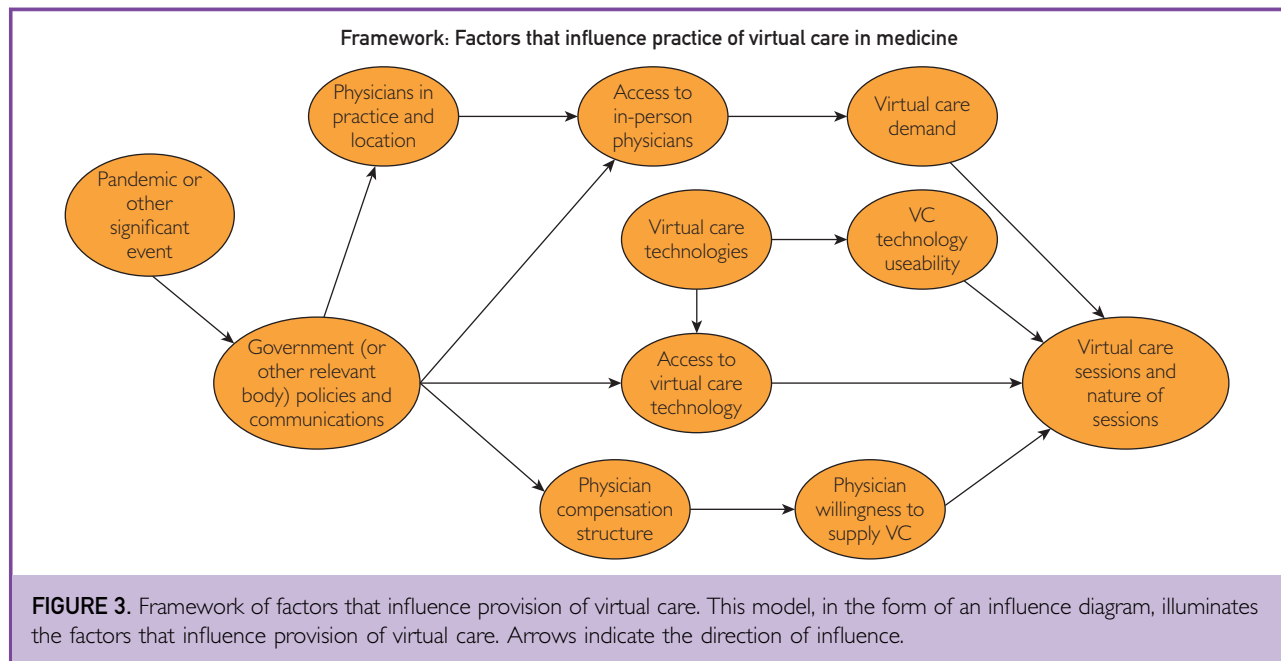


care to OHIP-insured patients by telephone or video. No further information or guidance was given on the technologies to be used, although video technology was no longer limited to the few approved by OTN. An Ontario MOH cyber security advisory in April 2020 advised to consider not using Zoom to host meetings that are expected to involve sensitive information,<sup>31</sup> but there were no directives to use or not use any technology, including Zoom. Physicians no longer had to be registered with OTN to provide VC. An early study found almost all (91.2%) VC in Ontario during the pandemic was provided by telephone, and 8.8% was provided by video visits. The authors suggested this is because the telephone is commonly available and easy to use.<sup>17</sup>

A second enabler was the introduction of temporary billing codes (K-codes), allowing physicians to bill for providing VC using telephone or video.<sup>32</sup> These were devised so that compensation for VC would be equivalent to

compensation for in-person care, with the fee for a minor assessment (less than 10 minutes) set at \$23.75.<sup>32</sup> This was a considerable change from pre-COVID, when physicians could only bill for VC for rostered patients and only if they registered with OTN and used approved technologies. K-code use was extended on April 9, 2021, July 20, 2021, and September 9, 2022.<sup>33-35</sup>

Before the pandemic, there were a few private-pay virtual platforms in Canada, including in Ontario.<sup>36</sup> A third enabler of the VC shift was that doctors providing VC using such non-OTN virtual platforms could now bill OHIP using K-codes. For example, TELUS Health advertised that OHIP would pay for VC for those in the province with an OHIP card, that individuals without a card could self-pay \$70, and that those who accessed the service through an employer would be covered by that employer.<sup>37</sup> Several virtual platforms were introduced in Ontario during the pandemic.



### A New VC Framework, December 2022

Effective December 1, 2022, a new VC funding framework was implemented, allowing physicians to bill for video visits provided by an Ontario health verified virtual visit solution or by telephone.<sup>34,38</sup> Ontario currently has ~40 verified solutions that meet all mandatory requirements and 14 validated solutions that have passed scenario-based testing.<sup>39</sup> The technologies include, eg, Zoom for Health Care, which requires a small fee from physicians, while patients can access it for free.<sup>40</sup> The framework distinguishes comprehensive and limited VC services<sup>18</sup>. Comprehensive video visits can be billed at 100%, and telephone visits at 85% of the in-person fee, with some telephone care billed at 95%. This applies to enrolled patients who have been seen in-person, used a list of predefined services, or had a video consultation within the previous 24 months.<sup>38</sup> Limited VC services apply for walk-in patients or those who do not meet the criteria; fees for limited VC are \$20 for a video visit and \$15 for a telephone call. The changes reflect the emphasis placed on a continuing physician-patient relationship, showcasing VC as now readily available after this relationship has been established.

### A Model of Influences on VC Provision

Figure 3 provides a model, abstracted from our case study, in the form of an influence diagram.<sup>41</sup> It shows the factors that influence the provision of VC, highlighting the important role that policymakers play in the provision of VC within a system (in Canada this largely means P and T governments; in the United States this includes various levels of government but also insurers and owners of health networks). Policy makers can influence the numbers and locations of providers, communicate about the value of in-person or VC, determine provider compensation, and allow or deny access to technologies. Physician willingness to provide VC is influenced by compensation structure and their perceptions of virtual and in-person care (beyond the scope of this case study). Patient demand for VC is influenced by access to in-person providers and their perceptions of VC (also beyond scope). The provision of VC is influenced by physician willingness to supply, patient demand, and availability and useability of VC technology.

### CONCLUSION

The VC landscape in Ontario and elsewhere looked very different during the COVID-19



pandemic compared with the VC landscape pre-pandemic. The VC landscape in Ontario during the pandemic also looked very different from the vision put forth in Ontario's digital first for health strategy in late 2019. A contribution of our work, derived from this case study, is a visual model of the policy and technology factors that influence the provision of VC in a health care system.

The December 2022 framework reflects a return to the vision and direction set in 2019 before the pandemic. Some of the changes that took place during the pandemic are encapsulated in the new VC funding framework, for example, allowing telephone care; yet policies clearly incentivize against that and encourage video consults via approved technologies. Ontario continues to move forward in the direction of Ontario health teams and value-based health care, where video VC is expected to be implemented to varying degrees long-term as integration across professions and patient health care experience and outcomes are prioritized.<sup>23,42</sup>

The question of whether the measures that led to a considerable shift to VC during the pandemic will stay in place post-pandemic, seems, in Ontario, to be answered with 'not really.' Applying our model, we predict that the changes enacted in December 2022 are likely to lead to less VC in the province, particularly for walk-in patients. This is because physician compensation for video or telephone care for patients not enrolled with a physician (ie, walk-in patients) is less than in-person care compensation and less than compensation for video or telephone care provided to enrolled patients who have been seen by their family physician in the last 2 years. In fact, there are recent reports that virtual walk-in clinics have been greatly curtailed because of these changes.<sup>43</sup> The December policy changes might particularly impact access to VC for the estimated 2.2-4.6 million in Ontario to not have a family physician.<sup>44,45</sup> Even for enrolled patients, doctors are now compensated less for telephone care than for video or in-person care, although they have easier access to telephones than to the various approved video technologies that they and their patients must acquire and learn to use. We predict the Ontario VC policy changes

will reduce VC for enrolled patients, and even more so for walk-in patients.

This framework can serve to guide research to understand the provision of VC in other systems. Our study is limited by limited information on VC historically in Ontario and by lack of data to answer the question of current level of VC services because the new framework was just implemented in December 2022. Our case study and predictions present interesting questions and some hypotheses for future research.

## POTENTIAL COMPETING INTERESTS

The authors report no conflict of interest.

**Abbreviations and Acronyms:** MOH, Ministry of Health; OHIP, Ontario Health Insurance Plan, which reimburses physicians for care insured by the province; OTN, Ontario Telemedicine Network; P and Ts, provinces and territories; VC, virtual care

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