CADTH | COVID-19 PANDEMIC

COVID-19 CADTH POLICY INSIGHTS

Enablers for Virtual Visits

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To produce this report, CADTH used a modified approach to the selection, appraisal, and synthesis of the evidence to meet decision-making needs during the COVID-19 pandemic. Care has been taken to ensure the information is accurate and complete, but it should be noted that international scientific evidence about COVID-19 is changing and growing rapidly.

Introduction

The emergence of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and the novel coronavirus disease (COVID-19) it causes has accelerated a transformational shift in health care delivery toward the adoption of technology solutions in an effort to reduce the further spread and transmission of the virus. Among these solutions is the utilization of virtual visits as a way to triage, evaluate and care for patients in the delivery of acute, chronic, primary, and specialty care, while minimizing the face-to-face interaction between patients and health care providers.

Virtual visits, are defined as "an electronic exchange via videoconferencing, secure messaging, or audio and digital tools, where one or more health care provider delivers health care services to a patient."[1] In some jurisdictions, virtual visits may be a component of existing telehealth and telemedicine services. Generally speaking, the utilization of virtual tools in health care is not a new form of care delivery in Canada. Telehealth programs that use electronic information to support long-distance clinical health care have existed since the 1970s. Traditionally, these programs were aimed at making health care more accessible to those in rural and remote parts of Canada. However, since then, their adoption in Canada's public health care system has been slow and fragmented because of factors such as provincial and territorial licensing requirements, inconsistent billing codes, practice limits, and privacy and security concerns.[2,3] Although COVID-19 has accelerated the use of virtual visits, these concerns — among others — remain and require further attention to ensure the appropriate integration of virtual visits into our health care system.

Policy Issue

The COVID-19 pandemic has forced the widespread use of virtual visits, re-establishing routine health care and demonstrating that care can be delivered effectively through virtual means. As the risk of transmission and exposure to the virus remain, and as patient demand for virtual access to health care providers is unlikely to abate, the health system must consider mechanisms to best incorporate virtual visits as a regular component of health care delivery, over the immediate term and beyond. Based on these changing health care dynamics, decision-makers are interested in understanding the enablers needed to continue to offer virtual visits effectively as a standard form of health care delivery in Canada.

While virtual visits can be provided using a variety of modalities (e.g., email, phone, videoconferencing, text messaging, existing telehealth/telemedicine sites), this document provides an analysis of considerations related to the implementation of synchronous (audio- and videoconferencing) and asynchronous (secure messaging) virtual visits. This analysis has five components: first, an understanding of the use of virtual visits in Canada within the COVID-19 context; second, summaries of key policy decisions around the utilization of virtual visits during COVID-19; third, a discussion of the enablers of virtual visits drawn from a review of relevant peer-reviewed and grey literature reports; fourth, further reflections on the utilization of virtual visits including new clinical challenges and the role of private virtual clinics; and fifth, the role of recent and emerging technologies.

Virtual Visits in the COVID-19 Context

Since the onset of COVID-19, there has been a significant uptake of virtual visits — with an increase of 22% in the use of telephones and a slight increase of 4% in the use of videoconferencing — to seek care from one's health care professional.[4] Data on the utilization of secure messaging was unavailable. The increase in audio- and videoconferencing use, however, suggests that both patients and health professionals recognize the importance of distancing and the benefit of virtual visits in slowing the transmission of COVID-19.

The utilization of virtual visits during a global health emergency has also provided several financial, environmental, and cultural benefits for patients, health professionals, and the health care system as a whole. From a patient's perspective, virtual visits have reduced patient burden by improving access, convenience, and time needed to travel to and from medical appointments. Given the nature of some patient's illnesses and the need for patients to stay in their preferred location without travelling, virtual visits have also made receiving educational and management information for patients with chronic diseases more accessible.[5] In addition, given the restrictions around accompaniment during in-person visits to medical facilities, virtual visits have also facilitated involvement of patients' caregivers.[6-8]

Physicians using virtual visits have reported improved care efficiency by seeing more patients per day and by recording fewer missed appointments.[9] They have also cited a reduction in the number of in-person visits, emergency department visits, and acute care following the virtual visit.[10,11]

Virtual visits have also provided significant benefits to the health system such as conserving supplies (personal protective equipment) and hospital beds at a time when global supply chains and space within care facilities were facing significant shortages.[7,12] Virtual visits have also improved access to mental health supports for patients during the pandemic.[13] A potential reduction in carbon dioxide (CO_2) emissions has also been projected, as virtual visits have reduced the number of patients travelling by vehicle to see their primary and specialty care providers.[14] While larger economic evaluations on the impact of virtual visits on Canada's public health care system during COVID-19 are limited, previous studies assessing the economic impact of telehealth services more broadly emphasize benefits to the health system such as cost avoidance due to lower health system utilization, savings accrued in reduced provincial and federally subsidized travel, a decrease in unnecessary transfers, and increased productivity of clinicians to provide more consultations.[15-17]

Modalities Used to Support Virtual Visits During COVID-19

Across Canadian jurisdictions, virtual visits are being delivered using a variation of three types of modalities such as direct audio and videoconferencing, as well as secure messaging. Audio or videoconferencing "involves a real-time encounter between one or more health care providers and a patient. The patient can be at home or another chosen location or at a patient host site [i.e., telehealth or telemedicine designated sites] that may be supported by a health care professional."[1] Secure messaging is "an asynchronous, written clinical encounter, typically without any visual input (except for optional image attachments), accessible by patients via web browser or mobile application. Secure messaging provides security safeguards, like patient authentication, that are not available with regular email and other unsecure forms of communication."[1] Some health professionals have also utilized software-based commercial solutions like Zoom for Healthcare, REACTS, Vivify Pathways, and Skype for Business to supplement these three modalities.[18]

Interestingly, the use of smartphone video conferencing between practitioners and patients was first piloted in 2013 in just one jurisdiction in Canada, with an uptake among provinces such as Alberta, Ontario, Quebec, and British Columbia by 2015.[19] Hence, the pandemic represents a dramatic improvement in the health care system's progress toward the delivery of virtual care.

Key Federal, Provincial, and Territorial Policy Responses to the Utilization of Virtual Visits

The utilization of virtual visits has been noted as a key priority by federal, provincial, and territorial (F/P/T) governments. The federal government has committed $240.5 million in the 2020–2021 fiscal year to the provinces and territories to support the COVID-19 response.[20] A portion of these funds are being allocated toward virtual care efforts, including secure messaging and file transfer, secure video conferencing, remote monitoring, and back-end supports, as well as data and electronic medical record interoperability.[20]

In addition, almost all provincial and territorial governments, as well as medical associations, have adapted physician fee schedules to account for the increased demand for virtual care services.[21] These codes have been developed to meet temporary needs for the duration of the pandemic. However, the province of Alberta has recently announced that its virtual care codes will become a permanent feature of its fee schedule.[22] Although other provinces have not yet announced similar plans, jurisdictions should evaluate the impact of these temporary fee schedules and determine how these can be further refined to support the utilization of virtual visits after the pandemic is declared over.

Although established indirectly in response to COVID-19, the work of Canada's Virtual Care Task Force focused on increasing the adoption of virtual care is ongoing. The task force consists of several national organizations and associations with the aim of addressing concerns focused on enabling digital interoperability to support virtual care, reduce barriers to virtual care created by differential licensing requirements for physicians across Canada, modernize payment models to increase virtual care uptake, and incorporate virtual care into medical education and continuing professional development.[3]

Enablers for Virtual Visits

There were many common enablers identified in the literature to scale virtual visits that can be categorized under the following key factors: legislative and regulatory modernization, technology adoption, and improved clinician and patient experience.

Legislative and Regulatory Modernization

Physician Remuneration

Traditionally, the lack of appropriate physician remuneration for virtual care services has been blamed for its slow uptake in Canada's health system.[23-25] While all provinces and territories use the fee-for-service payment model to reimburse physicians for virtual care services, studies on physician perspectives and expert analysis of Canada's fee-for-service model suggest several limitations. For example, many reports highlight that the fee-for-service model does not appropriately account for the time and effort involved in conducting virtual visits. This includes time on tasks such as patient onboarding, administrative work (billing, documentation), the modality of virtual care used (telephone, video, secure

messaging), the time to complete a visit, or the time required to deal with any technical issues that may arise when using the technology.[26,27] These concerns were also expressed by physicians in the 2018 Canada Health Infoway survey, with 28% of Canadian family physicians and 23% of specialists feeling that an alternative payment model would support them in integrating electronic communications in their practice.[28] In countries where fee-for-service is the dominant reimbursement model for physicians, a number of studies identified that uptake of telehealth applications was higher among non-physicians, including allied health professionals, than physicians.[29,30] This may be a result of fee-for-service delivery, or it may reflect that certain clinical applications for which telehealth may be used by allied health professionals (e.g., home rehabilitation) are viewed as more conducive to virtual visits. The adoption of value-based payment methodologies such as capitation, bundled payments salary, or blended models are recognized with having the potential to achieve savings in the total cost of care by rewarding the efficiency of remote care delivery and improved outcomes across populations.[26,31,32]

In addition, prior to the pandemic, many provinces and territories had billing limits on the number of virtual visits a primary care provider or specialist could conduct in a particular time frame. While these limits were removed to manage demand for virtual visits during COVID-19, decision-makers may be required to determine whether billing limits will be reintroduced as the severity of the pandemic decreases.

Lastly, although interprovincial reciprocal billing agreements enable the reimbursement of out-of-province physicians' services, it is uncertain how this system will adapt to the increased utilization of virtual visits.

Licensing Requirements

Variations in existing provincial and territorial licensing requirements have been identified in several reports to be a significant barrier to the widespread adoption of virtual visits.[31,33,34] CADTH's recent policy brief on *Inter-jurisdictional Medical Licensing to Support Telemedicine*[35] summarizes various models of inter-jurisdictional licensing that can be applicable to the expansion of not just telemedicine, but also other models of virtual care delivery such as virtual visits. The policy brief also discusses considerations associated with the implementation of inter-jurisdictional licensing such as the increasing role of the private sector, regulatory oversight, credentialing, reimbursement and fee codes, physician maldistribution, and fragmentation of patient health information.

Information Privacy and Security

A great deal of literature relating to the implementation of virtual visits, including videoconferencing and audio and secure messaging, touches on information privacy and security concerns.[30,36-38] Some of these concerns related to security in the transmission of personal information or video and the potential that information via secure messaging or video being transmitted could be intercepted, thereby resulting in a privacy breach. Other concerns related to the potential for a lack of privacy based on the setting from which a patient or health professional chooses to join a virtual visit if that setting is outside of a traditional telehealth/telemedicine suite. In particular, one report found that patients in a lower socioeconomic status faced greater privacy challenges because of crowded living spaces.[39] In addition, health professionals may also be concerned and face discomfort when discussing sensitive issues, asking patients to provide on-camera views of certain body parts as part of their physical examination, or obtaining informed consent from patients if they are not sure who else may be in the room with the patient and hearing the

conversation. Health professionals may also be concerned with patients choosing to join a visit from a public space (e.g., shared workspace or coffee shop) due to the lack of privacy. Patients may share similar concerns about the privacy of the environment the physician is in during a virtual visit.

The existing evidence suggest that although there are strategies to safeguard privacy and security of information including device authentication and bank-grade and two-way encryption, acknowledging and engaging with the anxieties health professional and patients may feel is key to the successful utilization of virtual visits.[38] Although most provincial and territorial medical colleges have standards in place that put responsibility for ensuring privacy, security, and the appropriateness of the physical setting of care on physicians, these standards could likely provide further clarity for situations where traditional telehealth suites are not being used. Such standards could also be particularly helpful in understanding whether platforms like Skype or Microsoft Teams are compliant with provincial and territorial privacy legislations. Patients could also be further educated about the appropriate use of this technology, how to protect their personal health information, and the potential risks they may encounter depending on from where (public or private setting) they choose to join the virtual visit.

Technology Adoption

Interoperability and Standardization

While a variety of virtual care solutions are currently being used across jurisdictions in Canada, to conduct virtual visits, health care decision-makers must reflect on factors including data storage and accessibility, and impact on clinical workflows to ensure the standardization of care. This may involve integrating software solutions used for virtual visits (e.g., Zoom for Health, Microsoft Teams, Skype for Business) into electronic health records and clinical information systems. From a clinical perspective, this integration is essential in allowing physicians easy access to a patient's health information and capturing biometric data, ultimately improving outcomes and provider workflow. Some studies of interoperability among telehealth solutions point to benefits such as a reduction in the duplication of effort, scalability of the platform across different clinical services, and enhancement of information and data sharing across the health system.[40,41] Whereas health systems look for solutions related to electronic health record-integration and user experience with virtual visit platforms, an establishment of a certified vendor list of software and hardware that are reliable and possess compatible privacy standards would be helpful to support decision-making and procurement efforts.[42]

Patient Capacity to Use Technology

Existing evidence notes that using simple and dependable hardware and software applications that are fit-for-purpose can improve user experience of telehealth consultations.[43] Although anecdotal evidence often points to lower levels of digital literacy in older adults, who are often a significant part of the clinical populations of interest when considering telehealth interventions, one UK study noted that few interviewees cited low digital literacy and digital access as a barrier to virtual visits.[43] In addition, an Australian study on tele-rehabilitation identified that, for patients, the ability to use familiar, user-friendly and mobile-ready hardware (e.g., iPads) along with software applications that came pre-installed enhanced acceptability and adherence.[44] However, the use of these technologies may raise equity concerns, as populations without a telephone or access to computer,

tablet, or webcam, and limited broadband connection, will have difficulty accessing this model of care delivery.

Improved Clinician and Patient Experience

Continuity of Care

All professional practice guidelines from medical regulators in Canada stress the importance of care continuity in the use of virtual care options like telehealth and telemedicine. At the heart of these policies is the aim of ensuring a continuity of care is maintained to avoid potential negative consequences from delayed preventive, chronic, or routine care. While virtual visits help preserve patient-provider relationship at times when an in-person visit is not practical or feasible, several studies note that the key to improved access and patient and physician satisfaction is with a known provider.[11,45] This is becoming increasingly challenging with the availability of private virtual care options like Maple and Akira. Enhancing the interoperability of patient health information and data sharing becomes particularly important to ensure a continuity of care while using various virtual care modalities.

Clinician Acceptance of Virtual Visits

Many studies identified clinician acceptance of the technology being used to deliver care as a key factor in sustainability.[46-48] A number of cultural factors — such as good relationships between providers, positive beliefs about the technology being used, and the presence of champions to drive investments and promote the technology — were identified as influencing clinician acceptance. Additionally, health system factors such as adequate resourcing, clinical workforce availability, and having adequate technology in place were also identified as factors influencing clinician acceptance. While COVID-19 did not leave much room for clinicians to deliberate the usage of virtual visits, these considerations may be essential to ensuring the long-term sustainability of virtual visits as a permanent component of Canada's health care system.

Rural and Northern Broadband

Although there has been substantial investment in expanding rural broadband access through the federal government's Universal Broadband Fund,[49] the cost of this technology remains a barrier, even in communities where it is available. In communities that are served only by cellular or satellite internet, residents may be on a pay-per-use plan or have relatively low monthly data usage limits, which may be taxed by the use of high-quality videoconferencing that is both bandwidth and data usage-intensive. In cases where individuals cannot afford or do not have access to reliable high-speed internet service, subsidies or alternate arrangements such as providing the patient with a compatible mobile device could be considered.

Further Reflections on the Utilization of Virtual Visits

New Clinical Challenges

The enhanced used of virtual visits has introduced a new set of clinical challenges for physicians. Several reports identify the limitations of virtual visits for physical examinations and diagnostics.[9,34,37] For example, one study found that conducting a virtual musculoskeletal examination was largely limited to inspection and range of motion.[50] Other reports identified that appropriate clinical assessments over virtual visits may include

medication review and management, counselling about diet and exercise, and evaluation of clinical status and management.[8] Where appropriate, existing and emerging diagnostic technologies and wearables may help fill in gaps of conducting an assessment over virtual visits.

In addition, while virtual visits provide greater medical access for the people of Canada, it also increases ad hoc consults between patients and clinicians with no prior relationship. This presents a risk of misdiagnosis and the prescribing of incorrect medications, especially for those patients who do not have a family doctor and rely solely on services obtained from walk-in clinics.[51] Whereas some provincial guidelines[1] on adopting virtual visits ask clinicians to consider whether there is a pre-existing patient-provider relationship prior to beginning the virtual visit, the development of a list of suitable conditions and services that can be provided through virtual visits could help further mitigate risk among patients and health care providers.

Increased Prevalence of Private Virtual Clinics

In reviewing the grey literature, several private, for-profit start-ups that provide virtual visits for diagnosis, prescriptions, and doctor's notes were identified. For example, Maple provides online consultations, as well as services including prescriptions and sick notes at a pay-per-visit fee of $49 on weekdays, $79 on weekends and holidays, and a subscription-based option (CA$30 per month for an unlimited personal membership, or $50 monthly for an unlimited family membership).[52] At the height of the pandemic, Maple experienced a great demand for its services, resulting in a significant increase in their wait times from 90-second waits to 20 minutes — still less than some users have reported for Telehealth Ontario.[53] These private offerings are now also available for specialty care. A Quebec-based service DermaGO allows patients to email photographs of their skin problem and receive a diagnosis and prescription from a dermatologist within 72 hours for $179.99 and within 24 hours for $249.99.[54]

The increased presence of these private virtual clinics is indicative of the demand for this type of service among those with the ability to pay out-of-pocket (or, in limited cases, with employer-paid insurance that covers this service). However, there has to date been no systematic assessment of data coming from the use of these technologies that could demonstrate their effect and impact on the Canadian health system. In addition, to ensure a unified and consistent approach to the delivery of health care in Canada, health care decision-makers may need to assess how these technologies can be integrated into clinical workflows and electronic health records.

Looking Ahead: Role of Recent and Emerging Technologies

In some provinces and territories, existing digital health tools such as eConsults between primary care providers and specialists, and remote patient monitoring, can be used to supplement virtual visits. While the evidence regarding the integration of eConsults to supplement virtual visits is limited, there remains significant potential to maximize care coordination through the utilization of such "store and forward" technologies. There is also concern that the broader health care system may not be adequately prepared for the increased utilization of these technologies. For example, although physician billing models for telehealth generally account for store and forward interactions, they do not account for the monitoring of remote data collected on a continuous basis. In addition, there remains limited evidence around the use of wearable devices and how these can be integrated into clinical management provided through virtual visits.[55,56] These privately purchased

technologies may also drive health service utilization in the public system. For example, increased vigilance on the part of family members and carers who monitor data from in-home sensors may result in more virtual visits to clinicians or the emergency department, not all of which may be appropriate.

Nonetheless, the progressive adoption of virtual visits within Canada has brought about a significant transformation in the way health care is delivered and the means in which patients and health care providers interact with one another. At the core of this transformation is a need to better understand and improve the regulatory, clinical, and technological barriers that may limit the scalability of virtual visits across the health care continuum and consequently for diverse patient populations. This represents a momentous challenge and opportunity for Canadian decision-makers to effectively integrate virtual visits as a standardized form of care delivery within Canada's health care ecosystem.

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Appendix A: Literature Search

Methodology Used for Literature Search

To explore the enablers of, and barriers to, virtual visits, a targeted literature search was conducted by a CADTH information specialist in MEDLINE, Scopus, and the Cochrane Library, as well as a focused internet search. The database search was limited to English-language documents published between the last five years (2014 to 2020). The grey literature search was limited to English-language documents published between 2014 and 2020.

Challenges in Literature Search

Terminology presented a challenge, as the term "virtual visits" is used to refer to a variety of interactions using information and communication technologies, ranging from telephone services and videoconferencing through to remote monitoring via wearable technologies and remote presence robotics. Even within remote videoconferencing technologies, there are many terms with a variety of intended purposes, including virtual visits and eConsults. For example, some authors use eConsults to refer to the interaction between a patient and a physician via videoconferencing, while others use the term to refer exclusively to a physician consulting with a specialist or a group of specialists.

As the literature relating to the use of virtual visits during the COVID-19 pandemic is recent, there is limited evidence available on patient satisfaction and the quality of services provided during this public health emergency. The current evidence base also lacks clarity in terms of how patient and clinician satisfaction with the use of virtual visits is being defined and measured.

There is also limited information on the application and outcomes of virtual visits in various models of care such as primary care settings.