VIRTUAL CARE
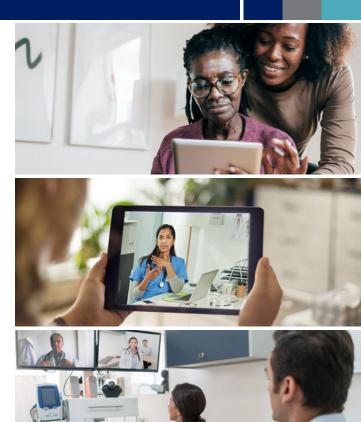
RECOMMENDATIONS FOR SCALING UP VIRTUAL MEDICAL SERVICES

REPORT OF THE VIRTUAL CARE TASK FORCE

FEBRUARY 2020

EXECUTIVE SUMMARY

The Virtual Care Task Force (VCTF) was created by the Canadian Medical Association, the College of Family Physicians of Canada and the Royal College of Physicians and Surgeons of Canada. As these organizations represent or speak for physicians, the VCTF focused on physician-related issues, but it hopes its recommendations will be relevant to all members of health care teams and that ultimately the recommendations will benefit patients. The report was developed in partnership with representatives of patients, families and caregivers, who all provided insight on the basis of their lived experiences.

The VCTF took a pan-Canadian approach to the issue of virtual care and strongly believes national leadership is needed on this issue.

This report is intended to outline the actions required to promote excellence in virtual care in Canada and set the stage for broader discussion and more detailed efforts.

WHAT IS VIRTUAL CARE?

In this report, virtual care is defined as "any interaction between patients and/or members of their circle of care, occurring remotely, using any forms of communication or information technologies, with the aim of facilitating or maximizing the quality and effectiveness of patient care."[1]

THE VIRTUAL CARE TASK FORCE MANDATE

The mandate of the VCTF was to develop strategies and recommendations for promoting the delivery of publicly insured medical services — by the Canadian medical community — through virtual means.

THE CURRENT STATE OF VIRTUAL CARE IN CANADA

Technologies to deliver health care virtually, such as telemedicine/telehealth, have been around for decades. Work has also been underway for at least three decades to implement virtual care, but most of this work has been undertaken at the provincial/territorial level in the absence of a national framework.

While the majority of Canadian physicians' offices and health care facilities now use some form of digital record keeping, and a majority of households have Internet access, there is a long way to go in terms of the use of digital technology to provide publicly insured, virtual care.

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[1] Shaw J, Jamieson T, Agarwal P, et al. Virtual care policy recommendations for patient-centred primary care: findings of a consensus policy dialogue using a nominal group technique. *J Telemed Telecare* 2018;24(9):608-15.

Recently, there has been an explosion of interest in pursuing digital health strategies. The main drivers of this interest are the ongoing challenge of timely and convenient access to health care, and consumer/patient demand. Pressures to improve access, make care more equitable and reduce costs have added to the focus on virtual care.

It is essential that physicians providing publicly insured medical services in Canada are enabled to keep pace. Currently, the fact that there is a limited variety of physician payment models in Canada means that virtual care is growing primarily in the private non-insured sector, outside provincial medical care plans. This is inconsistent with the expectations of Canadians and the principles of the *Canada Health Act*.

THE VCTF CREATED FOUR WORKING GROUPS TO ADDRESS SOME OF THE KEY BARRIERS TO VIRTUAL CARE:

1. INTEROPERABILITY AND GOVERNANCE

Digital interoperability across the health care system is essential to support comprehensive virtual care. This working group identified the barriers to the exchange of health information and suggested solutions. A broad definition of interoperability was adopted, which includes the ability of technical devices to exchange information as well as legislative, policy and workflow factors that support interoperability.

2. LICENSURE AND QUALITY OF CARE

The mandate of this working group was to identify the barriers to virtual care created by differential licensing requirements for physicians, across Canada, and to suggest solutions. The group also looked at the quality of care issues associated with the delivery of virtual care, both as a supplement to in-person care and on a stand-alone basis. This group supports simplified registration and licensure processes that would enable qualified physicians to provide virtual care across provincial and territorial boundaries. Principles and recommendations also reinforce the requirement that virtual care must meet the standards required for high-quality care.

3. PAYMENT MODELS

Physician payment for virtual care services is a major barrier for expanding the use of digital tools. This working group provided an overview of payment models for the delivery of virtual care and made recommendations for how these can be enhanced to increase the uptake of virtual care in Canada.

4. MEDICAL EDUCATION

This working group dealt with the issue of how to train medical students, residents and practising physicians to use virtual tools and platforms appropriately to deliver care. The working group noted that to fully realize the benefits of virtual care within the health care system, virtual care must be incorporated into the medical curriculum and continuing professional development.

Principles and recommendations from each of the working groups form the basis of this report.

KEY VCTF RECOMMENDATIONS

- Develop national standards for patient health information access.

- Support the efforts of the Federation of Medical Regulatory Authorities of Canada to simplify the registration and licensure processes for qualified physicians to provide virtual care across provincial and territorial boundaries.

- Encourage provincial and territorial governments and provincial and territorial medical associations (PTMAs) to develop fee schedules that are revenue neutral between in-person and virtual encounters.

- Engage the CanMEDS consortium in incorporating and updating virtual care competencies for undergraduate, postgraduate and continuing professional development (CPD) learners.

- Develop a standardized pan-Canadian lexicon for virtual care.

CONCLUSION

While consumer demand and the drive to improve access will probably make virtual care more common in the Canadian health care system, a pan-Canadian framework is needed to establish excellence in virtual care that upholds quality health service and supports continuity of care among care teams. Without such a framework, there is a risk that a series of fragmented virtual care services will be established that detract from continuity and potentially lead to quality of care issues. The principles and recommendations outlined in this report detail the high-level components of a pan-Canadian framework.

FOREWORD

Recognizing the potential for virtual care to transform the way care is delivered to patients in Canada and the way physicians work, the Canadian Medical Association, Royal College of Physicians and Surgeons of Canada and College of Family Physicians of Canada earlier this year constituted a task force to produce a report on the issue.

The Virtual Care Task Force was asked to develop principles and recommendations for promoting a pan-Canadian approach to the delivery of publicly insured medical services by Canadian physicians through virtual means.

As co-chairs of the Virtual Care Task Force we would like to commend the task force and working group members for their efforts and for this final report, which has been endorsed by all three sponsoring associations.

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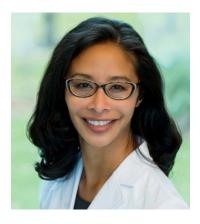
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Canadian Medical Association

INTRODUCTION

"We have to change who we are as medical professionals to work in a digital environment, because we largely are practising analog health care in a digital world."

Dr. Ewan Affleck
Co-Chair, Virtual Care Task Force

"As we think about the possibilities of virtual care, we need to collaborate with persons who have lived experience to ensure 'virtual care' technologies are supportive of patient experience as well as outcomes."

Julie Drury
Patient representative, Virtual Care Task Force

The Virtual Care Task Force (VCTF) was created by the Canadian Medical Association, the College of Family Physicians of Canada and the Royal College of Physicians and Surgeons of Canada in March 2019 to develop a strategy to promote publicly insured medical services by the Canadian health community through virtual means. The sum of the principles and recommendations found in the report can serve as a framework for a pan-Canadian approach to the virtualization of health service.

A fundamental aim of the work of the VCTF was to make sure that patient, family and caregiver expectations, experience and equity as well as patient safety are a priority in the development of an environment that supports the delivery of virtual care.

While the majority of Canadian physicians' offices and health care facilities are now using some form of electronic record keeping and a majority of households have Internet access, there remains in Canada a large deficit in the ability to use electronic means to exchange health information across delivery points and to provide publicly insured care.

In order to fulfill its mandate, the VCTF identified opportunities:

- to alleviate barriers to providing virtual care to patients who would otherwise be seen in-person both within and across provincial/territorial boundaries;
- to facilitate legislation, policy and standards to allow physicians to deliver care across provincial/territorial boundaries by virtual means;
- to enable interoperability/connectivity of health information from all delivery points in the health system across Canada; and
- for educational strategies to equip learners and support practising physicians in providing care through virtual means.

The VCTF was co-chaired by representatives from each of the Royal College of Physicians and Surgeons of Canada, the College of Family Physicians of Canada and the Canadian Medical Association. Membership on the VCTF (listed in Appendix I) consisted of representatives from the Canadian Medical Forum, representatives from provincial and territorial medical associations (PTMAs) and members of the public. Patient, family or caregiver representatives were involved in all of the working groups and in all discussions of the VCTF as a whole.

For the purposes of this report, the definition of virtual care used was an accepted and inclusive definition developed by Women's College Hospital in Toronto:

"Virtual care has been *defined* as any interaction between patients and/or members of their circle of care, occurring remotely, using any forms of communication or information technologies with the aim of facilitating or maximizing the quality and effectiveness of patient care."[1]

In this definition, "remotely" means any care that is not delivered in-person. "Circle of care" means the group of health care providers and/or patient, family or caregiver members treating a patient, who need information to provide that care.

Telemedicine when used in this document refers to "a medical service provided remotely via information and communication technology," This is the definition used by the Federation of Medical Regulatory Authorities of Canada.[2]

The VCTF acknowledges the recent interest in the potential for various forms of artificial intelligence (AI) to affect health care and the practice of medicine. However, AI is considered beyond the scope of this report.

The VCTF established that to be effective, virtual care must uphold, and not detract from, the principles of quality care as defined by the US Institute of Medicine. These principles note that quality health care must be safe, effective, patient-centred, timely, efficient and equitable.[3] Properties of quality virtual care must include patient engagement, interprofessional collaboration, coordination of care and compassionate care.

Rapid expansion of the use of electronic medical records (EMRs) and the growth of digital health technology have raised concerns about their role in the growing incidence of physician burnout. The VCTF believes these concerns are real, but can be mitigated by a considered approach to health information technology design and deployment that supports user-friendly workflow and by ensuring requirements to deliver virtual care do not place additional burdens on the medical profession.

The VCTF acknowledges that commercial interests are playing a large role in advancing virtual care in Canada and elsewhere, and it cites numerous examples throughout this report. Although that corporate investment and effort are important drivers of virtual care innovation, the VCTF members note that the corporatization of health information does not always align with quality care and strongly believe virtual care is best incorporated within the publicly funded system. The relationship between health technology enterprises and the publicly funded system is complex and nuanced and must be navigated on the basis of foundational principles of quality patient care.

In order to organize its activities, the VCTF created four working groups dealing with the following areas of focus in considering the virtual delivery of care:

- Interoperability and Governance
- Licensure and Quality of Care
- Payment Models
- Medical Education

Principles and recommendations from each of the working groups form the basis of the final report of the VCTF.

BACKGROUND

"Virtual care has the power and ability to not only improve patient care — improve <u>access</u> to care — it can also make physicians' practices more efficient."

Dr. Gigi Osler
Co-Chair, Virtual Care Task Force

Technologies to deliver health care through means other than in-person contact, such as telemedicine/telehealth, have been around for decades. In the last few years there has been an explosion of interest in pursuing digital health strategies in many places.

There are two key drivers underlying this interest. The first is the ongoing challenge of timely access to health care, which is about to be compounded by aging populations and a global shortage of health care professionals. The second driver is or will be consumer/patient demand. A 2018 survey by Ipsos conducted in 27 countries found that while just 10% of respondents had used telemedicine, more than four in 10 (44%) would try it if it was available.[4] Improving access, making care more equitable, the democratization of health information and the promise of reducing costs have added to the focus on virtual care. The ubiquity of virtualized communication enabling almost all aspects of our daily lives, from shopping to banking, from socializing to education, also drives expectations for virtual care.

In 2018, the World Health Organization (WHO) adopted a resolution on digital health at its annual assembly that called on governments to assess their current and potential use of digital technologies for health.[5] Individual countries including England[6], France[7] and Australia[8] have also recently released strategy documents that focus on digital health.

HISTORY OF VIRTUAL CARE IN CANADA

Canada was an early pioneer in the development of virtual care through the work of the late Dr. Maxwell House of Memorial University of Newfoundland in the 1970s; he used telephone technology to provide virtual consultations to remote sites throughout the province.[9] Canada has since been surpassed by other countries in the uptake of virtual care. In the United States (US) the Kaiser Permanente system, which covers 12 million health plan members, is perhaps the world leader. It is funded on an essentially capitated basis through monthly premiums. It has been reported that in 2016 approximately one-half of all "touches" between patients and health care teams were virtual. The greatest use of virtual delivery was 30 million secure messages between patient and care team, followed by 6.2 million telephone appointments and almost 100,000 video visits.[10] This demonstrates the key role the telephone and secure messaging play in virtual care. Kaiser's future plans include incorporating remote monitoring into care.

By comparison, according to the *2015 Canadian Telehealth Report* (the latest available) there were 411,778 telehealth (videoconference) clinical sessions in 2014, representing just 0.15% of the 270.3 million billable services reported by the Canadian Institute for Health Information in 2015–16.[11] Telehomecare, the use of digital technology to monitor things such as blood pressure, is much less prevalent, with an estimate of just 24,000 Canadians enrolled in such programs between 2010 and 2016. The prevalence of secure messaging for virtual care in Canada was not noted. It should be noted that the Canadian figures are now higher. The Ontario Telemedicine Network (OTN) reports that more than 1 million clinical video events took place in 2018–19, but relative to the total volume of services provided by Ontario's health insurance plan the percentage would not be large.[12]

However, other initiatives in Canada are expanding access to care via telephone and secure messaging. For example, the Connect Care initiative in Alberta has just started deploying a platform that supports secure messaging and other forms of virtual care (using the same technology used by Kaiser Permanente).[13] The electronic medical record system in the Northwest Territories (NWT) also permits territory-wide secure messaging between health care team members. In addition, patient portals that allow patients institution-specific access to secure messaging, laboratory results and other elements of their own care are becoming ubiquitous.
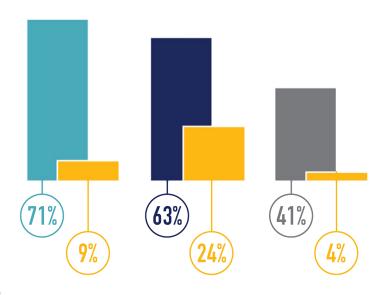
DEMAND FOR VIRTUAL CARE IN CANADA

The global drivers noted above are highly pertinent to Canada. Virtual care has the potential to mitigate part of what is expected to be a huge increase in the demand for home- and facility-based continuing care (both paid and informal unpaid) as the Canadian population ages.

Similarly, there is a gap between consumer/patient demand and availability. In a 2018 survey in Canada conducted by Ipsos for the Canadian Medical Association, fewer than one in 10 (8%) respondents reported that they had had a virtual visit/consultation. Nonetheless, they expressed considerable interest in virtual visits. Seven in ten (69%) reported that they would take the opportunity to have a virtual visit if available, and almost four in 10 (37%) indicated that they would use this method for either all or more than half of their physician visits.[14]

Recent surveys conducted by Canada Health Infoway (CHI) show a clear gap between the electronic access that patients would like to have and what physicians are currently offering. For example:

- **71%** of Canadians would like to be able to book appointments electronically but just 9% of family physicians currently offer this option;

- **63%** of Canadians would like to be able to email their health care provider but just 24% of family physicians offer this service; and

- **41%** of Canadians would like have video visits with their health care provider but just 4% of family physicians offer this option.[15,16]

These findings concerning what family physicians are offering patients are generally mirrored in findings from the 2019 CMA Physician Workforce Survey, which also shows that more than half of all family doctors and a similar number of other specialists polled currently offer none of the more interactive electronic services to patients.[17]

PRIVATE SECTOR VIRTUAL CARE SERVICES

The private sector is moving into virtual care by offering services directly to patients and to employers for a fee. For example, getmaple.ca advertises the opportunity to "chat with a doctor in your pyjamas" through online consultations, as well as services including prescriptions and sick notes. The pay-per-visit fee is $49 on weekdays and $79 on weekends and holidays. A family membership costs $50 per month and corporate plans are available also.[18]

The private offerings of virtual services are not confined to primary care. For example, a Quebec-based service started by six dermatologists allows patients to obtain consultations by emailing photographs of their skin problem and receiving a diagnosis and prescription within 72 hours for $179.99 and within 24 hours for $249.99.[19] In the area of remote monitoring, Cloud DX offers remote monitoring of blood pressure, weight and cardiac functions with access to a clinical care team on a subscription basis.[20]

Private health insurers are beginning to offer some coverage for these services. In November 2017, Great-West Life announced that it would offer the services of a virtual care company to employers in Ontario and Quebec.[21] In March 2018, Sun Life announced that it is the first Canadian insurer to offer virtual health care services to its clients across the country through the Sun Life mobile app, initially as an employee benefit through three companies.[22]

Internationally, the English National Health Service (NHS) has launched GP at hand, a service that enables patients to book appointments and have video consultations with a physician (GP) on their smartphone as well as obtain prescriptions and referrals.[23] The service is supported by Babylon, a digital health company that also launched a partnership with Telus Health in March 2019 to provide virtual health services in Canada, starting in British Columbia (BC).[24] Babylon is widely marketed in BC and extends virtual care in a new dimension through its AI-assisted algorithm that patients use at the front end to assess their symptoms and then decide whether to seek a video consultation or an in-person appointment.[25]

Growing attention is being paid to the prospect of expanding the role of virtual care in Canada's publicly funded medicare system. Leading commentators on virtual care Dr. Sacha Bhatia and Will Falk have put forward what they call 10 practical steps toward the "virtualization" of health care in Canada, which include suggestions such as making e-health practice part of accountability agreements and a "digital health by design" lens that would apply a "digital first" philosophy across the payment and delivery system.[26]

FEDERAL INVOLVEMENT IN VIRTUAL CARE

Federal involvement has not been lacking in this area. In 1997 the federal health minister struck a 24-member council to advise on the development of a national strategy for a Canadian health infostructure. The council consulted widely and its 1999 final report set out 39 recommendations.[27] The key outcome of the council's work was the establishment of CHI in 2001. Since it was established, CHI has received more than $2 billion in funding from the federal government.[28] Without a doubt CHI has played a key role in the adoption of electronic health records (EHRs) and EMRs by physicians in Canada. In 1999 it was estimated that just over one in 10 physicians (12.5%) was using an EMR,[29] and by 2017 more than eight in 10 (82.4%) were doing so.[30]

PROVINCIAL AND TERRITORIAL INVOLVEMENT IN VIRTUAL CARE

At the provincial level, in the fall of 2019 the Ontario government announced an aggressive digital-first strategy.[31] A guidance document for providers wishing to form new Ontario health teams includes ambitious goals for giving patients access to virtual care and their health information.[32] Recently, the Ontario Medical Association and the provincial government reached an agreement to fund video patient visits in the fee-for-service (FFS) fee schedule at a rate equivalent to in-person visits, using the OTN platform. The plan is to eventually expand access to and availability of nonvideo visits (i.e., secure electronic messaging, audio calls) and use of non-OTN technology, as part of the government's telemedicine program.

Initiatives to implement province-wide access for patients to their own medical records are well underway in Alberta, Quebec, Saskatchewan and Ontario. Medical associations such as the Newfoundland and Labrador Medical Association have also produced discussion and policy papers dealing with virtual care.[33]

WORKING GROUPS

INTEROPERABILITY AND GOVERNANCE WORKING GROUP

The mandate of this working group was to:

- identify impediments in health information technology interoperability that impair the exchange of health data across health care delivery points;
- identify barriers to the exchange of health information across delivery sites and jurisdictions (within and across provincial/territorial boundaries) that are posed by health information governance standards (e.g., legislation, privacy, custodianship, management); and
- develop a high-level road map for how health services can achieve interoperability to support the delivery of quality virtual care.

Digital interoperability across all points of the health care system is essential to support enterprise (pan-Canadian) virtual care.

At present there do not appear to be any comprehensive metrics on the state of interoperability in health care in Canada, but available evidence suggests there is a long way to go.

HEALTH CARE CONNECTIVITY IN CANADA

The most recent data on EMR connectivity are from surveys conducted by CHI among the public and physicians in 2018. **When asked about EMR functionality in the physician survey, family physicians reported the following:**

- 59% of respondents indicated that they could send patient referrals to specialists or other providers;
- 29% indicated that they could receive electronic confirmation of appointments for referred patients;
- 25% indicated they could receive electronic messages/clinical notes from a community pharmacy; and
- 16% indicated that they could electronically exchange patient clinical summaries with physicians outside their practice.[16]

The 2018 survey of Canadian adults showed low levels of connectivity between patients and physicians:

- 22% of respondents indicated that they could currently access their medical records electronically;
- 17% indicated that they could make an appointment electronically;
- 10% indicated that they could consult with a health provider online; and
- 10% indicated that they could send an electronic message to their doctor or regular place of care.[15]

There does not appear to be any readily available information on how connected all of the other delivery points in the health care system are.

In 2018 Canada's Economic Strategy Tables: Health and Biosciences stressed interoperability in its call for a pan-Canadian digital health strategy, recommending that *the strategy provide clear national guidance on privacy, data governance, sharing and security frameworks across federal, provincial and territorial governments to eliminate the barriers to interoperability of health-care digital systems*.[34] The issue of the privacy of personal health information will require fresh attention in the context of sharing across multiple providers and delivery points. Most of the literature is from the previous decade; a 2015 report by the Information and Privacy Commissioner of Ontario addresses the sharing of information in the "circle of care" and underscores the complexity of consent in this context.[35]

NORTHWEST TERRITORIES AND THE "SINGLE PATIENT CHART"

The jurisdiction that has come the closest to achieving interoperability across its health care system is the NWT, which hosts a single patient chart shared by all physicians and virtually all health care providers for its population of about 45,000 distributed through 33 communities. Dr. Ewan Affleck, past chief medical information officer of the NWT, has enumerated the challenges confronted over the 17 years that the project took to roll out, suggesting that achieving interoperability is more of an issue of culture change than software and technology.[36]

In late 2018 CHI launched ACCESS 2022, an initiative that is intended to expand the access of Canadians to their health information. This includes the development of the ACCESS Gateway, a platform that will enable connectivity across EMRs and EHRs and the health services that Canadians use.[37] In conjunction with this initiative CHI is developing a comprehensive trust framework in support of the Gateway. A trust framework is a set of auditable business, technical and legal rules that create the go-to guide for what participants in shared digital health systems need in order for information systems to be able to connect and share with each other in the way that meets the needs and expectations of Canadians. At the jurisdictional level, Alberta Health Services (AHS) is in the process of deploying an integrated clinical information system (Connect Care) for all of its facilities and staff, which provide about 30% of provincial health services.[13] There is no plan as yet for extending this to community-based physicians or services outside AHS.

The Interoperability and Governance Working Group put a pan-Canadian lens on system interoperability and felt that whatever system is developed must ensure that all patient information will be accessible to the patient and their family and follow them wherever they access care in Canada.

Notions of patient ownership of health information and actual access to information are often at odds. Legislated models of information custodianship were principally crafted for an analog health ecosystem and could be construed as an anachronism in a digital health environment. Although patient-centric information architecture is becoming accepted as the standard of system design, this is often not reflected in legislation, health care policy or health information architecture; antiquated ownership and custodianship models can impair the virtualization of care.

Development of a model or charter of *patient health information rights and responsibilities* could serve as a template for a reimagined pan-Canadian policy framework for patient health information. Work on developing this pan-Canadian charter could be undertaken by the CMA's Patient Voice committee[38] as this project aligns with the intent of the CMA strategy.

The exchange of health information is the foundational activity for all virtual care. Health information exchange across services, within circles of care and between patient and provider is a potentially complex process that is subject to legislative, policy, standard, workflow, technological and governance variation that potentially impairs the ability to deliver virtual care.

Having all jurisdictions agree on and adhere to a pan-Canadian standard for the exchange of health information would optimize the potential for virtual care in Canada. Efforts already being undertaken in jurisdictions such as Ontario and Alberta to set health information exchange guidelines could serve as the foundation for developing a pan-Canadian standard, as could the work of CHI with the development of the ACCESS Gateway.

There is also need for agreement on standardized technical architecture to ensure pan-Canadian interoperability that supports virtual care. This architecture must include technical and data language standards. Having such a framework would provide a pan-Canadian standard that could be adopted by jurisdictions across Canada.

Work to develop the framework could leverage a number of efforts to develop standardized technical architecture already being undertaken in Canada, including technical compliance standards (specification and compliance certification) developed by OntarioMD[39] and the CHI interoperability standards[40], existing trust frameworks, and the efforts of CHI through ACCESS 2022. A "coalition of the willing" could act as proponents of and signatories to the standardized technical architecture.

Given the growth of team-based care involving many health disciplines in Canada, there is also a need for a framework to support the use of virtual care in such an environment.

LEGISLATIVE AND POLICY BARRIERS TO VIRTUAL CARE

There are legislative and policy obstacles to the implementation of effective patient-centric virtual care on a pan-Canadian basis. The establishment of a framework could identify all intra- and inter-jurisdictional legislation and policy obstacles to the implementation of pan-Canadian virtual care, and with these obstacles in mind, legislation and policy to enable virtual care could be drafted.

Canada lacks national standards to support patients having electronic access to their health information wherever they are in the country. At the local level, patient portals have been developed by which patients can electronically access their health information on an application basis. This has resulted in the deployment of multiple portals in many jurisdictions and promoted a lack of patient-centric information architecture. Establishing a pan-Canadian strategy on patient access could promote the sharing of comprehensive health information with the owners irrespective of location in Canada. CHI's ACCESS 2022 strategy could serve as the basis for this work. The Canadian Foundation for Healthcare Improvement is building off its Better Together family presence campaign with new programming to support patient, family and caregiver partnerships in health care, including in areas such as access to their health information.

For interoperable health information systems to function safely and effectively and support virtual care, they must be able to clearly identify patients and providers. There is currently no transportability of patient or provider identifier information (registries) across and within some jurisdictions in Canada.

Work on such a framework could leverage efforts already undertaken including:

- Medical Identification Number for Canada (a pan-Canadian provider registry used by medical regulators)[41]; and
- CHI's work on digital identity.[42]

When dealing with governance considerations, the Interoperability and Governance Working Group defined governance broadly as all oversight mechanisms (federal, provincial, territorial and/or regional) that affect the capacity to deliver a fully interoperable health information system. The working group noted that constitutionally dictated jurisdictional health oversight and planning has had a deleterious impact on pan-Canadian interoperability. Dedicated principles of patient-centric information architecture can mitigate or help overcome this fundamental governance obstacle.

Patient privacy and maintenance of confidentiality of information exchange must be preserved through virtual care just as it is for in-person care. Considerations include ensuring the use of secure software and communication infrastructure during patient–physician exchanges; storage of information and prevention of unauthorized access by third parties; and maintenance of a proper virtual care record and its availability for patients, caregivers and medical auditing.

Overarching considerations supporting the recommendations made by the working group were that:

- every attempt should be made to leverage efforts and progress made to date by system stakeholders and subject matter experts;
- partnerships should be encouraged and nurtured between stakeholders and subject matter experts;
- best practices and legacy efforts should always be considered and lessons learned; and
- a clear communication plan must support all future activities.

WORKING GROUP PRINCIPLES AND RECOMMENDATIONS

INTEROPERABILITY

Principles

- In a virtual care ecosystem, the sum total of a person's longitudinal health information should be available in a *functionally* single digital chart that is accessible to their entire circle of care on a need-to-know basis, irrespective of location.
- In a virtual care ecosystem, patients and family should have digital access to their entire suite of health information (health and social services) according to managed protocols that uphold ownership, custodianship, autonomy, security, privacy, data integrity and quality care.
- In a virtual care ecosystem, fully integrated real-time case-based communication between providers, staff and patients and family using a suite of communication technology options across the spectrum of care should be supported, irrespective of location and discipline, thereby enabling fluid *distributed multidisciplinary health care teams* based on patient-centric circles of care.
- Virtual care should be supported by:

    o an enterprise patient-registry that assigns each person a unique identifier; and
    o an enterprise provider-registry that assigns each provider a unique identifier.

- A virtual care ecosystem should aspire to excellence in enterprise information technology and manage it in a cost effective, efficient and sustainable manner, without compromising parameters of quality care. To this end the following aspirational goals are encouraged:

    o Standardize health information architecture across the system.
    o Limit the number of applications and solutions supported where possible.
    o Standardize health information exchange across the system.
    o Standardize application support across the system.
    o Standardize technology across the system.
    o Adopt a universal data format standard.
    o Promote intraoperability and federated solutions.
    o Provide health information on technology-neutral platforms that deliver the right information at the right time on the right device.

1. Draft a national Charter of Patient Health Information Rights and Responsibilities.
2. Develop a pan-Canadian Framework for Patient-centric Health Information Architecture that upholds enterprise interoperability and virtual care. **This will include:**

   o a framework for health information exchange;
   o a portable framework for health informatics legislation and policy;
   o technical architecture; and
   o a patient and provider registry framework.

3. Develop national standards for patient health information access.

4. Develop a framework for interprofessional teamwork to support pan-Canadian virtual care.

GOVERNANCE

PRINCIPLES

- A virtual care ecosystem should be supported by an enterprise governance structure, strategic plan, road map and policy suite that protects and promotes quality care, risk mitigation, business continuity, privacy and security.
- A virtual care ecosystem should be supported by a robust privacy policy suite designed to protect the privacy and security of all patient health information in a manner that delimits access to a person's information on a need-to-know basis to provide quality care and service on the basis of the will of the information owner.

RECOMMENDATIONS

5. Establish a framework for pan-Canadian quality-based virtual care governance.

6. Develop a framework for privacy and security to support pan-Canadian virtual care.

LICENSURE AND QUALITY OF CARE WORKING GROUP

"Virtual care is a tool and it's not the end point. There's a learning curve we are in right now … in terms of when it is appropriate to use virtual care, when is it more appropriate to use in person care. It (virtual care) can never replace physical touching. It can never replace procedures; those will always have to be done in person. I think virtual care works best in longitudinal relationships between a provider and a patient when there is an understanding and personal knowledge of each other and trust that has been developed."

Dr. Rob Williams, Chief Medical Officer
Ontario Telemedicine Network

"Right now there are a large number of Canadian patients who say 'I will decide when and where I want my medical care.' So, it's a continuum. I think we need to be very cautious and very, very observant. But I think, right now in Canada, most of us would see virtual care to be complementary to the primary care we are already offering."

Dr. Linda Inkpen
President
Federation of Medical Regulatory Authorities of Canada

The mandate of the Licensure and Quality of Care Working Group was to:

- identify barriers to the provision of virtual health care in Canada arising from licensure requirements and propose mechanisms to mitigate these impediments; and
- **identify and stratify issues related to the standard of care for virtual care and related quality of care issues (e.g., continuity of care) and propose mechanisms to address these issues:**

  - in the context of integrated care (i.e., virtual care is an adjunct to in-person care)
  - in the context of stand-alone care (i.e., care is only provided virtually).

Section 92 of the Constitution established professional regulation as being the purview of the provinces and territories, while Section 93 conferred similar control over education.[43] The *Canada Medical Act* was passed in 1912, which created the Medical Council of Canada for the purpose of establishing a pan-Canadian standard for portable eligibility of licensure.[44] The agreed-upon standard by the licensing bodies and faculties of medicine was articulated in 1992.[45] The Federation of Medical Regulatory Authorities of Canada (FMRAC) has developed model standards for medical registration in Canada.[46]

CURRENT LICENSURE REQUIREMENTS FOR PHYSICIANS' PROVIDING VIRTUAL CARE

All medical regulatory bodies in Canada have some form of standard or policy on licensure requirements for physicians providing telemedicine/telehealth services, although there is variability across Canada. Eight jurisdictions have some requirement for registration or licensure for out-of-province physicians to provide telemedicine services to patients located within their boundaries. Saskatchewan offers a specific telemedicine licence,[47] and New Brunswick enables physicians from other jurisdictions to provide telemedicine services to its residents through a telemedicine regulation.[48] Four provinces (BC, Ontario, Nova Scotia and Newfoundland and Labrador) do not specify that a physician licensed outside the province must be licensed in their jurisdiction to provide telemedicine. FMRAC has a policy on telemedicine that sets out 11 recommended actions for the licensing authorities with respect to the provision of telemedicine within and across boundaries.[2] The Canadian Medical Protective Association cautions physicians to be aware of the various requirements set out by their medical regulatory authority as this could be a factor in the event of a legal action.[49]

The issue of cross-boundary licensure has arisen in other federated countries. Australia was able to achieve national registration (licensure) as the result of an agreement by the Council of Australian Governments in 2008 (nine state/territorial governments plus the Commonwealth government) to establish a single national registration and accreditation system for the health professions that were registered in all jurisdictions. After the agreement was reached, all governments had to enact legislation first adopted by Queensland in 2009.[50]

The US has been pursuing an expedited approach to licensure through an Interstate Medical Licensure Compact (IMLC) that now includes 28 states and one territory. The key principle of the IMLC is that the "practice of medicine is defined as taking place where the patient receives care, meaning that the physician must be licensed in that state and under the jurisdiction of the state's medical board."[51]
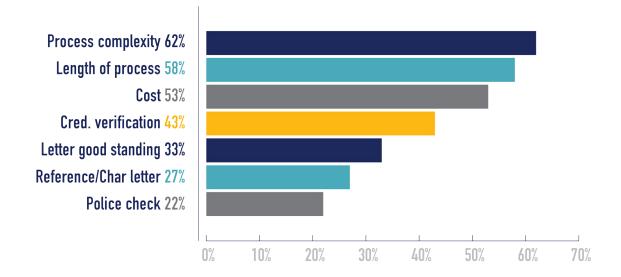
A PAN–CANADIAN LICENCE

The issue of a pan-Canadian licence is highly salient for Canadian physicians. Results from the 2019 CMA Physician Workforce Survey showed almost half (43%) of respondents had sought licensure in a Canadian jurisdiction other than the one in which they were first licensed. A variety of obstacles were reported by the physicians who had sought licensure in another jurisdiction, as shown in Figure 1.

2019 CMA Physician Workforce Survey

Figure 1. Obstacles experienced by physicians seeking licensure in other jurisdictions

Obstacles considered very or somewhat significant

More than nine out of 10 respondents (91%) were somewhat or very supportive of the creation of a pan-Canadian licence permitting practice in all provinces/territories. Furthermore, almost one in two physicians (45%) indicated that they would probably seek out locum opportunities in other jurisdictions should pan-Canadian licensure be implemented, and one in three (39%) indicated that they would probably provide virtual care to patients in other provinces/territories. Almost three-quarters of those polled in the workforce survey (74%) believe pan-Canadian licensure would improve access to care.[52]

The Federation of Medical Regulatory Authorities of Canada (FMRAC) is currently working on three initiatives that should greatly facilitate cross-jurisdictional licensure for locum and telemedicine purposes:

- Telemedicine: the possibility of supporting telemedicine across all jurisdictions in Canada by allowing duly licensed physicians to use their licence in any province or territory for this purpose
- Fast-track licenses: the possibility of expediting the issuance of licensure for physicians who hold full registration in another province/territory, who have a clean certificate of professional conduct and who are considering moving to another part of the country (or obtaining a second licence)
- Licence for portability: consideration of a licence portability agreement to enable physicians to work for a maximum number of days each year in another jurisdiction solely on the basis of licensure in their "home" jurisdiction

It is expected that these initiatives will take one to two years to come to fruition and further information will be forthcoming in due course.

QUALITY OF CARE

In 2001 the US Institute of Medicine put forward a six-dimension concept of quality that includes the following elements: safe, effective, patient-centred, timely, efficient and equitable.[3] One issue that cuts across several of these dimensions is the potential for virtual care to fragment the continuity of care. In a report for the Canadian Foundation for Healthcare Improvement, Reid and colleagues quote three core concepts of continuity:

- informational continuity (the use of information on prior events and circumstances to inform current care);
- relational continuity (an ongoing relationship between a patient and one or more providers); and
- management continuity (the provision of timely and complementary services in a shared management plan).[53]

It is likely that the episodic use of virtual care outside an ongoing relationship and with no connection to a home practice-based EHR would undermine the elements listed above. The 2019 WHO guideline *recommends client-to-provider telemedicine under the condition that it complements, rather than replaces, in-person delivery of health services*.[54] However, this must be weighed against access, which is an ongoing challenge in Canada and many other countries. It should also be weighed against the personal preference of patients, particularly in situations where it would be virtual care or nothing.

A recent US survey of users versus non-users of LiveHealth Online (LHO), a health plan telehealth provider, found that users were less likely to have a usual source of primary care and that nearly half reported that they had chosen LHO for their most recent physician visit because they could not see their doctor that day because of a lack of appointments or closed office.[55]

A recent comprehensive evaluation of GP at hand in England by Ipsos MORI found *some evidence of an impact on the continuity of care provided, although this was not raised as a significant issue by most patients themselves. The majority of them have actively chosen access over continuity of care and are satisfied with the choice they have made*.[56]

DIGITAL PLATFORMS AND CONTINUITY OF CARE

The potential for digital platforms to support continuity of care and access by improving referrals and consultations between primary care physicians and specialists has also received attention. In Canada, a promising initiative is the Champlain BASE Project (Building Access to Specialists through eConsultation), or eConsult, a secure, web-based tool that gives primary care providers quick access to specialty care for their patients. Using eConsult, a primary care provider submits a non-urgent, patient-specific question to a participating specialty. The request is processed and assigned to an appropriate specialist, who is asked to respond within 7 days (the average time to response is 2 days). Having started in the Ottawa region in 2010, the eConsult service is now available throughout Ontario and is being implemented across the country.[57]

With regard to other elements of quality, in the area of safety/effectiveness the Canadian Agency for Drugs and Technologies and Health has conducted a number of reviews of the evidence for applications of telehealth in several areas including chronic disease, maternal and pediatric care and mental health. In the area of efficiency, the question arises as to whether virtual care replaces in-person care or whether it is an add-on.[58]

In terms of equity, the GP at hand evaluation found that the Babylon services were not being used by large numbers of older people or people with more complex needs and that people who did not have access to a smartphone or who were not comfortable using one were less likely to use the services. To the degree that users must pay directly for the service, this clearly poses a potential equity issue.

CURRENT GUIDELINES FOR IMPLEMENTING VIRTUAL CARE

Several resources have been published that set out guidelines for the implementation of virtual care and guidance for those in the medical profession wishing to engage in it. These guidelines include ensuring clear protocols are established for identifying the physician and patient, disclosure of the regulatory responsibilities of the physician, sending summaries of the encounter to the patient electronically and to their usual provider of care, and identifying recourse for the patient to follow up if further instructions are required or if their health worsens.[59]

Health Standards Organization, the body that develops the standards used by Accreditation Canada, has issued a standard for virtual health. This standard emphasizes the role of the patient and family in the design and operation of virtual health services. It indicates, for instance, that *the Virtual Health services are delivered using a patient-centred approach that emphasizes patient engagement, the patient/clinician relationship, and the quality of care.*[60]

Providing quality care for Indigenous populations in a virtual environment requires special consideration. Indigenous communities in remote areas of Canada are embracing virtual solutions to improve access. However, many communities have challenges because of the unavailability of high-speed Internet to facilitate virtual communications. Key to improving virtual care for Indigenous communities is the necessity of involving community members in developing potential solutions. Virtual care must also be seen as complementing rather than replacing in-person care.

CONSIDERATIONS

In developing its recommendations, the working group strongly supported the removal of barriers restricting qualified physicians from offering virtual care, as well as supporting current initiatives encouraging the pan-Canadian licensure of Canadian physicians.

Working group members also felt strongly that virtual care should ideally be integrated into the services already offered to a patient through their primary care clinic or hospital-based specialist team. They felt such an approach to be essential for satisfying the US Institute of Medicine's six dimensions for quality care. The Patient's Medical Home model developed by the College of Family Physicians of Canada offers a clear description of the primary care medical home in Canada and has informed primary care reform in many provinces.[61]

Decisions on what types of interactions may be virtual or face-to-face should be made by physicians and their teams in consultation with their patients, taking into account professional duties such as appropriateness, patient privacy and security. Physicians who practise within a health authority or hospital setting may be required to use applications and tools approved or supplied by the institution, but the physicians should be consulted during the selection and implementation of these applications and tools.

Virtual care encounters should be considered as time points in a continuous string of interventions in the longitudinal patient journey. Considerations include establishing a clear process for patient follow-up after the virtual care encounter; including effective referral to local laboratory, imaging, pharmacy and specialty services; and arranging clinical handover to patients' other health professionals after the virtual care session (as is done in rural–urban health-professional handovers or interprofessional handovers in team-based care).
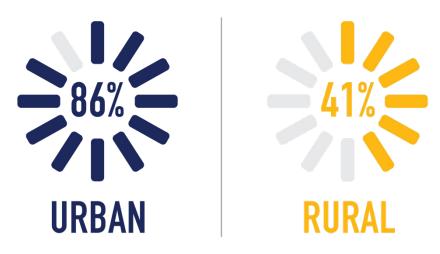
However, the working group also acknowledged the preference of some patients for episodic, stand-alone virtual care that was not integrated with their usual care. When virtual care is offered on an episodic stand-alone basis, the working group felt additional diligence is required to make certain quality of care is maintained. This diligence should include ensuring clear protocols are established for identifying the physician and patient, disclosure of the regulatory responsibilities of the physician, sending summaries of the encounter to the patient electronically, and recourse for the patient to follow-up if further instructions are required.

With the increased prevalence of virtual care, the working group also felt increased vigilance is required to monitor any negative impact on either individual physicians' practices or the system as a whole. Concerns were expressed that non-integrated, episodic virtual care could place an undue burden on physicians continuing to provide challenging in-person services such as in emergency departments and acute care facilities. As physicians offer more virtual services, the working group felt it important to have safeguards in place to make sure they continue to maintain the skills to provide in-person care.

Liability issues must also be taken into consideration for physicians offering virtual care. With virtual clinics becoming a new reality, physicians considering providing medical services through platforms that enable virtual care must consider medical legal issues such as:

- whether any special licensing requirements are required;
- awareness of other standards and guidelines concerning telemedicine, including privacy and security, consent, documentation and online prescribing; and
- confirming the identity of the custodian of the medical records with the owner or operator of the virtual clinic and ensuring access to these records if needed later.

The many potential aspects of virtual care raise, and will continue to raise, novel and challenging legal issues. Physicians should inform themselves about the potential areas of legal liability and ethical responsibility associated with the use of virtual care modalities. Physicians should also ensure that they have the necessary liability protection in place for the various aspects of their practice that involve virtual care.

86%
URBAN

41%
RURAL

Download speeds of at least 50 megabits per second
Upload speeds of 10 megabits per second

Although virtual care has the potential to increase access to medical and health care, it also has the potential to exacerbate inequalities in access to care, both in terms of geography and socioeconomic status. Many rural Canadians do not have the same access to the Internet as those in urban centres. According to the Canadian Radio-television and Telecommunications Commission, nationally, 86% of Canadian households have access to download speeds of at least 50 megabits per second and upload speeds of 10 megabits per second. In contrast, just 41% of households in rural communities have similar access.[62] There is also a socioeconomic gradient in home computer and home Internet use. In 2017 it was estimated that only two out of three households in the lowest income quintile had a home computer (63%) or Internet access at home (69%), compared with more than nine of out 10 households in the top three income quintiles.[63] Moreover, one could also speculate that there are inequalities in digital health literacy, although there are no recent data available.

Issues of equity also come into play as patients with certain disabilities (e.g., visual or hearing impairments) may have trouble benefiting from virtual care services to the same degree as other patients. Integrating virtual care into different aspects of health care services requires meticulous consideration and selection in special contexts to achieve equity of access and quality of care. Health professionals providing virtual care must always be cognizant that not all patients have the same access to technologies because of variability in the availability of resources or infrastructure in different communities and contexts. Patients may also have differing degrees of comfort in using these technologies.

WORKING GROUP PRINCIPLES AND RECOMMENDATIONS

LICENSURE

Principles

- Registration and licensure processes and procedures should not be a barrier to the provision of medical care through virtual care platforms.
- The removal of unnecessary licensure barriers to the provision of appropriate virtual care, including a consideration of constitutional barriers, must involve a collective and collaborative effort on the part of governments, health profession regulators and other stakeholders.

RECOMMENDATIONS

7. Support the efforts of the Federation of Medical Regulatory Authorities of Canada to simplify the registration and licensure processes for qualified physicians to provide virtual care across provincial and territorial boundaries.

QUALITY OF CARE

Principles

- Virtual care services must uphold at all times the provision of quality care and be held to the same standards of clinical performance as in-person care, including but not limited to the following processes:

  - referral and consultation;
  - patient follow-up;
  - charting and documentation; and
  - laboratory and diagnostic services.

- Virtual care services should be supported whenever possible by the same functional resources as in-person care.
- Virtual care technologies and workflow should be configured to ensure ease of use by both patients and providers.
- Virtual care services should in no way be seen as a replacement for, detract from, or compromise the provision of established core health services.

- Clinical decision-making in virtual care should be anchored in the foundational and ethical principles of medical practice. Appropriate virtual care modalities should be chosen on the basis of clinical circumstances, the likelihood of a quality outcome and informed discourse with the patient.

- Medical services delivered through virtual means should be delivered in the context of an established relationship between a patient and a physician and/or primary care or specialty-based team in a manner that:

  o promotes continuity of care;
  o promotes care closer to home; and
  o discourages virtual walk-in clinics, particularly where they may fragment care for attached patients.

- Virtual care technologies and system implementations must be evaluated for their safety, and compliance to standards of quality care.
- Physicians and allied health care workers require a robust lability framework that safeguards their provision of quality virtual care.
- The unique linguistic, cultural and functional needs and requirements of virtual care provision to Indigenous people living in Canada require special consideration.
- A virtual care ecosystem should be supported by a robust privacy policy suite designed to protect the privacy and security of all patient health information in a manner that delimits access to a person's information on a need-to-know basis to provide quality care and service based on the will of the information owner.

RECOMMENDATIONS

8. Establish a national framework to regulate the safety of virtual care technology and systems.
9. Ensure that standards set by medical regulators support the provision of competent and safe virtual care.
10. Establish a national virtual care liability framework for physicians.
11. Establish a framework for Indigenous virtual care standards in Canada.

PAYMENT MODELS WORKING GROUP

The mandate of the Payment Models Working Group was to:

- review current payment models for virtual care across Canada, including limitations and barriers;
- identify principles to guide the development of payment models for publicly funded virtual care; and
- develop a high-level road map for how jurisdictions can support the necessary infrastructure and implement payment models for publicly funded virtual care.

The working group focused exclusively on physician payment models and did not address payment models of other health care providers. The report is relevant mainly in the context of provincial/territorial payment systems for insured medical services where virtual care is provided to patients by providers located in the same jurisdiction. A pan-Canadian system of medical service payment exists in the interprovincial reciprocal billing agreements, but at the current time it is unclear how this system will adapt to the growth of virtual care.

The working group focused its discussion on virtual care services provided between physicians and patients irrespective of their location at home, office, work or other setting. Well-established institutional telemedicine systems do exist in almost every jurisdiction along with detailed fee codes for FFS physicians using these systems. While legacy telemedicine systems are clearly part of the virtual care environment, the working group did not focus on these fee code rules except to note they provide an excellent starting point for establishing billing codes for virtual services between doctors and patients, as well as between providers, outside institutional settings.

Digital medicine is expanding at a rapid rate and it is essential that physicians who provide publicly insured medical services in Canada be enabled to keep pace. The current slow pace of innovation in physician payment models in Canada means that virtual care is occurring primarily in the private non-insured sector, outside provincial medical care plans, which is inconsistent with the expectations of Canadians and the principles of the *Canada Health Act*.

Virtual care has the potential to improve speed of access, especially when integrated into the comprehensive care workflow in primary care. Virtual care is not intended solely to serve the needs of remote/rural patients, or patients with mobility issues. If medical practices are truly patient centred, virtual care needs to respond to patient demand for convenient access, on patients' terms. Failing that, many patients may opt for the private virtual walk-in clinics.

Provincial governments and medical associations should design programs to support physician adoption of virtual care applications and tools, including incentives, change management and advice on applications that integrate with EMR and provincial information systems.

- In the 2014 National Physician Survey, fewer than one in 20 physicians reported that they were compensated in any manner for email consultations with patients and just one in 10 indicated that they were compensated for email consultations with other physicians.[64] That is starting to change. A 2015 cross-Canada overview indicates that seven jurisdictions provide for compensation for consulting specialists for electronic consultations, and two provide compensation for the referring physician.[65]
- Compensation for e-consultation between physicians and patients remains limited to fewer provinces. BC has had telemedicine fee codes for services between GPs and patients for more than a decade, as do Ontario (for physicians enrolled with the OTN) and Alberta. The Nova Scotia government has supported a pilot project to deliver telephone and e-health services. Family physicians who enrolled their patients in MyHealthNS, the province's personal health record that enables patients to view test results electronically, were able to receive up to $12,000 per year for using technology to communicate with their patients. However, this project put a hold on enrolling new members in August 2019 pending the transition to a new software vendor.[66]
- Recently there are examples of a public–private mix in the delivery of publicly funded virtual care. In the fall of 2018 Maple began a six-month pilot project to provide virtual hospital rounds for Prince Edward Island (PEI)'s Western Hospital, a 27-bed hospital that has had physician staffing challenges. The service is being provided by nine physicians from PEI, Nova Scotia and Ontario who are licensed to practise in PEI.[67] In March 2019 Telus Health partnered with Babylon to launch an app that will enable residents of BC to have smartphone video consultations with a physician that will be covered by the Medical Services Plan.[24] Telus also plans to integrate the Babylon platform with its EMR systems.

For purposes of virtual care, payment models can be divided into two groups: alternate payment models and FFS.

ALTERNATE PAYMENT PLANS

Alternate payment plans, whether they be capitation, bundled payments, block payments, salary or blended models, generally do not pose barriers to virtual care. These payment models are broadly premised on the notion that physician services will be carried out in the most efficient and effective way for the patient. Billing rules and incentives are not barriers to care or quality in these alternate models. Unless there are other, non-payment-related rules and restrictions, the physician being paid through an alternate model will not be restrained from using virtual care tools to address patient needs. An additional advantage of alternate models is that they adapt readily to changes in technology and patient preferences.

As alternate payment models are not a barrier to virtual care adoption, there is little need for further analysis within this paper. It is enough to note that alternate payment models should be encouraged in settings and circumstances where adoption of virtual care is a priority.

FEE-FOR-SERVICE PAYMENT PLANS

Conversely, the dominant payment model in Canada is FFS and there are significant issues in adapting it for virtual care. In jurisdictions where there is no fee code framework for virtual care, FFS physicians using these tools are typically uncompensated. Some physicians use telephone, email and text to quickly communicate with patients on many types of issues but provide these services as a courtesy for which no compensation is received. The lack of compensation is a hindrance to the widespread use of these tools. Virtual care will not realize its potential in Canada without significant change to FFS payment systems.

Although replacing FFS models with alternate payment models is a long-term option, and this has been done by some jurisdictions (NWT in 2001), it is a complex endeavour that will probably not be popular with some stakeholders and is unlikely to occur any time soon. While significant movement has been made away from FFS in parts of the primary care system, it remains firmly rooted in provincial/territorial payment systems that cover most family doctors and specialists. Virtual care must be integrated into physician practice today. Therefore, adapting the FFS system is essential to making quick progress.

JURISDICTIONAL OVERVIEW: THE BC MODEL

BC is the province that has the most comprehensive approach to FFS billing for virtual care. This approach includes the following:

- **Telehealth** – video: "Telehealth service" is defined as a medical practitioner delivered health service provided to a patient via live image transmission of those images to a receiving medical practitioner at another approved site through the use of video technology. If the medical practitioner is not at a Health authority approved site, the medical practitioner is responsible for the confidentiality and security of transmission. If a telehealth consultation requires a subsequent in-person examination this should be claimed as a limited consultation, unless more than six months have passed. Video technology services are generally payable once per patient/per day/per medical practitioner.

- **Medical management of patients via telephone** – The GP Patient Telephone Management fee (G14076) is payment for a clinical conversation between the patient (or medical representative) and the physician or a College-certified allied care provider employed within the eligible GP practice. It is not payment for notifications for appointments and referrals, prescription renewals or anticoagulation therapy. It is not payable to physicians working under salary, service contract or sessional arrangements that include provision of this care. Physicians can claim a maximum of 1,500 patient telephone management services per calendar year (EMR billing feature can help to monitor number of services provided).

- **Emailing or text messaging medical advice to patients** – This fee is payable for two-way communication between the patient (or patient's medical representative) and physician. It is also possible to delegate this task to a Medical Office Assistant (MOA) or allied care provider and claim this fee. In any case, chart entry must record the contacted person's name and the conversation modality (phone, email or text message) and describe the advice provided. This fee does not include notifications for appointments and referrals, prescription renewals or anticoagulation therapy.[68]

Virtual care is now a well-established model of care in British Columbia, both for attached patients of family physicians and for unattached patients who wish to use virtual care services.

No other province has yet permitted a comprehensive FFS approach to be used for virtual care as in BC, although Ontario is moving rapidly in that direction. All other provinces are characterized by fees for limited aspects of virtual care, pilot projects or wait-and-see approaches. In general, video visits between doctors and patients are limited to approved telehealth sites, and telephone/email/text codes are narrowly focused around specific health system needs. Interprofessional consultation codes (e.g., eConsult) are becoming more widespread and are focused on synchronous (video and telephone) and asynchronous (email and text) channels.

ALBERTA

For example, in Alberta, certain virtual services can be billed to the provincial insurance plan under certain conditions. For example, physician to patient secure videoconferencing can be billed if it is within an established physician–patient relationship, using a secure videoconference system in compliance with College of Physicians and Surgeons of Alberta guidelines, where the physician/clinic has submitted a Privacy Impact Assessment.[69]

SASKATCHEWAN

In Saskatchewan, payments for video telemedicine services are "limited to Medical Services Branch approved facilities and practitioners who must both be in Saskatchewan." Telephone fee codes are limited to specific matters such as remote nurses, monitoring anticoagulant therapy, monitoring patients with diabetes who are on insulin, and remote consultations between physicians (eConsults). Facsimiles, emails and telephone calls from allied health professionals in specific circumstances can be billed.[70] Saskatchewan is also funding several innovative pilot projects.

MANITOBA

In Manitoba, the situation is broadly similar to that in Saskatchewan.[71]

ONTARIO

In Ontario, the OTN undertook virtual care pilot projects between 2017 and 2019. An initial evaluation with 194 providers showed a high degree of patient satisfaction with no overuse, with virtual visits appropriately replacing in-person visits. However, most providers did not report time savings as a result of providing virtual care. As a result of this assessment it was recommended that providers be allowed to decide which eVisit platform they use and also that implementation support be provided to make sure there is equitable distribution of virtual primary care.[72]

Ontario has also taken steps to significantly improve the uptake of video visits, with an agreement to publicly fund virtual care. Using the OTN platform, physicians and patients can participate in a direct-to-patient video visit anywhere in Ontario using their own device and physicians will be paid fees commensurate with clinical activity and equivalent to in-person care. In future phases, it is anticipated clinicians will be able to deliver a wider range of virtual visits (e.g., via electronic messaging) and leverage the virtual care technologies that best meet the needs of their patients (e.g., technologies other than those currently offered by OTN). Virtual care provided by non-OTN technology that is not covered by the provincial program will continue to be permitted.

For the purpose of paying a physician, provincial medical plans generally require that the physician have a licence from the College of that jurisdiction and a billing number of the medical care plan of that jurisdiction. Also, physicians may only bill in accordance with the payment schedule of that jurisdiction. The question, therefore, is under what circumstances should provincial/territorial medical care plans be opened to virtual care billing across borders?

Currently, the in-person care provided to a patient by a consultant in another jurisdiction, to whom the patient has been referred, is generally permitted by public medical care plans. Expanding medical care plans to encompass virtual care provided under similar referrals is a sensible and controlled expansion of services. It will avoid unnecessary travel by the patient and make the health system more responsive to patient needs.

However, the provision of virtual primary care by a family doctor in one province to a patient in another may not be an optimal scenario. Funding issues aside, a continuous relationship between a patient and a family physician is the preferred model of primary care and is not likely to consist solely of virtual visits. There will regularly be occasions when physical examination is required.

In developing recommendations on payment models, the working group notes the following broad issues, some of which extend beyond that of just payment:

- Integration of clinical record keeping systems (EMRs) with new virtual care tools must ensure appropriate documentation for purposes of care, liability and audit.
- Virtual care solutions should support patient care close to home as a principle for family practice.
- Virtual care payment frameworks should avoid fragmenting care. They should support physicians offering care to their own attached or referred patients.
- Unattached patients need to have access to virtual care services even if they do not have a family physician. Governments and medical associations must focus on models of virtual care for unattached patients that provide continuity of care, leading to attachment, so that virtual care services for unattached patients are not merely walk-in clinics.
- The rollout of virtual care services requires change management support for physicians and allied health care workers so that practice efficiency and quality of care can be properly established.
- Certain types of virtual services present unique problems when constructing fee codes. For example, a traditional in-person interaction with a patient could be replaced by five email exchanges over the course of a day. Should each email be a billable event, or should there be a "case per day" charge, or some other form of payment, such as stipends or time-based codes? There is no correct answer at the present time, so some degree of experimentation and evaluation will be necessary.

Governments as payors, and physicians as stewards of health care resources, want to be sure that FFS billing for virtual care does not lead to overuse of system resources or inappropriate care. There is some fear, although little evidence, that lowering the barriers to care through virtual tools will lead to higher volumes of unnecessary care. The OTN evaluation of virtual care pilots, for example, does not support this conclusion.[72] Indeed, it is difficult to imagine that providing virtual care to the attached patients of a physician, or to patients referred to a specialist, will result in anything other than replacing one channel of care with another. It may even avoid care being accessed through emergency or urgent care centres.

Costs to government might expand if patients currently without a family physician were better able to access regular care with the aid of virtual tools. If such care was appropriate and medically necessary, any cost expansion would solve a major accessibility problem. It would also satisfy a legitimate entitlement of citizens to receive medical care.

Fear will continue to exist that the ease of access to physicians through virtual means will allow frivolous or nonessential medical care to grow in volume. Where such concerns exist, systems or processes need to be improved to triage or channel such requests in an appropriate way. For example, it has been suggested that where available, provincial 811 lines could be used to triage requests for care and channel the patients to virtual providers. Evaluation and refinement of the best ways to provide the most cost-effective, patient-centred and evidence-based care should be ongoing as virtual care payments are introduced into the publicly insured system.

The current method of limiting access to virtual care in most jurisdictions, by not allowing FFS billing, means that many patients must weigh their medical needs against the possible inconvenience and cost of securing an in-person visit and against the price of a private virtual service or to seek private insurance that covers virtual care. This approach is inconsistent with the public provision of essential medical services, which is the hallmark of the Canadian health system.

Alternate payment models are better than FFS in facilitating technological change. However, without broader adoption of alternate payment models, FFS adaptations are necessary given the current dominance of this payment model.

WORKING GROUP RECOMMENDATIONS

PRINCIPLES

- Medical services offered through virtual means should be considered as insured services and compensated at similar value to in-person services. Virtual medical services paid under a FFS system should meet the same standards for payment that are currently applicable to face-to-face encounters.
- As alternate payment models such as capitation, salary, block funding and bundled payments present no barriers to virtual care, they should be considered as preferred payment models in virtual care environments.
- To accommodate a spectrum of virtual communication channels, a variety of corresponding billing standards will be required to compensate physicians (e.g., instance-based, sessional, case-based, general stipend). The following should be included for consideration:

    a. Physician services when delegated to other health professionals should be billable.
    b. New and unforeseen areas of physician activity, such as managing patient portals and remote patient monitoring, should be included in fee schedules.
    c. Provincial/territorial governments should re-evaluate current limitations (i.e., volume) on virtual care with a view to removing them should they be found to be obstructing appropriate medical care.
    d. Medical services requiring an in-person medical appointment that can be delivered through virtual means (e.g., some prescription renewals, discussion of test results) should be billable to the provincial/territorial medical insurance plan.

RECOMMENDATIONS

12. Encourage provincial/territorial governments and provincial/territorial medical associations to develop fee schedules that are revenue neutral between in-person and virtual encounters.
13. Encourage leadership development programs at the national, provincial, territorial and facility levels across Canada that address issues of health system change to develop offerings that focus on the introduction of virtual care and support physicians to participate in these programs.

MEDICAL EDUCATION WORKING GROUP

"Today's medical professionals must be masters of different skills that are related to using digital devices or online solutions" and mastering those skills "is now a crucial skill set that all medical professionals require."[73]

Medical Futurist
Dr. Bertalan Meskó

The mandate of the Medical Education Working Group was to:

- identify impediments to the provision of quality virtual health care in Canada arising from shortfalls in the continuum of medical training (undergraduate, postgraduate and continuing medical education/training);
- develop mitigation strategies to address these shortfalls; and
- develop a high-level road map for implementing the mitigation strategies.

If the benefits of virtual care are to be fully realized within the health care system, virtual care must be incorporated into the medical curriculum and continuing professional development. As futurist and medical educator Dr. Bertalan Meskó has written, virtual care/digital health is not simply a matter of moving to a new platform; it requires a cultural transformation.[74]

MEDICAL EDUCATION TODAY

A 2012 survey of e-health in the undergraduate curricula across Canada's 17 medical schools identified significant challenges. The first of these was the lack of a common language for e-health across the faculties. While one-half of the faculties indicated the use of EMRs and EHRs in teaching, there was no consistent approach, and interviewees felt that faculty resources to support e-health were not developed.[75]

CanMEDS is a framework for developing competencies in all areas of medical practice developed by the Royal College of Physicians and Surgeons of Canada in the 1990s, and in 2017 the Royal College united with 12 health care organizations to form the CanMEDS Consortium.[76] An e-health working group for CanMEDS 2015 identified a range of competencies for postgraduate trainees for each of the seven core Roles, including in the Expert Role: *adopt a variety of information and communication technologies to deliver patient-centred care and provide expert consultation to diverse populations in a variety of settings.*[77] Recent articles have highlighted the need to develop new approaches such as a "good webside manner" to provide virtual care effectively.[78] Sharma and colleagues have proposed core competencies for virtual care that outline the differences between bedside practice and virtual care.[79] Dr. Eric Topol recently concluded a review of how English citizens and workers in the NHS will have to be prepared for digital health and the related dimensions of genomics, robotics and AI.[80] The American Medical Association has published a "playbook" that sets out 12 detailed steps to the implementation of remote patient monitoring.[81]

The Medical Education Working Group reflected on the several areas requiring consideration related to virtual care and medical education. These include principles, competencies, learning environment, learners and patient safety, faculty development, learner assessment, program evaluation and accreditation. Establishing principles of virtual care in medical education is an essential first step and should include, at a minimum, overarching considerations of the clinical, medicolegal, pedagogical and social realms.

Increasingly, physicians in training and in practice will require the competencies to deliver health care to diversely distributed populations supported by rapidly changing technology. Understanding how to best utilize virtual technology to improve patient care has become essential. The learning environment for virtual care has the same general requirements as any other area of medical training within an interprofessional environment. These include an experienced teacher who is familiar with best practice, appropriate support infrastructure at the location of the encounter and patients who have one or more health concerns that permit a learning opportunity.

Increasingly, physicians in training and in practice will require the competencies to deliver such care and realize when it is and is not appropriate, remembering that virtual care is a tool (see Appendix II). Different modes of communication and data collection will be used and constantly change and advance. Self-monitoring and wearable devices will provide data not previously available.

As exposure to virtual care should take place throughout medical school and residency, as appropriate, so should the assessment of learners related to virtual care principles and competencies. Assessment methods should be varied and extend along the continuum of education.

Because virtual care is new, learning environments must first ensure that teachers are sufficiently familiar with best practices and with the tools used to virtually assess and treat patients. Fortunately, the learning curve is short and not particularly steep.

Virtual care includes both asynchronous and synchronous communication. Asynchronous communication is bidirectional messaging, overwhelmingly written text but occasionally voice recordings (akin to voicemail). Synchronous communication occurs via audio or video calls. Virtual care learning environments must be equipped with appropriate tools for patient communication. As with all medical technology, the tools must be safe, privacy-protective and easy to use. To acquire the best tools for any given environment, organizations will require specialized expertise from knowledgeable clinical team members or external consultants.

PATIENT SAFETY ISSUES

In a distributed medical education environment, the essential patient safety issue relates to the geographic location of the supervisor relative to both the learner and patient and the ability of the supervisor to properly oversee patient assessment and care decisions.

Consider the following possible scenarios and potential implications for supervision/patient safety:

1. *Supervisor + learner in same location linked with patient at a distance (on-site supervision):* No patient safety issue is identified as the supervisor can directly observe the learner and the supervisor and learner are educationally focused on decision-making in the virtual care environment.
2. *Supervisor + patient in the same location linked with learner at a distance:* This is an unlikely set-up as it's hard to see the educational benefit of this. No patient safety issue is identified as the supervisor and patient are together.
3. *Learner + patient together linked with supervisor at a distance (virtual supervision):* This scenario introduces the risk that the supervisor is unable to check the learner's physical examination findings unless other technology is available to enable this. Virtual care technology probably allows for a supervisor to directly observe a mental health status examination and some types of physical examination. The supervisor will have to decide if the duty of care has been met or whether the patient needs to be seen by a fully qualified physician to complete the assessment. There may be a temptation to rely on unchecked learner findings. The level of the learner is an important consideration. *This is a higher risk situation.*
4. *All parties in a different location geographically separated and linked virtually:* This is a possible after-hours/on-call situation. There is no ability for the patient to be physically examined and so the focus of supervision with the learner will be on whether this is an appropriate case to be managed by virtual care or whether the patient needs an in-person assessment.
5. *Supervisor and learner are from different institutions/jurisdictions in a "virtual supervision" arrangement (#3):* It is unclear if this situation is likely to occur. This is the same situation as #3 with the added complexity that the supervisor is from a different university and/or practice jurisdiction from the learner. The additional risk here is that the supervisor is less likely to be familiar with the learner, the learning objectives and/or the care setting. *This is the highest risk situation.*

In reviewing the literature regarding assessment of learners in settings where virtual care is used, the working group found that there is very minimal research. The skills required to succeed in virtual care settings need to begin at the start of the medical training process, in medical school. Those skills need to be further expanded during residency and refined/improved during early years of practice.

CURRENT CHALLENGES

1. **Determining suitability for virtual care**

   a. First and foremost, learners should be taught and assessed on their ability to identify if a patient is suitable to be assessed via virtual care modalities. Is the patient sick and requiring physical assessment or more urgent care? Learners must be assessed on their ability to differentiate patients and determine suitability for access to care via virtual care.

2. **Communication**

   a. Methods and styles of communication will vary significantly from traditional clinical settings. Learners will need to be able to communicate with patients and be able to elucidate signs and symptoms. They will also need to be able to explain concepts so that they can gather information without the ability to physically examine the patient themselves.

3. **Use of technology**

   a. With the advent of virtual care have come many innovations and new technologies. Even within virtual care, learners will be exposed to a multitude of tools to deliver care virtually. It is imperative that learners know how to utilize these tools and when best to implement their use.

STRATEGIES

1. **Determining suitability for virtual care**

   a. This can be accomplished through formative assessment and exposure to more clinical encounters that will allow learners to gain experience to identify patients suitable for virtual care.
   b. Written examinations can also be used to assess knowledge of learners and demonstrate understanding of key concepts in determining whether it is suitable for patients to access care via virtual care modalities.

2. **Communication**

   a. Communication skills should be assessed through formative assessments and ongoing coaching from supervisors who are well versed in delivering virtual care.

   b. Formalized objective structured clinical examination (OSCE)-style examinations can be used to assess learners' communication skills when interacting with patients via virtual care.
   c. Additionally, it would be important to gather patient experiences from learners, and thus patient assessments of a learner/trainee's ability to communicate effectively with them would be extremely beneficial.

3. **Use of technology**

    a. To address the concerns about ability to use technologies provided as part of virtual care, it would be important to assess learners by using simulation technologies to determine if learners are able to navigate the use of technologies appropriately and effectively.

Effective measurement is the necessary precursor to evaluating educational programs. Evaluation allows us to make quality assertions and answer questions about the program's effectiveness: Are participants benefiting from the program? Are recruitment strategies working? Do staff have the necessary skills and training to deliver services? Are participants satisfied with the program?

Although clinicians may have experience with virtual care and may be experienced teachers, faculty development resources will be required to support physicians who are providing virtual care and who are teaching and evaluating learners to ensure understanding of the particular principles and competencies to be considered.

ACCREDITATION REQUIREMENTS

Current accreditation requirements for Canadian undergraduate, postgraduate and continuing medical education programs do not explicitly mention virtual care, but nor do they preclude the inclusion of virtual care in curriculum. Standards regarding resources, settings and patient encounters are general enough to apply to both virtual and "traditional" care environments and could be interpreted in that way.

We found no evidence that accreditation requirements in other jurisdictions differed in this regard. Even in countries that are further advanced in their uptake of virtual care (e.g., Australia), medical education curriculum has not explicitly changed to keep pace with advances.

However, accreditation requirements do include the accountability of schools and programs to address the needs of the populations served and to have the appropriate technology to do so. Given the growth of virtual care, it would not be unexpected that providing instruction in various methods of virtual care would be part of meeting these requirements.

WORKING GROUP PRINCIPLES AND RECOMMENDATIONS

PRINCIPLES

- Virtual care training must be integrated into health service education so that providers and administrators are wholly prepared to function in a mature virtual care ecosystem.
- Requirements within existing standards should be explicitly introduced such that virtual care is introduced as another modality for delivering patient care, and not a separate subject in itself.

- **Medical education programs should ensure that learning environments in virtual care include three foundational requirements:**

    o   an experienced teacher;
    o   suitable support infrastructure; and
    o   patients with health concerns that can be safely assessed and treated via virtual care.

- Where appropriate, physicians providing virtual care services should be required to maintain their competence to do hands-on physical examinations.
- Patient safety and effective education should be core tenets of virtual care.

- **The management of learners in virtual care education should follow the following standards:**

    o   Knowledge, skills and behaviours should be assessed using varied methods, as appropriate, throughout training and practice.
    o   Depending on their level of training, there should be a supervision model that allows for verification of physical findings if these findings are essential to patient care.

RECOMMENDATIONS

14.   Engage the CanMEDS consortium in incorporating and updating virtual care competencies for undergraduate, postgraduate and continuing professional development learners.
15.   Engage the Association of Faculties of Medicine of Canada's Faculty Development Network to undertake an environmental scan to identify existing resources available to support clinical teachers in virtual care environments and ask it to proceed to develop a national virtual care faculty development plan.
16.   Develop a comprehensive program evaluation framework that can be applied across dimensions of virtual care in medical education.
17.   Support and recognize faculty-based virtual care education and scholarship.
18.   Develop a standardized pan-Canadian lexicon for virtual care.
19.   Create national virtual care accreditation standards.

CONCLUSION

With the current rate of progress, it is likely to take many years for Canada to achieve the level of virtual care that is currently being delivered by systems such as Kaiser Permanente. Without addressing key issues in the areas of standards, licensure, quality care provision, payment and medical education, the delivery of publicly funded virtual care services in Canada is also likely to remain outside the core physicians–patient model of care.

While consumer demand and the ability to improve access mean virtual care will become more and more prevalent in the Canadian health care system, it will remain fragmented and be delivered inequitably unless appropriate steps are taken.

The VCTF believes the decision to use virtual care for health service delivery should be based on whether it is a reasonable option or a better option than in-person encounters to provide safe, accessible and high-quality health care to patients. Virtual care technologies, similar to other communication tools used in medicine, should support or enhance communication with patients to augment information gathering and relationship building.

The recommendations outlined in this report detail steps Canadian physicians feel are necessary to optimize the use of virtual care tools and platforms by physicians and patients in a way that meets patient needs and satisfies physician concerns. For virtual care to be successful requires interprofessional collaboration. It is hoped this report will initiate a dialogue among health professionals and health care workers that will promote excellence in comprehensive virtual care.

Tomorrow's best practice in virtual care will continue to evolve, driven by technological innovation and industry adaptation, requiring collaboration and flexibility on the part of all system stakeholders. The need for physicians and allied health care workers to unite as effective change agents is paramount: to promote sensible virtual care adoption, advocate for evidence-informed virtual care and engage in the co-creation of the future standard of virtual care through continuous quality improvement.

National leadership is required to help establish quality-based virtual care that truly respects the needs of Canadians.

VIRTUAL CARE TASK FORCE RECOMMENDATIONS

1. Draft a national Charter of Patient Health Information Rights and Responsibilities.

2. Develop a pan-Canadian Framework for Patient-centric Health Information Architecture that upholds enterprise inter-operability and virtual care. **This will include:**

    i. a framework for health information exchange;
    ii. a portable framework for health informatics legislation and policy;
    iii. technical architecture; and
    iv. a patient and provider registry framework.

3. Develop national standards for patient health information access.

4. Develop a framework for interprofessional teamwork to support pan-Canadian virtual care.

5. Establish a framework for pan-Canadian quality-based virtual care governance.

6. Develop a framework for privacy and security to support pan-Canadian virtual care.

7. Support the efforts of the Federation of Medical Regulatory Authorities of Canada to simplify the registration and licensure processes for qualified physicians to provide virtual care across provincial and territorial boundaries.

8. Establish a national framework to regulate the safety of virtual care technology and systems.

9. Ensure that standards set by medical regulators support the provision of competent and safe virtual care.

10. Establish a national virtual care liability framework for physicians.

11. Establish a framework for Indigenous virtual care standards in Canada.

12. Encourage provincial/territorial governments and provincial/territorial medical associations to develop fee schedules that are revenue neutral between in-person and virtual encounters.

13. Encourage leadership development programs at the national, provincial, territorial and facility levels across Canada that address issues of health system change to develop offerings that focus on the introduction of virtual care and support physicians to participate in these programs.

14. Engage the CanMEDS consortium in incorporating and updating virtual care competencies for undergraduate, postgraduate and continuing professional development learners.

15. Engage the Association of Faculties of Medicine of Canada's Faculty Development Network to undertake an environmental scan to identify existing resources available to support clinical teachers in virtual care environments and ask it to proceed to develop a national virtual care faculty development plan.

16. Develop a comprehensive program evaluation framework that can be applied across dimensions of virtual care in medical education.

17. Support and recognize faculty-based virtual care education and scholarship.

18. Develop a standardized pan-Canadian lexicon for virtual care.

19. Create national virtual care accreditation standards.

APPENDIX I
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APPENDIX II

COMPETENCIES REQUIRED TO DELIVER VIRTUAL CARE

1. **Expert**

    a. Understand the applications and limits of virtual care, knowing when to advise a patient that they require an in-person assessment
    b. Understand the legal limits of care provided across jurisdictions
    c. Remain current on appropriate modes of communication and data collection including wearables

2. **Professional**

    a. Ensure patient privacy and consent during video-camera assessments and data transfer
    b. Ensure that the full duty of care is realized in terms of MD responsibility for the care/outcomes of their assessment and treatment decisions along with proper medical documentation
    c. Ensure appropriate supervision is in place when trainees and allied health staff are involved

3. **Communicator**

    a. Ensure effective use of the technology for communication and understand the limits of technology
    b. Understand the role of security in electronic modes of communication
    c. Be aware of and practise appropriate telehealth etiquette
    d. Be able to assist patients in using the technology

4. **Collaborator**

    a. Work within the health care team and setting to ensure that the virtual care encounter functions well within a system or program of care that has continuity and follow-up when needed
    b. Manage scenarios where team members may be in different locations (e.g., learner is with patient vs. learner is with supervisor)

5. **Advocate**

    a. Use virtual care as a means to overcome the issue of health care access to provide care to underserviced patients and populations
    b. Advocate for access to technology to reduce long-distance travel
    c. Use available technology to provide patient choice in the type of encounter they wish

6. **Scholar**

    a. Continuously assess methods to improve information and communication technology best practices

7. **Leader**

    a. Review processes and consider appropriate mechanisms for improvement
    b. Ensure technology does not interfere with the physician–patient relationship

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