

Virtual Care in Canada: Maturity Model Framework

A CHIEF Executive Forum Resource

Acknowledgments

The CHIEF Executive Forum Virtual Care Working Group was formed in 2020 to introduce a standards-based approach to enabling virtual care in Canada. Development of this important resource, and the associated *Virtual Care in Canada: Lexicon*, is thanks to the dedication of the following professionals:

Virtual Care Working Group Members

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The CHIEF Executive Forum is where senior professionals and leaders in digital health and healthcare collaborate, exchange best practices, address professional development needs, and offer their expertise in setting the agenda for the effective use of information and technology to improve health and healthcare in Canada. Acknowledgments are also due to the members of the CHIEF Executive Forum who invested their time, energy and expertise discussing and reviewing this resource through its many stages of development.

Introduction

The Working Group members recognize the challenges and opportunities that exist across all jurisdictions as a result of accelerated adoption and deployment of virtual care services due to COVID-19:

- Lack of common lexicon to describe virtual care services across Canada
- Gaps in standardized approaches to deployment of virtual care and continued re-learning of the same lessons across jurisdictions
- Workflow challenges for clinical, operations, and technical professionals, and patients and caregivers
- Few tools available to assist professionals and patients with information, skills, and education related to use of virtual care services

Leaders recognize that we've moved from "Canada has a long way to go" to "Canada has come a long way." How will we maintain these gains and continue to progress?

It starts with having the right tools. To that end, the Working Group has created two practical Canadian resources: a national, **virtual care maturity model** that will enable organizations, jurisdictions, and institutions to identify where they find themselves on the virtual health journey and what steps they need to take to improve their performance; and an associated **virtual care lexicon** to provide a foundational, common language for virtual care planning across and between jurisdictions and sectors.

The Working Group is committed to providing these resources as foundational elements for virtual care strategy and planning activity across Canada at the national, jurisdictional, and health system level. Together, *Virtual Care in Canada: Maturity Model Framework* and *Virtual Care in Canada: Lexicon* include:

- National maturity model to describe stages of maturity in deployment of virtual care
- Canadian lexicon of virtual care and sub-domain areas

These resources will help leaders:

- Sustain momentum and spur innovation
- Create alignment, direction, and decision-support in virtual care across the country
- Develop business cases for the deployment of virtual care tools
- Support a sustainable virtual care program
- Give jurisdictions a roadmap to assist with budgeting
- Create a guide on lessons learned from organizations who have already done the work
- Create capacity in the current limited-resource environment
- Enable greater sharing
- Encourage cross-organization collaboration
- Support cost reduction/containment

Purpose

The Canadian Virtual Care Maturity Model (CVCMM) can be applied to programs and initiatives within a health system, organization, or entity. The CVCMM is designed to support and guide care providers, patients, and health system enablers through virtual care maturity.

A mature virtual care (VC) program within a health system, organization or entity is one that is omni-channel (different types of virtual care tools that are available and depend on clinical workflow or requirements) and omni-modality (e.g., phone, chat, and video). A mature VC model would also have supports, strong governance, agility to adapt to change, underlying policy and legislation, and clear benefits realization goals and plans.

In addition to the CVCMM, there are factors or key enablers that are effectively required for this to be a success (e.g., remuneration models).



Maturity Model Domain Definitions

USER EXPERIENCE: CHANGE MANAGEMENT & ADOPTION FOR PATIENTS AND PROVIDERS

- Depending on how the service is set up, the process can include a wide range of users such as patients and healthcare providers including medical specialists, nurses, radiologists, midwives, primary care practitioners, counsellors, and others
- Patient is a term to describe patients, residents and clients who avail of healthcare services
- User experience is the end user's interaction with and the perceptions of the product, service, or system and includes use (behaviour/patterns, intention to use) and user satisfaction (competency, satisfaction, ease of use)
- Change management is the process of changing processes and effectiveness and is measured in terms of performance indicators. Maturity implies there are processes in place to ensure continuous improvement of these performance indicators
- Adoption is when users are aware of, understand the value of, and begin to use a product or service with seamless integration into the care process. Adoption is enhanced when change management workflows and processes are designed with stakeholders in mind, effective communication, and education and training
- Ease of use for patient and providers (e.g. ability to download app to smartphone)

TECHNOLOGY, INTEROPERABILITY, AND STANDARDS

- Technology refers to virtual care tools used to deliver care not in-person & systems used to facilitate or support this delivery of care remotely
- Standards refers to conformity and compliance to the quality and safety of products and services, ensuring there are systems in place to monitor the availability, reliability, and maintainability of the technology used
- Interoperability refers to the integration with other systems, such as hospital information systems and electronic medical records (EMRs), in the healthcare system and also includes technology maintenance to ensure continuous software and hardware upgrades where appropriate

Maturity Model Domain Definitions continued

LEADERSHIP & GOVERNANCE

- Leadership refers to a group of people acting towards achieving a common goal including directing colleagues, developing strategies, and sharing knowledge and experience to meet organizational objectives and needs
- Governance is the structure for operations and decisions that support and align with jurisdictional models of governance, operations, and care. This includes decisions on investment priorities, determining service scheduling and delivery protocols, and facilitating alignment of demand and supply. Governance structures for virtual care should be integrated with governance structures built around other technologies and should align with broader health system initiatives

CARE MODELS / DELIVERY & SUSTAINABILITY

- Care models and delivery refers to patient-centric guiding principles for the way health services are organized and delivered
- Sustainability is the operationalization and extension of the technology and supporting infrastructure to transition into the mainstream of care delivery

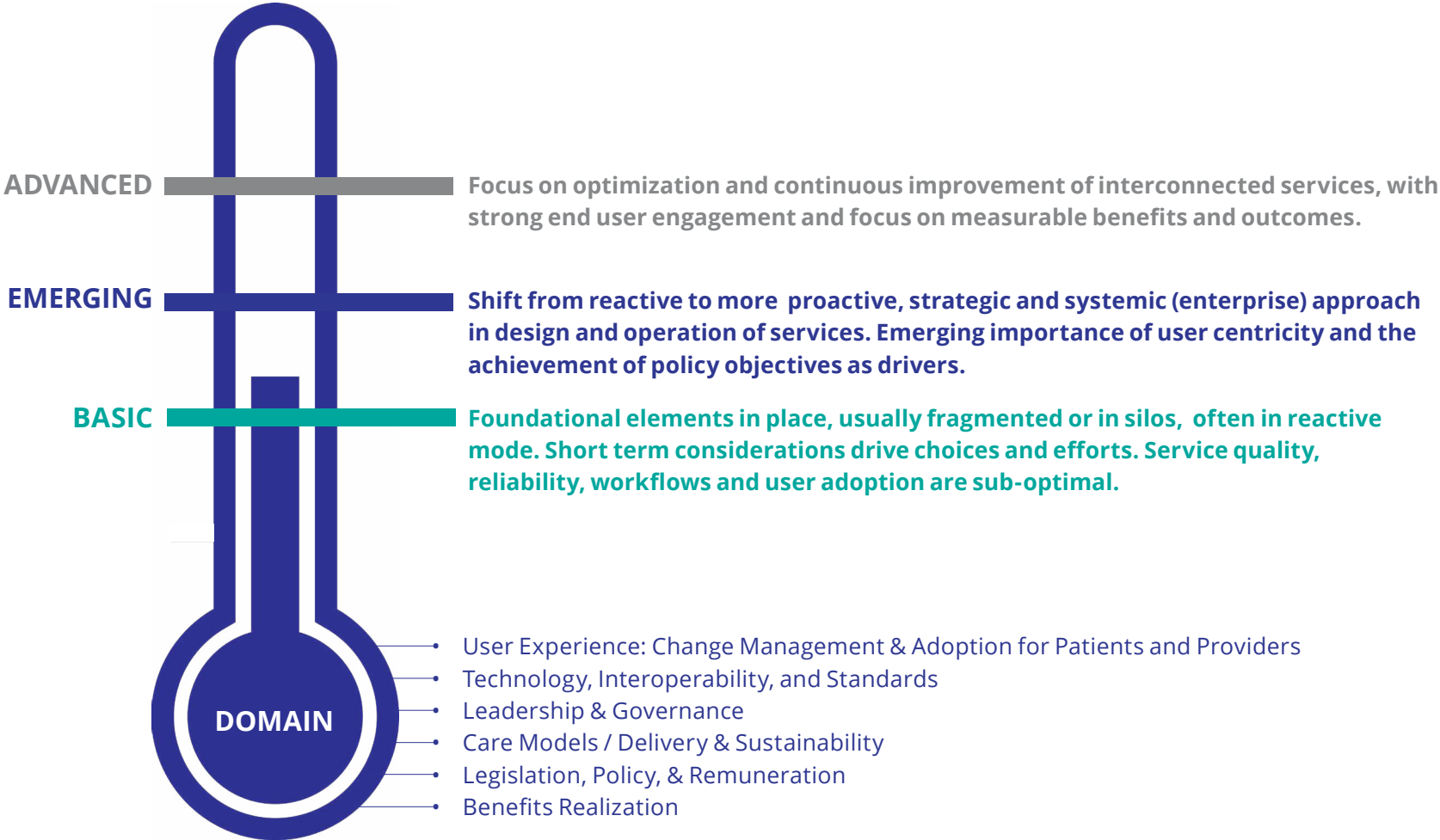
LEGISLATION, POLICY, & REMUNERATION

- Legislation refers to laws, procedures, and standards across jurisdictional boundaries for providing care, authorization, authentication, privacy, security, and consent
- Policy refers to organizational processes or procedures in place for providing care, authorization, authentication, privacy, security, and consent
- Remuneration refers to reimbursement for institutions, clinicians, and allied healthcare providers who provide virtual care services

BENEFITS REALIZATION

- Benefits realization refers to the benefits and value proposition of the technology and service to each stakeholder group, measurement against those benefits, and activities for optimization over time
- Benefits can include quality, access, productivity, functionality, adoption, and user experience
- Transparency with benefits realization

Maturity Model Level Definitions



Canadian Virtual Care Maturity Model

DOMAIN: USER EXPERIENCE (PATIENTS & PROVIDERS)

| BASIC | EMERGING | ADVANCED |
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| <ul style="list-style-type: none"> • Focus on technical or administrative considerations (procurement, speed or cost of deployment), user experience is a secondary consideration • Minimum focus on user engagement, on boarding, training and support • Rudimentary tools and processes to engage, support and get feedback from users • Patient choice limited to single modality • Adoption for both patients and providers limited to project/initiative scope • Raising end user tech literacy underestimated as a success factor | <ul style="list-style-type: none"> • User experience more systematically considered in designing services, with a life-cycle perspective (design, launch, operations) • Ongoing, active patient/community engagement on healthcare virtualization • Quality indicators established for measuring patient experience • Stakeholder engagement (e.g. Professional Colleges) to provide feedback on user experience and adoption • Feedback on provider and patient experience with virtual care captured • High level provider and patient adoption • Moderate change management strategies applied to virtual care approaches • Multiple virtual care modalities offered to patients and providers • Increased attention to raise end user tech literacy | <ul style="list-style-type: none"> • Users drive ongoing co-design of products and process • Centralized approach to patient supports (one number to call, information, FAQs) • Centralized approach to provider supports (VC application process and guidance, scripts, policies, training, etc.) • Regular scheduled working groups and quality improvement projects • Quality indicators established for measuring patient experience across virtual care spectrum • Mature feedback model to ensure patient quality and satisfaction • Mature virtual care change management strategies that are transferable (a VC change model to apply across all entities) • Patient and providers choose from multiple virtual care technologies appropriate for their encounter |

Canadian Virtual Care Maturity Model

DOMAIN: TECHNOLOGY, INTEROPERABILITY & STANDARDS

| BASIC | EMERGING | ADVANCED |
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| <ul style="list-style-type: none"> • Gaps in foundational infrastructure and support services (quality/reliability of wifi/telecom, help desk accessibility/responsiveness, stable local IT infrastructure) • Fragmented siloed approach to the design and management of virtual care services (solution focused as opposed to integrated services) • Pilots and projects within specific subset of healthcare • Ad-hoc coordinating and collaboration across public and private sector organizations on standard and interoperability • Enabled in the cloud to allow fail fast testing with minimal resources and cost • Publicly accessible databases (crucial for AI learning systems) are not nationally supported • Data sharing occurs on a case-by-case basis • Data ownership is governed by basic rights without technical guidelines and limited options for owners to indicate preferences regarding data • An active regional/provincial/national effort exists to consolidate health data, provide guidance on data security, data sharing protocols, and data solidarity; also a national effort to establish legislation on AI in health • AI explainability requirements have not been established, but national efforts exist to provide technical explainability | <ul style="list-style-type: none"> • Increased reliability and quality of foundational infrastructure and support • Emergence of an integrated service approach to design, implementation and ongoing management of solutions • Orchestrated coordination and collaboration across public and private sector organization on standards and interoperability, improved efficiency and agility • Built and supported in the cloud to enable vertical and horizontal scaling • Basic health records are stored in a secure national database while non-sensitive data from other national repositories is publicly available • Sharing agreements between health organizations are established and government actors are drafting/have drafted a nation-wide framework for health data sharing, data collaboratives, data solidarity and altruism, and/or a data marketplace • Regulations on data ownership and sharing, with technical guidance on safeguarding control over data use and distribution, have been implemented • AI explainability requirements are formalized for applications requiring regulatory approvals and strong guidelines are in place | <ul style="list-style-type: none"> • Proactive, high reliability and quality of foundational infrastructure and support services. • Focus on optimization and continuous improvement, to sustain coordinated conformance and evolution on a pan-Canadian basis. • Highly scalable platforms across all areas of healthcare • Fully integrated workflows for multiple technologies and systems • Continued development in a cloud platform allows for advanced API integration for AI/ML, IoT services • Health records governance occurs on a provincial/national level and storage is centralized, in accordance with national/international data privacy and protection regulations. Non-sensitive data is publicly available • Data ownership and sharing is regulated provincially/nationally, and sharing agreements, data collaboratives, data solidarity/altruism or a data marketplace that leverage data for public good, are institutionalized and streamlined • The government has issued strong guidelines for data validation best practices, is actively engaged in PPPs that aim to produce high-quality data • Regulators have established a dedicated agency or sub-agency group for AI and data validation • AI explainability is closely regulated and government support extends beyond explainability and interpretability to foster transparent, re-enactive, comprehensible, retraceable, and reproducible models or self-explaining agents |

Canadian Virtual Care Maturity Model

DOMAIN: LEADERSHIP & GOVERNANCE

| BASIC | EMERGING | ADVANCED |
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| <ul style="list-style-type: none"> Fragmented or siloed approach to governance: project-focused instead of a service portfolio approach Sporadic and opportunistic coordination or knowledge sharing across organizations Lack of formal mechanism for cross-organization governance Lack of consistent policies and standards Organizational procurement models Patient advisor involved in programs/ organization committees/working groups | <ul style="list-style-type: none"> Emergence of an integrated service portfolio approach to governance Proactive and more systemic coordination or knowledge sharing across organizations through formal mechanisms Procurement standards in place for some enterprise levels provincially Mix of clinicians from all domains involved in working groups across country Patient advisors co-creating with entities providing and enabling virtual care | <ul style="list-style-type: none"> Emergence of a cross-jurisdictional network approach to governance on strategic issues with a Pan-Canadian perspective, through well defined protocols and processes Leadership structure/models for all levels of acuity* Procurement standards nation-wide for virtual care Patient Advisory Council leading virtualization of healthcare for providers and enablers |

*Levels of acuity refer to primary healthcare, acute care (ED, Inpatient, Outpatient, ICU) long-term care, congregate living sites.

Canadian Virtual Care Maturity Model

DOMAIN: CARE MODELS/DELIVERY & SUSTAINABILITY

| BASIC | EMERGING | ADVANCED |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> • Sub-optimal use of some provider segments • Gaps in policy/regulations constrain evolution • Lack of successful public/private service models • Care models and delivery standards in place for specific projects and initiatives • Reactive care delivery model (urgent requests based on healthcare environment) | <ul style="list-style-type: none"> • Improved use of all provider segments in care delivery based on a step-care model • Emergence of public-private service models designed for long term sustainability, tied to population health outcomes • Regulatory frameworks to ensure quality and safety are adapted to support the above. • Health organizations working towards virtual care accreditation (bridging virtual care into clinical practice) | <ul style="list-style-type: none"> • Care models established for all virtual care delivery • Scalable/transferable delivery models for all aspects of virtual care • Proactive virtualization of care models with committed funding models • Sustainable and adaptable virtual care Delivery across all care models/levels of acuity* • virtual care accreditation achieved across all healthcare organizations |

*Levels of acuity refer to primary healthcare, acute care (ED, Inpatient, Outpatient, ICU) long-term care, congregate living sites.

Canadian Virtual Care Maturity Model

DOMAIN: LEGISLATION, POLICY & REMUNERATION

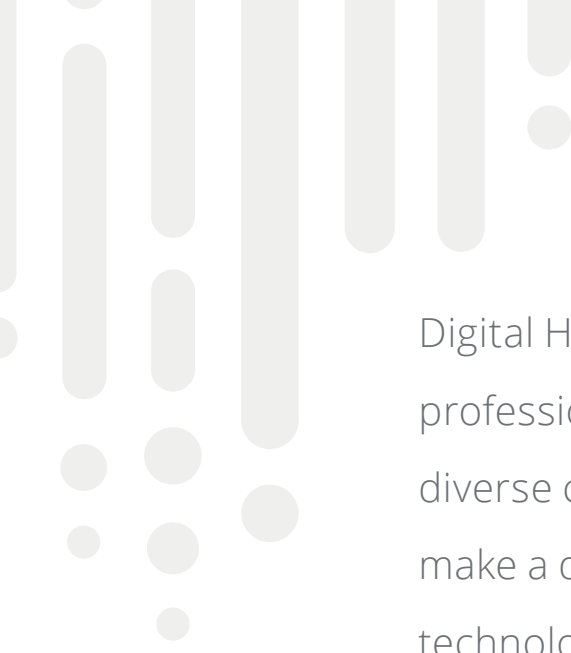
| BASIC | EMERGING | ADVANCED |
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| <ul style="list-style-type: none"> • Fee for service as primary compensation model • Legislation or policy enables temporary, ad-hoc or fragmented rules • Inequitable and underserved populations establish a gap in virtual care delivery (wifi, device, etc.) • Foundational standards of practice established with regulatory bodies • Legislative maturity to providing equitable services (e.g. infrastructure funding for broadband access) | <ul style="list-style-type: none"> • Alternative compensation models or redefinition of fee-codes to better reflect redesigned services models • Legislation and regulation adapted to virtualization of care by multidisciplinary teams, support increased use of remote in home care via multiple providers • Standards of practice established for specific regulatory bodies • Legislative policy development for equitable services | <ul style="list-style-type: none"> • Mature and sustainable compensation model for all service providers • Legislation and policy applicable to all levels of acuity* • Legislation and policy adaptable nation-wide for virtual care • Collaboration of standards of practice for all regulatory bodies • Legislation to protect underserved populations (access to wifi, devices, virtual care services, etc.) |

*Levels of acuity refer to primary healthcare, acute care (ED, Inpatient, Outpatient, ICU) long-term care, congregate living sites.

Canadian Virtual Care Maturity Model

DOMAIN: BENEFITS REALIZATION

| BASIC | EMERGING | ADVANCED |
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| <ul style="list-style-type: none"> Rudimentary tools and processes to measure adoption and impact/results Fragmented, ad-hoc, opportunistic, siloed initiatives | <ul style="list-style-type: none"> Emergence of more proactive, strategic and systemic (enterprise) approach to measurement and evaluation of benefits Orchestrated coordination and collaboration across public and private sector organizations around measurement and evaluation for a more systemic approach | <ul style="list-style-type: none"> Focus on optimization and continuous improvement of measurement and evaluation processes and tools Emergence of a cross-jurisdictional network approach to measurement and evaluation on a pan-Canadian basis |



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