WHITEPAPER

# Virtual Care in Canada:
## Snapshots of Innovative Virtual Care

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Digital Health CANADA

# Acknowledgments

On behalf of the entire Virtual Care Community of Action, I would like to sincerely thank the organizations who contributed their virtual care case studies to this paper. Your contributions are the jumping off point for what we hope can be a recurring showcase of virtual care success across Canada. To each Virtual Care Community of Action member, thank you for the many hours of work you put into contributing story nominations, coordinating submissions, and advising on this paper. Without your time and efforts, this paper would not have been possible.

- BAILEY GRIFFIN, PROJECT LEAD, VIRTUAL CARE COMMUNITY OF ACTION

## Virtual Care Community of Action Members:

- Bailey Griffin, Accenture **(Lead Author and Project Lead)**
- Nancy Gabor, ClearView Group **(Contributing Author)**
- Mona Mattei, White Oak Ventures Limited **(Contributing Author)**
- Selena Davis, University of Victoria,
  Doctors of BC & Kootenay Boundary Division of Family Practice **(Editor)**
- Jennette Leung, TELUS Health **(Editor)**
- Krista Anderson, Nova Scotia Health Authority
- Valerie Ashworth, Vancouver Island Health Authority
- Karam Bains, Ontario Telemedicine Network
- Lynn Campbell, Manitoba eHealth
- Mary Deren, Saskatchewan Health Authority
- Jason Huehn, Optimus SBR
- Andrea Lee, Hamilton Health Sciences
- Shelley Morris, Ontario Telemedicine Network

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# Executive Summary

The Digital Health Canada Community of Action (CoA) in Virtual Care was established in response to the growing demand for health care modernization in Canada through the use of virtual care and digital health tools. The CoA's goal was to produce this white paper with the following objectives:

- To showcase the virtual care innovation landscape across Canada, specifically to highlight several virtual care implementation success stories;
- To spread knowledge and lessons learned from virtual care successes in Canada; and
- To outline considerations for implementing virtual care solutions.

In this paper, we present six virtual care programs and services nominated by Virtual Care CoA members. These case studies were gathered in a non-systematic manner and endeavour to highlight examples of innovative models of care in Canada. Case studies were collected through an online questionnaire and were supplemented, when required, with interviews with respondents for clarity.

We highlighted examples of hospital-, community-, and primary care-based virtual technologies as well as an example of a self-directed and peer support tool.

The case studies included lessons learned and recommendations for other organizations looking to implement similar technologies. These recommendations were synthesized with common themes identified from respondent submissions. Across all case studies, we found the following key lessons learned and recommendations for consideration:

1. **Train Users and Actively Manage Change –** without proper user training and change management, virtual care implementation projects will be challenging at best.
2. **Build for the User –** tools designed without the end user in mind will not have sufficient uptake.
3. **Find Champions –** identifying stakeholders, especially clinicians, to champion a virtual care implementation is essential to project success.
4. **Communication is Key –** creating formal communication plans and celebrating successes will be conducive to continued stakeholder buy-in and goodwill.

## FEATURED STORIES

- **Saving a Rural Hospital Through Virtual Rounding:** The Story of Western Hospital, Health PEI and Maple Corporation
- **Addressing Access to Mental Health Services:** The Ontario Telemedicine Network and the Big White Wall
- **Supporting Vulnerable Populations:** WelTel in British Columbia's Women's Oak Tree Clinic and Vancouver Coastal Health
- **Connecting Patients with their Primary Care Providers Virtually:** The Ontario Telemedicine Network's eVisit Primary Care Project
- **Creating Virtual Access to ICU Care** for Patients and Rural Emergency Medicine Teams in Kootenay Boundary, BC
- **TELUS and Babylon Partnership** to Offer Innovative Access to Primary Care

# Background

## What is Digital Health Canada and what are Communities of Action?

Digital Health Canada is a membership organization whose mission is to connect, inspire, and educate digital health professionals in Canada. Members are a diverse community of accomplished, influential professionals working to make a positive influence in advancing health care through information technology. Digital Health Canada provides a forum for members to share ideas and experiences from leading Canadian health institutions to effectively adopt and scale information and communication technologies, thereby improving the safety, timeliness, and quality of care they deliver. Digital Health Canada's Communities of Action (CoA) program allows members to bring forth insights and evidence related to the provision of care and collaboration across distances, and to share these findings with Canada's digital health community. The Virtual Care CoA responsible for this paper is comprised of a group of pan-Canadian experts in virtual care ranging from those embedded within health care delivery organizations, leaders in public and private virtual care delivery, and researchers of virtual models of care.

Virtual care represents any interaction, whether synchronous or asynchronous in nature, between patients and/or members of their circle of care, without direct contact, using any form of communication or information technology.

## Telehealth to Virtual Care: The Catalyst for this Project

In 2008, Digital Health Canada began routinely collecting and publishing telehealth utilization surveys, aimed at capturing a robust overview of Canadian telehealth programs, usage patterns, and the narrative of their growth and expansion across the country. At that time, and indeed before 2008, telehealth programs were at the forefront of delivering innovative models of care to address issues of access in health systems in Canada. The Canadian Telehealth Reports[1], issued by Digital Health Canada, used the Canadian Society of Telehealth's definition of Telehealth from 2008, which describes telehealth as: eliminating distance in the practice of health care and wellness utilizing information communication technologies.[2] Eleven years later, the premise of this definition still rings true (delivering care in a way that eliminates distance or 'long-distance care'); however, the range of communication technologies used in today's virtual care interactions have evolved tremendously. Additionally, 'telehealth' or 'telemedicine' – now more commonly used to refer specifically to the delivery of care through video and/or telephone conferencing with a care provider – is only one of many technology-enabled models of care within the larger umbrella of **virtual care**. Virtual care encompasses a range of health care activities enabled by technology, including telehealth.

It is important to highlight that virtual care technologies facilitate a multitude of health care related and adjacent activities beyond direct, real-time, patient care. These activities include but are not limited to: triaging, training, coaching, scheduling, accessing personal health information, remote monitoring, self-monitoring, and coordinating care.

The creation of virtual care technology for health care provision and collaboration has advanced at an exponential rate, mirroring advancements in other industries like banking, travel, and commerce. While modern information and communication technologies offer promise to better address the challenges of Canada's overextended health systems, their uptake remains low due to behavioural (e.g. daily routine/workflow integration), regulatory (e.g. privacy and security), and system (e.g. incentive models) barriers to adoption. Virtual care technology-enabled models of health care are not yet recognized as 'routine' services across Canada. Despite these barriers, many healthcare organizations are demonstrating clear value propositions related to improved patient experience and health outcomes.[3] Furthermore, jurisdictions and organizations across the country are beginning to experiment more seriously with virtual models of care to increase efficiencies and value for money as well as to improve outcomes and experience.

Private sector companies were the first to move on these value propositions, offering direct-to-consumer and business-to-business (B2B) models of virtual care wherever private health care services are permitted. Increasingly, these companies are collaborating with the publicly-funded system by partnering directly with governments (for example, see the *Western Hospital and Maple Corporation* story on page 8). Provinces are also beginning the process of reducing barriers to implementation and procurement – some making virtual care a mandatory requirement of health care delivery (e.g. Ontario Health Teams model) and establishing offices specifically to support clinical and academic programs to integrate virtual health into their care delivery models (e.g. British Columbia).[4,5,6] There is also activity at the federal level in Canada toward readying provincial systems for virtual care. In 2018, Health Canada announced a regulatory review of the approval pathway and related regulations for digital health tools, establishing a new division focused on digital health within the Therapeutic Products Directorate's Medical Devices Bureau.[7] Additionally, federal investments made in Canada Health Infoway's ACCESS 2022 project to support provinces in setting up the required technology infrastructure to allow for robust virtual care is well underway. Finally, substantial investments have been made toward positioning Canada as a leader in artificial intelligence through the Pan-Canadian AI Strategy which is already having health research, clinical and virtual care implications.

While there seems to be a perfect storm of activity to launch Canada into a new virtual care age from governments' investment, there is also a growing consensus that virtual care businesses need to collaborate with the public systems for long-term growth and viability. Public-private partnerships, when approached thoughtfully, can foster health system innovations for overall modernization and improved performance; however, the frameworks for such engagements are lagging in Canada.

Given this context and inflection point in Canadian health care service delivery, where are we today with innovations in virtual care in Canada? What are some of our most interesting and inspiring Canadian virtual care case studies? And what can we learn from organizations who have successfully adopted virtual care technologies to improve their health services offerings?

In late 2018, Digital Health Canada set out to answer these questions by striking the Virtual Care Community of Action (CoA), a community of virtual care subject matter experts tasked to gather information and publish a white paper showcasing virtual care success stories from across the country. This paper is the distillation of case studies gathered from Digital Health Canada community members, highlighting the lessons learned during the implementation of these programs.

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# Introduction

The availability of telemedicine in Canada has lifted geographic, mobility, and convenience barriers to health care for many Canadians over the last 10 to 15 years. Novel virtual care technologies have further improved upon the value proposition of traditional telemedicine interactions by expanding the scope and capabilities of telemedicine; improving continuity, convenience, user experience; and introducing aspects of predictive medicine and machine learning. Despite virtual care technology becoming rapidly available, publicly-funded Canadian health care systems that face daunting cost, quality, and capacity issues lag in adopting these technologies. Health care ecosystems as a whole are nevertheless calling for change and cite the adoption of virtual care technologies as part of the solution to the issues ahead. In some instances, organizations are implementing incentive programs for clinicians to see more patients virtually and communicate with them through email or instant messaging (e.g. Nova Scotia).[8] Activities such as this demonstrate that Canada is in the beginnings of a necessary paradigm shift: **that virtual care is health care, not a separate service.**

To expand on existing Digital Health Canada Telemedicine Reports and provide a medium for knowledge exchange, the Virtual Care CoA produced this white paper with the following objectives:

- To showcase the virtual care innovation landscape across Canada, specifically to highlight several virtual care implementation success stories
- To spread knowledge and lessons learned from virtual care successes in Canada
- To outline considerations for implementing virtual care solutions

These objectives were achieved with retrospective analysis and considerations gleaned from six virtual care vignettes presented in this paper.

# Methods

To gain insights and highlight successes from virtual care programs and services across Canada, a call for story contributions was released to Digital Health Canada community members via the Digital Health Canada weekly newsletter on two occasions. Core Virtual Care CoA committee members were also asked to nominate case studies from their regions and organizations for consideration. Finally, Virtual Care CoA members also promoted the opportunity for the public to contribute case studies via social media. Case studies were collected via online questionnaire followed by follow-up conversations with respondents, if necessary, for clarification. To ensure heterogeneity, virtual care case studies were selected for inclusion in this paper with the following considerations:

- Potential impact for the patient, provider, or system;
- Diversity of geographic settings across programs (e.g. province, urban, rural, and remote);
- Diversity across the continuum of care (e.g. community, primary, and tertiary care); and
- Diversity of clinical specialties.

In addition to the inclusion considerations listed above, submissions that lacked sufficient detail of the program, product, or impact for initial were not considered. The Virtual Care CoA received 20 case studies and six were selected for this paper through group consensus on the case study's demonstration of criteria above.

Specific questions were included in the online questionnaire to draw out suggestions for other organizations looking to implement similar solutions. Once compiled, submissions were analyzed to draw out key themes and lessons learned for the successful integration of virtual care technologies in routine care.

## LIMITATIONS

*The authors would like to acknowledge several limitations of this paper. First, the virtual care case studies were not collected systematically, and this paper is not intended to be a complete environmental scan of virtual care programs in Canada. With this limitation, the authors and contributors endeavoured to select cases that represented a variety of settings and issues in Canada based on the submissions received. Second, cases presented in this paper were collected from Digital Health Canada community membership and it is absolutely the case that other virtual care successes exist outside of this group. Despite these two factors, the virtual care case studies featured serve as a snapshot of the innovative programs and services available today.*

# Highlighting Success

## An Overview of Virtual Care Projects and Programs in Canada

**The following section highlights the successful utilization and implementation of six virtual care technologies intended to improve care for patients and the performance of the health systems in which they operate. The case studies have been synthesized from submissions received directly from the delivery organization using the technology with input from the collaborating vendors where needed. All case studies have been reviewed by their respective organization(s) for accuracy.**

### Case Studies Featured

1. Saving a Rural Hospital Through Virtual Rounding: The Story of Western Hospital, Health PEI and Maple Corporation
2. Addressing Access to Mental Health Services: The Ontario Telemedicine Network and the Big White Wall
3. Supporting Vulnerable Populations: WelTel in British Columbia's Women's Oak Tree Clinic and Vancouver Coastal Health
4. Connecting Patients with their Primary Care Providers Virtually: The Ontario Telemedicine Network's eVisit Primary Care Project
5. Creating Virtual Access to ICU Care for Patients and Rural Emergency Medicine Teams in Kootenay Boundary, BC
6. TELUS and Babylon Partnership to Offer Innovative Access to Primary Care

CASE STUDY 1

# Saving a Rural Hospital through Virtual Rounding:

## The Story of Western Hospital, Health PEI and Maple Corporation

In a rural hospital on Prince Edward Island (PEI), it was becoming clear that there were two choices before hospital leadership and Health PEI, the provincial agency responsible for health: shut down the only hospital serving the westernmost region of the Island or innovate to find a solution to the chronic physician shortage they were facing. Thanks to the dedicated collaboration of many players, including the hospital; Health PEI administrator, Paul Young; the Medical Society of PEI; telemedicine company, Maple; and upwards of 50 individuals from across those organizations, the strategy was unequivocally innovation.


The solution involved leveraging Maple's established virtual care capabilities in a new platform that would connect remote physicians from across Canada to patients in the wards of the Western Hospital. The system would allow doctors to provide care in much the same way a physician physically rounding the ward would but virtually, from a remote location. In the image below, Maple's software is shown paired with a customized mobile kiosk that includes a display screen, where a physician can see, hear, and assess patients for daily rounding. The software and hardware system allows for peripheral devices, such as digital stethoscopes, to live stream key assessment requirements. While video chatting, the physician can take notes, electronically access the hospital's EMR, view records from other health care providers, and even send e-prescriptions directly to any pharmacy in Canada. Digitized patient charts in Maple can be augmented with photos, files, and sound recordings that objectively document changes over time. Given the integration and innovative features, the system allows for more reliable and complete charting.

Prior to the Western Hospital implementation, Maple was most known outside of PEI for on demand virtual access to physician services. These services are offered in a direct to consumer model and via health benefits programs such as employer insurance policies. Customers (or their insurer/employer) pay a flat fee per visit or opt for membership models if more frequent access is likely.

"The main objective of the program was to build a new model of care that would ensure consistent and qualified access to physician services to Western Hospital each day. This would, in turn, help to stabilize the delivery of care to in-patient services until such time that additional physicians could be recruited into the region to fill current and future vacancies", notes the project team.

Photo credit: National Post. https://nationalpost.com/news/canada/tv-doctors-small-east-coast-hospital-tries-care-via-video-screen

The project had three core objectives:

1. Keep Western Hospital open with consistent high-quality inpatient rounding services each day
2. Seamless integration of the technology into existing IT infrastructure and clinical workflows with zero downtime of the platform
3. High adoption from patients, staff, and physicians

To track success on these objectives, the project team mapped out a robust set of over 30 KPIs for the project that spanned domains including health outcomes, technology related outcomes, satisfaction outcomes, vendor outcomes, administrative outcomes, and numerous quality dimensions. After a three month monitoring period, positive trends in satisfaction from providers and patients, as well as decreased length of stay and readmission rates have been noted compared to pre-pilot figures.

The early successes of this project did not come without numerous challenges including an aggressive go-live timeline, regulatory roadblocks and budgetary constraints. With less than 90 days to scope the pilot and implement the project, the commitment of a dedicated team was essential. Additionally, specific attention to robust change management, knowledge transfer, and genuine stakeholder engagement was paramount. Beyond these key ingredients, it is clear that a positive attitude toward risk and change might be the most important of all.

“Our biggest piece of advice is not to fear the unknown, but embrace the possibility that the technology and program model can bring a new level of stability to services…” says the project team.

The initial six month virtual rounding pilot is now complete and the project has been extended to a full-time, one year contract. With such promising results, the project team is already seeing other opportunities for this technology to support larger hospitals in the province. “With other applications like emergency room triaging and making on-call shifts more cost and time-effective, this platform could have implications for large hospitals as well as small.”

“Our biggest piece of advice is not to fear the unknown, but embrace the possibility that the technology and program model can bring a new level of stability to services.”

CASE STUDY 2

# Addressing Access to Mental Health Support:

## The Ontario Telemedicine Network and Big White Wall

According to the Mental Health Commission of Canada, of the 7.5 million Canadians living with a mental health or substance use disorder, 1.6 million report an unmet need for mental health care.[9] The Canadian Psychiatric Association reports that unmet need for mental health support is more likely closer to a third of all Canadians living with a mental health illness.[10] In addition to unmet need, wait times for mental health services have reached a crisis point, with some Canadians waiting for over a year to access even an initial consult – in some parts of Ontario these wait times can surpass 18 months.[11]

To help increase access to mental health care for all Ontarians, the Ontario Telemedicine Network (OTN) set out to make an online 24/7 immediate access to mental health support, without the need for physician referral, available to individuals with mild to moderate mood and anxiety disorders, in their own homes. OTN piloted Big White Wall (bigwhitewall.ca), a platform that offers anonymous peer-to-peer support, education, and self-management tools, free of charge. Launched in the UK, Big White Wall is currently endorsed by the country's National Health Service (NHS) and widely leveraged by military personnel, veterans, and their families.[12] Big White Wall is moderated 24/7 by clinically trained mental health professionals—"wall guides" —who monitor the community to ensure safety and appropriate use. The service grounds its supports in evidence-based treatments for mood and anxiety disorders such as cognitive behavioral therapy (CBT), among others.

To determine effectiveness in Ontario, Big White Wall was evaluated in a clinical trial that enrolled over 700 participants. For the purposes of that study, individuals both on waitlists and receiving treatment at several mental health centres were enrolled to determine whether access to interim support on Big White Wall would improve their overall mental health status. The trial also set out to determine key barriers and facilitators to implementation of the platform from a provincial perspective.[13] Researchers were also interested in understanding how to best inform future investment decisions in a platform like Big White Wall to ensure successful adoption and sustained use. Findings of the trial indicated that for certain groups of users, use of the platform had a positive impact on mental health status including a reduction in their PHQ9 and GAD7 scores.[14]

Big White Wall®

Having a robust evaluation that demonstrated for whom and under what circumstances the Big White Wall worked was very important. On the heels of the evaluation findings, OTN and the Ontario Ministry of Health (MOH) made Big White Wall available at no cost to all Ontarians over 16 years of age. The Ontario roll out of Big White Wall represents one of the largest single deployments of mental health services using an online platform.[15] OTN reports that since April 2018, over 17,000 Ontarians have registered for the platform – far surpassing their year 1 target of 9500. An end of year one user survey showed 70% of members were attracted to the service because of immediate 24/7 access, 80% said they felt comfortable sharing because of the anonymity of the service, and 50% felt less socially isolated as a result of using the service.

Strategies that successfully encouraged uptake included:

- A sustained communications campaign, featuring a unique promotional video that aired on television and recently through the Toronto Transit Commission, as well as promotional tactics aimed at college and university students
- A partnership with Local Health Integration Networks, Ontario's regional health authorities
- Partnership with the Canadian Mental Health Association (CMHA) to co-promote Big White Wall and the CMHA's Bounce Back program
- Alignment with the Bell Let's Talk campaign
- Social media campaigns and support

Big White Wall continues to be offered across Ontario.

**BIG WHITE WALL USER TESTIMONIAL:**

I had not talked to anyone about what was going on. I was starting to scare myself. Big White Wall brought me back from the edge. Recently I wrote a last post to say to people there how I was back on track thanks to their support and the wall guides. I hope I don't need it again but it is good to know it is there if I do.

CASE STUDY 3

# Supporting Vulnerable Populations

## WelTel in British Columbia's Women's Oak Tree Clinic & Vancouver Coastal Health

WelTel is a secure, evidence-based digital health outreach tool improving outpatient care and management across all socio-economic strata around the globe. WelTel connects providers and patients virtually through interactive two-way short message service (SMS), content sharing, as well as voice and video outreach. Validated in a range of care settings from rural Africa to Haida Gwaii, tertiary and quaternary specialty clinics to the opioid crisis in Vancouver's downtown east side (DTES), WelTel aims to improve health outcomes by strengthening patient engagement and adherence to treatments and medication.

In 2010, WelTel was one of the first health care communications platforms to demonstrate, by randomized controlled trial (RCT), that two-way SMS and voice support could improve health outcomes for HIV patients living in Africa.[16] Since that time, WelTel's platform has continued to evolve based on evidence, while simultaneously working to scale a service that can provide access and connect patients in resource-limited settings across the continuum of care.

As of today, WelTel has facilitated millions of virtual care exchanges through SMS in diverse clinical and geographic settings including:

- Addressing Maternal Neonatal and Child Health (MNCH) and HIV needs in northern Kenya and the slums of Nairobi
- Family HIV clinic in Kigali, Rwanda
- HIV Pre-Exposure Prophylaxis clinics in the USA
- First Nations primary care hospital clinics in Haida Gwaii and aboriginal adolescents at risk for HIV and HepC
- Acute and infectious disease specialty clinics in BC from pediatric solid organ transplant to TB, HIV, and asthma
- Harm reduction in Vancouver's DTES, through anonymous reporting of bad dope in an epidemic opioid crisis

The WelTel platform helps patients build stronger relationships with their care providers despite potentially long distances, empowers better self-managed health, improves adherence to treatment, while fostering a sense of wellbeing in their communities.

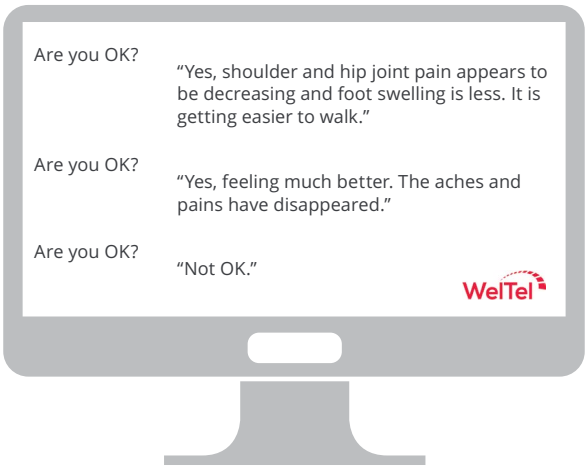
The platform can be tailored to the care setting and target population, allowing primary and acute care providers to deliver direct, scheduled and on-demand text-based support to marginalized, hard-to-reach patients and populations needing additional support. In addition to direct messaging, other forms of virtual care can also be facilitated through WelTel on an as-need basis including voice and video outreach.

WelTel makes deliberate use of scheduled and automated, open, natural language messages such as "How are you?" to allow the patient to self-reflect and report in on anything of concern. The application algorithmically monitors responses and categorizes for urgency, based on the type of response received. A response like "I'm great" would be interpreted as not requiring follow-up from the provider. Negative responses indicating potential distress or a need for help are prioritized for a timely response and appropriate follow-up.

The application is configurable to deliver automated SMS outreach programs for scheduled patient check-ins, appointment or referral reminders, and offers the flexibility for unscheduled communications between patients, providers, or community health programs. Built for scale, WelTel can be deployed in multiple clinics, programs, and projects for the same instance. WelTel's platform is interoperable with any electronic or paper-based system and through its open API, can export required patient data to existing EMR.

**BI-DIRECTIONAL COMMUNICATION**

Patients choose how they respond to weekly SMS



There are two use cases of the WelTel technology currently underway in British Columbia:

1. ## BC Women's Hospital & Health Centre: Connecting with HIV/AIDS patients in BC to provide continuous encouragement and care

   BC Women's Oak Tree Clinic located within the BC Women's Hospital & Health Centre is currently piloting WelTel to reach out to vulnerable patients living with HIV/ADIS using regular texts and phone calls. The BC Women's pilot has already demonstrated improved medication adherence and overall better health outcomes for women and families living with HIV/AIDS. This project suggests that something as simple as a text message can make substantial impacts on patient outcomes and wellbeing. What's more, automated scheduled communication alleviates administrative burden compared to traditional manual phone calls and check ins. Finally, the BC Women's Research has already identified that this tool has application beyond the HIV/AIDS population, noting that this model of patient engagement and support could be readily adapted and applicable to caring for people with other chronic conditions, such as diabetes, heart disease, arthritis and even dementia.

2. ## Real-Time Drug Alert & Response (RADAR)

   WelTel is also currently supporting public health officials and on-the-street community leaders to better communicate and reduce opioid-related death in Vancouver's DTES. Vancouver Coastal Health (VCH) and the BC Centre for Disease Control (BCCDC) are using WelTel to gather on-the-ground intelligence about drug overdoses and share timely alerts about suspected drug contamination in the DTES. RADAR is one part of a comprehensive regional response plan attacking the opioid crisis from several angles—preventing overdoses, encouraging safer drug use, and providing treatment options for people with substance use disorders. Using WelTel, community leaders on the streets can anonymously report information about drug deaths and drug contamination as they become aware of overdoses on the streets. Leaders report the date of the overdose, the neighbourhood of the substance purchase, types of substances thought to be used, and the physical description of the substances. Additionally, they can upload a photo of the drug and/or its packaging.

> "Vancouver Coastal's pilot project will give medical health officers access to what's happening when it's happening. Real-time information will help them decide and put into place an immediate course of action to prevent overdoses."
>
> **PERRY KENDALL, BC PROVINCIAL HEALTH OFFICER**

> "We're excited about the potential of this reporting tool to help people not just in Vancouver, but also across the country. This pilot project will help us determine what works and what needs to be improved, after which we hope to roll it out in other areas. Information is powerful—it will help us save lives."
>
> **DR. JANE BUXTON, BC CENTRE FOR DISEASE CONTROL**

CASE STUDY 4

# Connecting Patients With Their Primary Care Providers Virtually

## The Ontario Telemedicine Network's eVisit Primary Care Project

Many in the Canadian virtual care world are familiar with the OTN and their expansive service offerings. OTN has been a leader in the telemedicine space in Ontario and beyond for many years; providing all physician video consults in the province along with many other specialized programs to support patients at home. In 2017, OTN launched the eVisit Primary Care pilot project. The objective of the pilot was to enable patients to initiate contact with their own primary care provider virtually, from anywhere they choose. The initiative, available in five Local Health Integration Networks, leverages two customized third-party platforms that provided access to care via secure asynchronous messaging, video, and audio. These options enable patients to connect with their primary care provider for simple health requests that do not require an in- person visit for resolution.

This model is unique in that it's woven into the Ontario health care system and funded by the provincial government, thereby accessible at no cost to patients. While enhancing access and convenience, it also maintains continuity of care since the patient is interacting with the family care provider with whom they have an existing relationship.

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By formal pilot end in March 2019, over 14,000 virtual interactions between 6,355 active user patients and over 194 primary care providers took place; and patients and providers continue to engage. The implementation was independently evaluated by the Women's College Hospital Institute for Health System Solutions and Virtual Care (WIHV) which houses the Ontario Centre for Digital Health Evaluation. Evaluation findings demonstrate important considerations for future virtual primary care programs which could be offered in the province:

**Both patients and providers preferred asynchronous messaging over video consultation.**

This demonstrated that provider fears related to unrestricted message volumes from patients did not materialize. Many eVisit requests were successfully resolved requiring no further follow-up.

**Patients were extremely satisfied with the service.**

Being able to access their primary care provider virtually was extremely well received by patients.

**Adoption of new technology requires change management and implementation support.**

There were challenges to physician adoption which included changes to workflow to integrate the technology into their day-to-day routine, internal capacity and organizational readiness, and a lack of full integration with their EMR systems.

**The pilot provided insight into factors that will support widescale adoption.**

An appropriate remuneration policy framework needs to be in place to support virtual care interactions in Ontario, including secure messaging, to enable increased uptake of this virtual modality of care delivery.

Work continues at the provincial level in Ontario to further enhance access to virtual care as part of health care system transformation efforts. This innovative pilot and its evaluation are driving important discussions on next steps.

CASE STUDY 5

# Creating Virtual Access to ICU Care

## for Patients and Rural Emergency Medicine Teams in Kootenay Boundary, BC

Emergency physicians in rural and remote communities can often feel isolated when providing critical care for patients. Care teams in these areas are often small – sometimes with a single physician and/or nurse, with extremely long distances to transport critically ill patients for care. Supporting rural and remote practitioners to provide critical care in real time often makes the difference between life and death outcomes for patients in these situations.

The Kootenay Boundary region in the interior of BC has 12 small communities linked to one regional ICU site in Trail. In the small ERs around the region, it was clear that a virtual solution to connect clinicians for critical patient care would both support clinicians with the difficulties posed by the rural settings such as access to consultation and mentorship, while improving patient outcomes and reducing need for transportation.

The chosen solution to create a virtual ICU tapped into existing mobile video carts in six locations, either Cisco or Polycom systems, with standards-based video conferencing software – in this case Polycom Real Presence. The mobile carts are moved to the trauma rooms and specialists remotely connect through a desktop version of the software on their desktop, laptop, or phone. The system was chosen after a stakeholder working group reviewed various options for hardware, including the VGO robot, Polycom carts, and tablets and finalized their preferred technology through a vigorous rating of each. The Interior Health Authority IT team provides support for the project developed through the Kootenay Boundary Division of Family Practice with funding from Shared Care at the Doctors of BC.

The overarching goal of the project was to provide tele-mentoring decision support for critical care cases, provide access to specialist care, and build collaborative care teams. The project had core objectives for patients and providers: 1) Patients: early access to specialized care that can make a significant difference to their outcomes including survival; 2) ER providers: early and

The overarching goal of the project was to provide tele-mentoring decision support for critical care cases, provide access to specialist care, and build collaborative care teams.

more thorough access to a specialist opinion, support for recruitment and retention, and improved confidence for rural ER physicians; and 3) Specialists: earlier access to initiate care for a patient and efficiency for patient care on arrival in the ICU. The project team has several KPIs linked to these goals including volume of use, quality of systems, ease of use, improvements to patient outcomes, and barriers / enablers to use of technology.

So far, the virtual ICU model has allowed for tele-mentorship, recruitment and retention support of rural family physicians, skills enhancement for future cases by creating a virtual multi-disciplinary team, and collaborative care planning for patients between primary and specialist care teams. While the volume of use is currently low, the system provides care that cannot always be valued by quantity alone. Value has already been realized in the form of avoiding procedures that would otherwise have been carried out but not for the video consultation.

"For us, success would be the regular integration of the system into the workflow so it is commonly used so technical aspects don't get in the way and we can support our ER colleagues to develop skills through collaborative care planning," said Dr. Scot Mountain, internal medicine and critical care intensivist, at Kootenay Boundary Regional Hospital.

"For rural physicians, virtual care is the state of things to come. In some form it will be a standard of practice to leverage technology to give patients access to a higher level of support. I feel it will eventually be something we do every day," added Dr. Mountain.

The project team continues to provide simulation training and multi-disciplinary stakeholder engagement to build utility beyond critical care to other specialties to add benefit to the system uptake. Following up with a patient in ICU, Dr. Mountain talked to them about their experience, "I asked how the patient felt about the use of the technology and the patient said, 'I just thought that was the way you always do it.', Ideally this statement will be the future for Kootenay Boundary."

**Dr. Nick Sparrow talks with Dr. Scot Mountain by video about his "patient", Dr. Kyle Merritt, at Kootenay Lake Hospital in Nelson, BC.**

CASE STUDY 6

# TELUS and Babylon Partner to Offer Innovative Access to Primary Care

Over the past several years, TELUS has made many investments in the health care space, expanding their presence and establishing themselves as a leader in health care IT infrastructure in Canada. In March 2019, TELUS partnered with Babylon Health, a leading global digital health company, to launch a unique virtual care solution in Canada.


Key features of Babylon by TELUS Health include:

- An artificial intelligence-powered symptom checker allowing patients to check symptoms 24/7 and receive feedback on possible courses of action.
- Video consultations with a licensed, local doctor with doctor appointments most often available within the hour.
- Accessible replay of video consultations and plain-language consultation notes (written by the doctor) that patients can view in the app, along with their personal health details.
- Ability to get prescriptions, specialist referrals, and lab requisitions virtually.
- A better way to ensure continuity of care by enabling patients to easily share their consultation notes with their family doctor if they have one and wish to do so.

The intention of this partnership is to improve access to health care for patients. The convenient, easy-to-use app allows patient connection with a licensed physician in the comfort of their homes or in the location of their choice. Doctors using the platform now have a new way to connect with patients who might have difficulty getting into a clinic or may otherwise end up in emergency departments due to a lack of after-hours alternatives. Further, it gives physicians the tools and support they need to help reduce administrative work.

British Columbians are the first to use the app's one-on-one video consultation feature, allowing them to speak directly and privately with a BC-licensed family doctor. Video consultation is covered by the patient's BC provincial Medical Services Plan (MSP). Generally, patients using the consultation service in BC see the doctors for many of the same reasons they might see their family doctor: for advice around coughs and colds, allergies, skin conditions, contraception, and mental health.

In addition to the cutting-edge technology, what further elevates the Babylon by TELUS Health model is the clinical operations support staff who ensure high-quality care and exceptional patient experiences. For patients, this includes an enhanced level of support, prescription processing, pharmacy follow-ups, diagnostic lab booking, specialist referrals, and sharing consultation notes with family doctors to ensure informational continuity of care. The operations team, in conjunction with the Physician Leads, provide end-to-end support and reduce administrative tasks, which allows physicians to focus on what matters most — caring for patients.

Beyond direct patient care, Canadians across the country who download the Babylon by TELUS Health app on **iTunes or Google Play** can use the app's AI-powered chatbot Symptom Checker, which is based on more than 500 million streams of real health data providing the patient with a more robust solution than a simple search of symptoms on the internet.

Since launching Babylon by TELUS Health, the team has observed several key learnings. First, early results suggest virtual care is a highly effective method for patients to access primary care. Second, many health needs can be addressed and resolved in a virtual setting, with high levels of reported patient satisfaction with the quality of care received. Third, while virtual consultations are not an entirely new phenomenon, there is still a lot of work to be done to educate the public on how they can use digital applications. And finally, physicians can benefit from specialized training and support to optimize delivery of care in a virtual environment.

In only the first few months of its launch, tens of thousands of Canadians have downloaded the Babylon by TELUS Health app and completed consultations. With an average App Store rating of 4.9 out of 5, patients are clearly seeing value in this new service. Thousands of patient testimonials are also evidence of that. The strong positive feedback from users underscores the empathy and quality of care provided by the doctors, the seamless app user experience, and the benefit and convenience of being able to see a doctor quickly whenever and wherever they need it.

After the successful launch of Babylon by TELUS Health in BC, work is underway to expand this solution across Canada. In addition, launching a French version of the app and providing multilingual physicians is a top priority so that more patients can benefit from virtual care. As a leader in EMR solutions across the country, TELUS is also working to integrate Babylon by TELUS Health's innovative technology into its EMR ecosystem so that more providers can offer virtual consultations to their own patients whether in individual practices, primary care teams, or primary care networks.

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# Key Lessons

With the acknowledgment that virtual care is poised to become a substantial portion of the formal and informal care that is delivered in Canada, it is helpful to review lessons learned and recommendations from peers who have undertaken the task of integrating virtual care into their workflows. While each of the six case studies featured here included lessons learned and recommendations for other organizations hoping to virtualize aspects of their care delivery, all 20 submissions were analyzed to provide robust findings. These key lessons and recommendations from the submissions are summarized under the four themes featured below.


## Train Users and Actively Manage Change

Any virtual care implementation, no matter the size or scope, will require modifications to the original workflow. Insufficient training and support for end users will inevitably result in poor uptake and undermine positive attitudes toward change. Structured training programs were noted as being as important to project teams as learning through formal PDSA cycles; though both should always be included. Troubleshooting support was also highlighted as lacking in several instances and the recommendation to formally account for it in the planning stages of a virtual care implementation and in resourcing plans was noted as critical for success. Finally, specific resource allocation toward robust change management support was highlighted as a key success factor. A formal change management plan and support can address challenges that will arise while fostering an encouraging environment for users.


## Build for the User

Technology has the potential to positively impact the daily workflow of care providers and lives of patients depending on the methods used to develop the tool. Where users have not been robustly engaged in the creation of virtual care tools, uptake, training, and change management become more difficult. Several respondents had noted that their main challenges revolved around the usability of the technology and the complexity of training. Including formal evaluation that involves vendors in a pilot project may mitigate shortcomings of technology to appropriately acknowledge the user through targeted research into the experience and workflows of those involved. Uncovering user experiences and feeding these back to vendors who are open to making changes to their technology can have substantial positive impact for uptake.

## 3 Find Champions

The case studies have backed the literature indicating the importance of assigning implementation champions in virtual care technology initiatives. Whether formal or informal, designating champions was key to the success of virtual care implementation projects. While champions can be found in any of the stakeholder groups, ensuring that there was a clinician, specifically a physician, champion was noted as critical in the presented case studies. The most notable role of a physician champion for some respondents was to actively encourage the use of the virtual care technology itself.

## 4 Communication is Key

Communication represented a critical success factor in three ways for virtual care projects.

a) Communication of project objectives and ongoing requirements among stakeholders is necessary for any project's success. While this may seem intuitive, the case studies demonstrate that communication can sometimes fall by the wayside. Establishing a formal communication plan that reaches all stakeholders should be part of change management.

b) Given the complexity of virtual care program implementations and pilots, goodwill must be established with personnel adapting their daily workflows for innovation. Creating a feedback loop from the end user to the project team will enhance the user experience.

c) To promote successful adoption, a communication strategy to launch the virtual care program or technology will greatly support scaling of the solution. Insufficient marketing of a virtual care solution was noted as a downfall, particularly in the context of a pilot project.

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"Ensure equipment is as user friendly as possible – it needs to be one touch, simple to use especially in the middle of a critical care case"

VIRTUAL ACCESS TO ICU PROJECT

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# Conclusion

In this paper, the Virtual Care CoA sought to highlight virtual care successes from across Canada. While the case studies included may represent a small sample size of the innovative work happening in virtual care, each of the case studies highlight use cases and considerations that are widely applicable to the varying contexts across Canada and beyond. Across all 20 submissions, organizations shared stories of their hard work and impact for patients, providers, and their communities. Governments, research organizations, entrepreneurs, and industry are contributing to the advancement of patient-centric care and improving value against health outcomes, through virtual care. The case studies shared offer examples of where virtual care is already demonstrating impact and how we can learn from one another. Continuing to disseminate new initiatives and learnings will be important as our health systems embark on a digital transformation.

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Digital Health CANADA

11th floor, 151 Yonge Street, Toronto, ON M5C 2W7
647.775.8555
info@digitalhealthcanada.com