Integrating for Outcomes: Scaling Digital Solutions Across the Health and Health Care System

The Canadian Alliance for Sustainable Health Care (CASHC) and The Centre for the Future of Health (CFH) Meeting Highlights

MaRS Discovery District
Spring 2018
From connecting providers and patients, to enabling the collection and analysis of big data to inform programs, policy, and practice, digital health plays a key role in improving the sustainability of the health and health care system.

Previously, The Conference Board of Canada’s Centre for the Future of Health (CFH) and the Canadian Alliance for Sustainable Health Care (CASHC) have held two meetings regarding digital health: “Transforming Health Care Through Digital Innovations” and “How Will eHealth Impact Canadian Health and Health Care in 2035.” These meetings focused on how innovations in eHealth and digital health have shaped health care delivery. The following meeting, which took place on March 26, 2018, brought together various stakeholders to brainstorm and discuss how the current e-health system could be enhanced by increasing spread and scale to improve patient outcomes, and the sustainability of the health care system.

The overarching theme of the joint spring CASHC and CFH meeting was the enhancement of system integration for improved patient outcomes through the scale and spread of best practices and patient-oriented digital solutions, which will ultimately improve system sustainability. This executive meeting included presentations from the country’s top thought-leaders, interactive discussion panels, and a roundtable working session.

Opening Remarks and Introductions

Louis Thériault
Vice-President, Industry Strategy and Public Policy
The Conference Board of Canada

As participants convened at the MaRS Discovery District, Louis Thériault began the first session with roundtable introductions, followed by an overview of the mandate and priorities of the Canadian Alliance for Sustainable Health Care (CASHC) and the Centre for the Future of Health (CFH). Louis then introduced the theme of the day, which focused on how digital health innovations can create a sustainable health care system in Canada.

Digital Health in the Era of Value-Based Health and Health Care

Fred Horne
Alberta Minister of Health (2011–14)
Principal, Home & Associates
Adjunct Professor, University of Alberta

William Charnetski
Chief Health Innovation Strategist
Ontario Ministry of Health and Long-Term Care

Patti Cochrane
Senior Vice-President, Clinical Services and Chief Innovation Officer
Trillium Health Partners (2012–17)

The Canadian health care system is currently underperforming, impeding its ability to deliver effective and sustainable care. In the upcoming years, Canada’s health care system will face increasing pressure from an aging population and other complex changes that will alter the delivery of care. Therefore, a new model of care will need to be developed to respond to the demands of health care providers, caregivers, and patients. In the following section, panelists discussed how the shift to value-based health care will improve the current health care system using digital health technologies.
Value-based health care is a term used to describe a model of health care that compensates providers based on patient outcomes. In direct opposition to the value-based model is the fee-for-service model, which compensates health care providers based on the number of services provided. A value-based health care model is expected to improve patient satisfaction and outcomes by encouraging proper care of patients during and after they leave their health care provider. As a result, recidivism rates within the patient population should decrease.

Key Highlights

Data Collection
Data collection is necessary for making decisions about patient outcomes and encouraging the use of evidence-based decision-making in government. Therefore, the use of digital health technologies will require a significant increase in the collection and use of data. Second, data collection is necessary to encourage the government to change procurement models. Canadian health care has entered an era where the government is moving toward incremental investments in care. Moreover, when making spending decisions, the Ontario government is focused on the return of its investment, not on large investments in the health care system. These developments have raised the bar for current and future spending decisions.

Integrated and Coordinated System
The use of a value-based health care model will require the development of an integrated and coordinated system. Implementing such a system requires the development of proper funding and policy frameworks as well as significant changes in procurement models and the elimination of silos. The development of a value-based health care model and the integration of digital technologies will require the cooperation of health care providers. First, health care providers may need to be persuaded to shift away from the fee-for-service model to the value-based model. Second, health care providers must be willing to use digital technologies to streamline system processes. For example, if patients receive their results electronically but providers continue to mail their results, the efficiency of digital technologies will be reduced.

Questions and Comments
During the question-and-answer portion of the session, the audience had two questions. First, the audience wanted to know what was impeding the lack of progress in digital health. The panelists agreed that a major impediment was the belief that change needed to be ministry-led. The panelists believed meaningful change could occur at the patient level. However, to create meaningful change, the following factors needed to be considered.

Policy-makers need to focus on how they approach patient care. For instance, one panelist stated the delivery of health care could be improved if patients were segmented based on common conditions, not geographical location. Policy-makers need to consider how current privacy laws prevent the broader use of data to develop and deliver effective digital solutions. The panelists stated that until policy-makers discovered ways to manoeuvre these laws, the patient voice would not be heard. The third factor cited was the lack of collaboration and diversity of views present in the policy process. Panelists stated that policy analysts could not determine all changes necessary in the policy system. Therefore, future policy development would need to look at ways to include stakeholders from both the public and private sector.

The audience also inquired about the role the patient played in designing the digital health system. The panelists stated that a mechanism for patient inclusion had not been developed. However, they believed that the presence of patient groups in the room indicated that the design of digital health was moving toward improved patient inclusion, and that transforming the passive role of patients could only occur when changes were made to privacy laws surrounding data access.
Health and Health Care in a Digital World: Rising to the Challenge of Integrating for Outcomes

The following panel discussed how digital health technologies will alter the health care landscape to improve the connection and integration of patients and providers across multiple settings. Panelists discussed the following topics: methods for collaboration and integration; lessons learned; and examples of scale and spread. They also stressed the importance of aggressive and bold goal setting, with clear measurable benchmarks and targets to achieve collaboration across the health care system.

The Quadruple Aim of Health Care:
- Improve the health of populations
- Enhance the experience of care for individuals
- Reduce the per capita cost of health care
- Improve the provider experience

Key Highlights

Reduce Fragmentation and Increase Spread
Patients often use multiple portals to access their health records. Therefore, the current digital health landscape is not patient-centric. It is highly fragmented and lacks interoperability. None of the current systems are designed to work together, and access is not available across provinces. To solve this problem, digital health technologies must be tailored to enable the patient. Innovations include finding ways to share information among different platforms and allowing for the possibility of online scheduling. Evidence has demonstrated that providing patients’ access to their information reduces duplicate testing and wait times.

Co-Design and the Patient Voice
Several panelists stated the digital health landscape must change to include input from patients and informal caregivers in the planning and decision-making process. When designing digital health technologies, innovators should consider the diversity of patient and caregiver groups.

Data Availability and Information Sharing
Crafting the digital health landscape will require incremental change and strong leadership. Therefore, panelists stressed the need to create a database that contains information about past studies and digital health projects to allow for information sharing among various stakeholders. They stated that doing so would prevent the duplication of projects and allow for further developments and progress (spread) in digital health technologies.

Technological Innovations
The use of digital technology in health care has endless possibilities. Developments in e-health services may include e-scheduling, e-visits, virtual visits, and e-renewal of prescriptions. Zayna Khayat provided a real-life example of a digital health innovation called ELIZZ.com.
**ELIZZ.com AI Chat Bot/Caregiver Coach**

Elizz.com provides caregivers and patients with immediate support. The program utilizes artificial intelligence (AI) technology to provide patients with the ability to consult the chatbot as if it were a real clinician. Each time the chatbot is consulted, it learns from the interrogation and improves its algorithm. Currently, 18,000 users around the world consult the chatbot each day and the chatbot has accumulated 50 million visits in the past 10 years.

**Questions and Comments**

During the question-and-answer portion of the session, the audience asked how policy-makers could reduce technological inequalities surrounding access to digital health technologies. The panelists stated that technological inequalities could be reduced by linking widely accessible technologies (landlines or cellphones) to digital health innovations. They also stated that technological inequalities could be reduced by modelling technologies after those that have been used to provide access to individuals who live in remote areas in Canada, and around the world, such as reserves.

**It’s About the Consumer: Getting the Most Out of Digital Health Solutions**

**Jeff Ruby**
Founder and Chief Executive Officer
Newtopia

**Angela Morin**
Patient Partner
Canadian Foundation for Healthcare Improvement and Kingston Health Sciences

**Kathy Steegstra**
Senior Provincial Executive Director
Virtual Health, Trauma Services BC & Mobile Medical Unit (MMU)
Provincial Health Services Authority

In the future, health care solutions will need to focus on developing ways to enhance the consumers’ ability to make informed choices regarding health care services. These solutions will allow consumers to choose when, where, and how they receive services. In the following session, panelists discussed how digital technologies have developed to empower consumers. They also discussed the importance of including the patient and caregiver voice in the co-design, implementation, and evaluation of digital health innovations. Including the consumer, caregiver, and patient voice will maximize the return on digital health technologies.

**Key Highlights**

**Co-Design and Access to Patient Data**

The current digital health landscape has created inconsistencies surrounding the use and availability of patient data. Patient data is necessary when designing a system that is patient-centred—that is, designed with patients, not for patients. However, coherent and consistent patient data are difficult to attain. For example, between providers there is limited information surrounding the tests and treatments a patient has undertaken. These barriers make co-design difficult to implement. Additionally, it is hard to attain consent to access patient information. The current policy landscape presents a substantial barrier to the implementation of co-design processes to improve patient participation.
**Change, Funding, and Investments**

Data collection can empower the patient in multiple ways. Specifically, data can be used to schedule patients for services and identify spaces when openings arise due to cancellations. However, the use of patient data may not lead to immediate improvements in digital health technologies because funding is often released when a program has demonstrated a significant return on investment (ROI).

**Questions and Comments**

During the question-and-answer portion of the session, the audience had two questions. The first question was whether there was an increased need for economic analysis to demonstrate the benefit of a digital health program? The panelists stated there was an increased need for economic analyses that connected the social, economic, and behavioural (health) benefits of a digital health program to define what and how value is measured in order to attain funding.

The audience also asked what changes to the current health care landscape would be necessary to encourage the use of digital health technologies? The panelists indicated two major changes would need to take place to encourage the use of digital health technologies. The first change was related to physician compensation. Currently, physicians are paid per visit, but the use of digital technologies may reduce visits, thus reducing a physician’s annual compensation. To encourage physician participation despite possible decreases in compensation, the panelists believed physician compensation would have to change and that policy-makers would have to modify procurement methods to change how provider contracts are awarded.

**Enabling the Scale and Spread of Value-Creating Digital Health Solutions: Partnerships, Infrastructure, and Funding**

The following panel session discussed how strategic partnerships, infrastructure (networks), and funding could be used to achieve optimal scale and spread of digital technologies to ensure Canada leverages value-creating innovations that foster jobs and economic prosperity. The discussion included examples of consortiums developed in Canada, such as the Digital Technology Supercluster.

Greg Hein began the discussion by illustrating seven ways the former e-health strategy has influenced the transition to digital health:

1. **Maturing e-Health Infrastructure:** The current e-health infrastructure now includes a diversity of opinions from various types of service providers such as nurses, administrators, and government workers.
2. **Patient-Focused System:** There is a greater inclusion of patient advisory groups in the planning and implementation process, which has allowed innovators to make decisions that include the patient perspective.
3. **Digital Health by Design:** Evidence is important in the decision-making process and policy-makers must ensure they use good evidence when making decisions.
4. **Technology Is Not the Only Focus**: Several systems will need to be improved when transitioning to a digitized health system—for example, clinical standardization.

5. **Broadened Scope**: The former e-health system made it evident that a successful digital health system will require a chart outlining the specific roles and responsibilities of players.

6. **Creation of an Environment for Innovation**: Digitalizing the health care system will require data to be widely accessible. Currently, laws such as Ontario’s *Personal Health Information Protection Act* have made access to data challenging. Therefore, the major goal of a digitized health care system is to encourage companies to liberalize their data, to ensure all service providers and patients have equal access to their data.

7. **Centre of Excellence in Digital Health**: The Ontario Government has made investments in third-party research to produce metrics surrounding innovation. This research will aid in the decision-making process when it comes to deciding which projects to spread and scale. Additionally, it will help the government avoid fiscal pressure surrounding procurement so funding can be directed toward new solutions that use digital technologies.

**Key Highlights**

**Build a Platform for Collaboration**
The right partner is critical for success. In Canada, client-based and provincial partnerships and innovation spaces are important. Increasing collaboration allows for technological diffusion. Through technological diffusion a platform can be built that allows individuals to access different platforms. TELUS Health has partnered with Canada Health Infoway to digitize paper systems—which required that several consultations be held with physicians who work for several organizations, not just TELUS Health. The creation of a digitized paper system will create an integrated system that makes it possible for several providers to review patient information.

Using her son’s leukemia lab results as an example, Joby McKenzie demonstrated that there needs to be greater collaboration to improve the distribution of lab results. The proliferation of portals has made it difficult for patients and service providers to track the services a patient receives. Therefore, if a digitized health care system is going to be developed, it will need to include the patient perspective. This can be done by encouraging providers of portals to work together during the development phase, as well as requiring companies to work with their competitors to develop successful innovations for a digital system.

**Reduce Barriers to Entry and Build Reach**
TELUS Health has focused on building reach in the ecosystem by identifying users who are gatekeepers of the primary care system, such as physicians. If Canada wants to encourage the scale and spread of digital health technologies in its health care system, barriers to entry should be reduced. For example, InputHealth Systems has been able to successfully procure funding in the United States but has been unsuccessful in Canada due to complex laws and regulations.

**Consider the Role of Users**
Puneet spoke about the importance of considering how individuals who are not connected in the health sphere access and use the system, as this has a bearing on the spread and scale of digitized technologies. Accessibility is also important. If digital technologies are going to be utilized in the health care system, they must be available to all segments of the population.

Lastly, the scale and spread of digital technologies cannot be achieved without speaking to people who are going to utilize the technology. When designing digital health technologies, infrastructure to accommodate patient feedback should be in place. This infrastructure should be designed with the intention of fostering change. Patients are experts on their diseases and as such deserve to be paid for the information and expertise they provide to organizations. Therefore, organizations need to consider whether patients should be paid for their feedback, and if there is an opportunity to re-engage the patient later in the design phase.
The Rate of Adoption (Spread) Is Influenced by:

- improving current operations
- technology
- compatibility with belief systems
- how users use technology

Questions and Comments

During the question-and-answer portion, the audience had three questions. The first question was if there were any instances in Canada of service providers working to understand the experience of users, which included stories about how medication is taken. Because inclusion of the patient perspective is an evolving process, the audience also wanted to know if policy could be developed without including the patient perspective.

The panelists stated that currently in Canada, a network did not exist that allowed providers to understand the experiences of users or to provide information about how to take medication. However, they stated that information derived from the patient perspective could only be attained from individuals with lived experience. Without lived experience, an individual would have difficulty understanding the patient perspective.

The second question concerned the six portals available for users to access, with the audience wanting to know how patients should decide which one to use. Additionally, one audience member asked whether the Ontario Government should take the initiative to provide services such as MyChart to individuals at a low cost to avoid tethered services. Ultimately, the audience wanted to know if it was possible to find a way to better utilize the proliferation of portals so patients could access their information immediately?

The panelists agreed that the Ontario Government needs to find a way to create a single forum for accessing information. However, they did not believe a single forum required one provider; that there could be multiple platforms allowing users to access information in several ways. The panelists stated the most difficult problem would be determining which portal(s) should be used. To deal with this problem, Greg Hein stated the Ontario Ministry of Health Secretariat was focusing on integrating health services. While Hein stated better integration of services was necessary, he did not believe one universal portal was advantageous. Lastly, Hein stated the use of tax dollars required a higher level of accountability. Therefore, before the government could make decisions, such as subsidizing MyChart for users, third-party research and evidence was needed before policy-makers and the government could make province-wide decisions.

Lastly, the audience wanted to know what the proposed timeline was for the integration of digital technologies into the health care system—specifically, when the various initiatives mentioned would be completed. In addition to indicating that they understood the urgency in determining appropriate system design for digital technologies, the panelists stated that major steps were being taken to make virtual health care more common, including making it possible for patients to access their lab data virtually and creating a provincial repository. However, to avoid misuse of taxpayer money, the panel stated they are taking their time to explore technological developments to make the best decision possible.

Small and Large Group Working Session (SOAR): For Scale and Spread of Technological Innovations for Better System Integration in Canadian Health and Health Care

Louis Thériault
Vice-President, Industry Strategy and Public Policy
The Conference Board of Canada

Key Highlights
Strengths: What are the strengths of Canada’s current health care system in leveraging and getting the most value out of innovative technologies?
A major strength identified by participants was the ability to innovate in the current health care system. Canada’s universal system has several grants, intermediaries, and spaces to support innovation. Thus, innovating in Canada is significantly easier than innovating in other countries since it is a low competition environment with one main service provider. Another strength identified by participants was the ability to engage patients. Canada has created a strong foundation for engaging patients in co-design. Additionally, there are several organizations that are already connecting innovators with patients such as Canada Health Infoway and patient advisory networks. The last strength identified by participants was the ability for governments to partner with private organizations to deliver services (known as a public-private partnership).

Opportunities: What are the opportunities to optimize?
The first and most prominent opportunity identified by participants was the opportunity to create a centralized database with information about what studies and projects that have been done by previous players. One group suggested that the model used by the Ontario Centre for Excellence or PubMed should be used to store and organize information. The creation of a centralized database is useful because it would allow innovators to share information and discover what projects have been previously developed and whether they were a success or failure. A centralized database would also prevent the duplication of studies, which will increase resources and funding for other innovations. A second opportunity identified by participants was the ability to focus on low cost and service delivery because Canada only has one provider. The last opportunity identified was increased collaboration, which can occur through the proliferation and sharing of data or engagement of patients.

Aspirations: What are the goals or vision for the use of innovative technologies in the health care system?
The most common aspiration was a simplified model that incorporated the use of digital technologies in procurement and data access. Regarding procurement, participants wanted new models to be developed that would allow for the delivery of quality care for patients. Regarding data access, participants wanted to reduce the level of bureaucracy currently involved in data collection, and for the government to aspire toward a health care system where data collection is less fragmented and aims for greater integration. Specifically, participants wanted better integration of technology and research used to inform policy decisions. The goal of improving access to data is to improve population health and literacy. Participants also identified improved innovations as an aspiration. One-day participants expect technological developments that can be used to diagnose individuals, thus preventing unnecessary physician visits.

Results: What are the expected results if Canada can achieve these aspirations—for payers, health service providers, patients, families/caregivers, and all Canadians?
The expected results identified by participants can be divided into three different categories: patients, the health care system, and providers.

Patient: Participants envisioned that patients would have access to better health care options in the future due to improved access to data. Therefore, patients will be more informed consumers and be able to make better decisions.

Health Care System: Patients expect a system will develop that is effective and efficient. Specifically, patients advocated for a system that is sustainable. Therefore, in the future the health care system should be able to adapt to support the aging population and also be able to address future resource challenges by moving care into the home or community.

Providers: Participants anticipate providers will be able to provide services at a lower cost while still producing improved outcomes to increase the value of the health care system.

Meeting Wrap-Up and Feedback
Louis Thériault ended the meeting by summarizing the key overarching themes that emerged from the discussion:
Create a Sustainable Health Care System
When participants spoke about creating a sustainable health care system, it was not in reference to an economic model of sustainability. Instead, participants wanted a sustainable system that could adapt to changes in the population without significant deterioration of the current system.

Improve Access to Data and Data Sharing
Participants advocated for improved access to data and data sharing because the current system is highly fragmented due to bureaucratic mechanisms and incompatible platforms, which have led to the proliferation of data. However, data remain inaccessible among participants, which has prevented data sharing.

Provide for Greater Inclusion of the Patient Voice
The patient was identified as one of the most important players in improving the health care system. Participants stated repeatedly that an improved health care system will require the patient perspective in all facets of system development.

Fund Innovations Through Dynamic Procurement Models
Dynamic procurement models will be necessary in the future to fund innovations in digital health technologies. Current procurement models stifle innovation due to complex requirements, which some companies fail to fulfill, thus making it impossible for them to access funding. Participants advocated for greater collaboration between government and industry to discover what innovations are currently being developed and ways the government can support innovation in the digital health industry.

Important Phrases and Words
- Enthusiastic
- Fascinated
- Patient
- Thought-provoking
- Value
- Digital
- Optimism
- Provocative
- Opportunities
- Potential
- Necessary