

HEALTHCARE AT OUR FINGERTIPS: Enabling a Digital Health Environment for Canadians

Canadians are adopting digital- and data-driven solutions to improve their health, but their healthcare system lags far behind. Governments must adopt innovation, consumer-driven models and new regulatory frameworks in order to improve health outcomes for all. [By Shannon MacDonald](#)



SUMMARY AND RECOMMENDATIONS

Disruption is at the door of Canada's healthcare system. The increase in development and uptake of personalized, digital health solutions across Canada is an inevitable next step. We are about to experience the effect of multitudes of innovations in how digital enters the healthcare operating model.

Are we ready?

From coast to coast to coast, citizens, start-ups, researchers and corporations are in the game of problem solving for the health of our citizens. As individuals, we stand in lines, wait for follow-ups, fit in our workouts, go to annual screening appointments. We see the opportunity. We are frustrated and often moved to solve problems through our own inventions.

As a result, technological and digital solutions are being created every day. Yet the path for these inventions into the healthcare system—and into the hands of Canadian healthcare consumers—is often fraught with challenges and barriers. As a result, the consumer experience is not rapidly changing. We lack a true vision for the experience of the citizen in a digital- and data-driven healthcare environment.

In one century, advancements in research and technology have helped humankind to add an average 28 years to our lives. Over the past decade, healthcare consumers have become empowered by the volume and ease of access to health information. Yet the operating model for delivering healthcare has not fundamentally changed. The current model favours institutions rather than consumers, with less than 10 percent of Canadians taking advantage of e-services.

With stronger healthcare data usage, we have the opportunity to make our system more patient-centric by improving the accessibility and national portability of healthcare services.

If a publicly funded Canadian health system were created today, it would improve service delivery using human-centered digital tools. In fact, Canadians are eager to adopt digital health solutions that could dramatically improve the system.

To realize a system that enables equal access by delivering a consumer-driven model, federal, provincial and territorial governments must leverage existing performance data to:

- establish fee structures that fairly compensate physicians for their remote and virtual services, providing for stronger accessibility and portability
- develop a national strategy for the adoption of healthcare innovations that enable ideas and invention, and that improve the patient experience
- develop a federal, provincial and territorial policy framework for the adoption of digital healthcare solutions so that all Canadians can use their individual health data in partnership with their health professionals to identify personalized health solutions

The current consumer experience is also challenged by population density trends in Canada. Healthcare inequality has increased along with income inequality over the past 20 years. About 19 percent of Canadians live in rural areas, but only [eight percent](#) of physicians practice there. We have accepted ranges of healthcare outcomes, particularly where effectiveness of scale is not available. One recent study found that [rural hospitals in Canada had higher 30-day, in-hospital mortality rates](#) following stroke than either urban academic hospitals or the Canadian average.

Canada ranks low for healthcare system performance

The Commonwealth Fund ranked [Canada ninth](#) out of 11 countries for healthcare system performance and 10th for access sub-indicators. In accessing healthcare, consumers face several issues:

- Wait times continue to increase. The Commonwealth Fund's 2016 International Health Policy Survey of Adults found that Canadians reported [the longest wait times](#) among 11 countries. Wait times between getting a referral from a general practitioner and getting medically necessary treatment vary across Canadian provinces, with New Brunswick reporting the longest median wait time, [at 41.7 weeks](#).
- [More than 40 percent](#) of Canadians said that the last time they visited an emergency department, it was for a condition that could have been treated by their regular providers if they had been available.
- And access to dental care is also an issue for some Canadians, with [half of Canadians in the lower income bracket](#) having no dental

insurance. Dental health affects overall health and yet, with the exception of dental surgery in hospital, it is largely excluded from our traditional system.

Canadians are eager to move forward with digital health solutions

The development of personalized, digital health solutions is a natural go-to place for inventors and problem solvers looking to address inequality, lack of accessibility and poor system performance. Consumers are increasing the use of self-service digital health tools. Use of The Internet of Health Things solutions like smart scales and wearables, and use of social platforms such as online communities, has nearly [doubled in two years](#). Consumers are willing to share their wearable health device data with doctors (90 percent), nurses and other healthcare professionals (88 percent). Increasingly, Canadians are willing to share wearables data with online communities or other app users (up from 38 percent in 2016 to 47 percent in 2018).

Patients are quickly becoming accustomed to the electronic collection and use of health data. [One in three people surveyed across seven countries have accessed their electronic health records](#) and [almost 9 out of 10 Canadians](#) agree that accessible, secure information sharing between individuals and healthcare professionals would have a positive impact on the health of Canadians. [Nearly one third](#) of Canadian adults reported using mobile apps to monitor their health.

If we look at other jurisdictions' approaches to healthcare challenges, we see that digital health solutions are a priority. The European Health Parliament's Committee on robotics, artificial intelligence (AI) and precision medicine is promoting the development of digital health solutions under three



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main themes: availability, affordability and accessibility. Medicaid in the United States is looking specifically at digital technology to serve rural populations. Mercy Virtual, a virtual hospital in the U.S. with no beds, [serves a population of 750,000](#) by using technology.

Our health system must use digital solutions

As citizens of the digital age, we see the benefits of personalized digital health services and more efficient use of our health data. Data-driven digital tools can facilitate the way we communicate with each other, help us address cost and accessibility issues, gather rich data from various sources to enable predictive analytics, and improve the health and wellbeing of populations. Yet, our healthcare system provides little incentive to use these tools. Among the challenges: the accountability and compensation models in healthcare do not consider the consumer experience an important criterion; our access to online appointments, test results and virtual consultations is inconsistent; and privacy concerns cause data to be siloed in the databases of different service providers.

A number of key factors will have to be addressed at national, provincial and territorial health tables to create an environment that promotes the use of digital health tools to create a more patient-centric healthcare system.

RECOMMENDATIONS

- 1 **To enable a system that delivers easily accessible, personalized healthcare services when and where they are needed, our governments must create fee structures for physicians that provide adequate and fair compensation for virtual consultations, and that incentivize using information gained through consumer devices. A national framework to guide this would be beneficial.**

While some provinces have implemented pilots or revised fee structures, there is no consistent strategy at the national level. The availability of publicly funded telehealth varies across the country, with some provinces providing [little or no funding for it](#). Many providers resort to digital communication (i.e. text messaging, photos and emails) in an unsecure environment to accommodate patient demands for improved ways of communicating with their general and specialist practitioners and their teams. Virtual consultations currently have some licensing and regulatory constraints that limit their use across provincial borders, slowing down their uptake and impact.

- 2 **The Government of Canada should develop a national strategy on the adoption of healthcare innovations. The strategy should aim**



critical as the platform itself.” A past concern about hosting data in Canada has been largely resolved by cloud providers building infrastructure in Canada to house the data. Concepts such as value-based care, population health management, and digital/mobile user demand would require even more storage infrastructure, which only the cloud can provide efficiently and affordably. Cloud providers are generally better than healthcare organizations at managing the risks associated with infrastructure, software, and privacy and security protocols.

We also need to expand the notion of group buying and procurement beyond just hospitals. There are thousands of healthcare agencies and primary care practices that need assistance in technology procurement, co-ordination of leading practices, standard templates, education and training, data security and privacy compliance, and access to technology solutions. These smaller healthcare delivery organizations often find it challenging to keep up with technology and find the right solution. These organizations would benefit from more clearly defined best practices for purchasing and securely integrating new technologies into their healthcare delivery

models; they need more coordinated system support to help them adopt new ideas and approaches.

CONCLUSION

Observing how digital tools have impacted other industries in significant ways, we can predict that healthcare will not be immune to disruption. Canadians are already embracing this change by using digital tools and devices for personal healthcare purposes, leveraging mobile apps, websites and wearables to harness personal health data where available to them. They are driving a consumer-centered approach to healthcare information management.

Canadians are also proud of their publicly funded system. The foundational tenets of the Canada Health Act ensure portability and accessibility. By moving our system forward with national cohesion and leadership, we can better ensure a digital future that consistently adheres to the goals of our healthcare system. Canadians have an opportunity to ensure digital transformation is consistent and fair for everyone. Effective patient-centered transformation will require the integration of federal, provincial and local governments.

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