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# *Making care mobile*

Shifting perspectives on the  
virtualization of health care



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# Overview

Canadians pride themselves on having one of the best health care systems in the world. But pressures on the system have government and health care practitioners seeking ways to improve our quality of care by providing more efficient, effective and citizen-centred services.

Canadians are choosing to connect with service providers online more frequently. They've adopted new technologies and consume information and services on the go. While other industries have spent the last few decades becoming more efficient and consumer-centric through the use of technology, the health care sector has yet to capitalize on the benefits of e-service delivery. Virtualization of care is needed to modernize the health care system and is crucial to improving access to services for Canadians.

Through our study of Canadian perspectives on the virtualization of health care we confirmed that the next wave of innovation in service delivery will need to put the patient at the centre of the solution. This means providing faster, more convenient access to care in the ways Canadians want it.

This report explores Canadians' attitudes towards pertinent issues in the health care industry, and provides an analysis of what they expect decision makers to keep in mind when thinking of the future of health care in Canada.

## ***This report helps you address:***

What improvements are citizens looking for in health care?
What channels are citizens using to access health care and information now, and in the future?
What innovations are citizens ready to use that can make health care delivery more efficient?
What are the future possibilities in health care delivery?

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# *About the project*

Citizen Compass is our online initiative designed to provide Canadians with the opportunity to express their opinions and ideas on the future of services through informed participation and deliberation.

Over a three week period, 2,413 Canadians participated to address the central question posed in this project, “What does the future of health care delivery look like?”

The research was conducted through a ‘Choicebook’ which took respondents through an interactive experience. They learned about virtual health (vHealth) and mobile health (mHealth), and explored important questions related to key issues. After being presented with some of the advantages, disadvantages and trade-offs involved with vHealth and mHealth, respondents were asked to think through what services they would be interested in receiving.

Additional information on the research process and methodology is available in the Appendix.

These report findings focus on the qualitative and quantitative results stemming from the Choicebook. These results will help identify how emerging delivery channels can be developed to address what Canadians need and want, while simultaneously reducing costs.

# What are Canadians saying?

Canadians continually choose to connect to the world around them through emerging technologies. Over the last year, tablet adoption has almost doubled,<sup>1</sup> and close to half of mobile customers in Canada operate a smartphone.<sup>2</sup> This rapid adoption rate demonstrates that Canada is among the most connected countries in the world<sup>3</sup> and it's changing the way citizens access information and services.

78%

believe their privacy and confidentiality is well protected

Canadians are well aware of the problems facing our health care system. Growing demands on the system by an aging population mean that efficiencies are required so Canadians have timely access to the services they need. Our survey found that Canadians are becoming more comfortable interacting online and that they see mHealth and vHealth solutions as a way to address key concerns.

76%

rate their quality of care as high

Overall, respondents are satisfied with the health care they receive. They believe their security and privacy are well protected and they rate the quality of care they've received as high. But respondents also indicate that there are areas for improvement. Specifically, they expect improved access to their health care providers through the use of more modern communication channels.

23%

believe they waited too long to receive care

20%

believe that access to care needs improvement

1 The Canadian Press. February 2013. Tablet Ownership Canada: 1 in 4 have one, and the iPad is still king. [http://www.huffingtonpost.ca/2013/02/20/tablet-ownership-canada-ipad\\_n\\_2726499.html](http://www.huffingtonpost.ca/2013/02/20/tablet-ownership-canada-ipad_n_2726499.html). Accessed May 1, 2013.

2 Ipsos Reid. February 2013. Close to half of Canadians now own a smartphone. <http://www.ipsos-na.com/news-polls/pressrelease.aspx?id=6005>. Accessed May 1, 2013.

3 CBC News. March 2011. Canadians lead world in internet use: report. <http://www.cbc.ca/news/technology/story/2011/03/09/canadians-internet-most-active.html>. Accessed May 1, 2013.



## What's virtual health?

Virtual health (vHealth) allows health care professionals to collaborate with each other and deliver care remotely. This means health care providers can collect patient data and deliver care from a different location than the patient, using technologies such as video conferencing, so that patients can receive care from the comfort of their own home or in their local community.

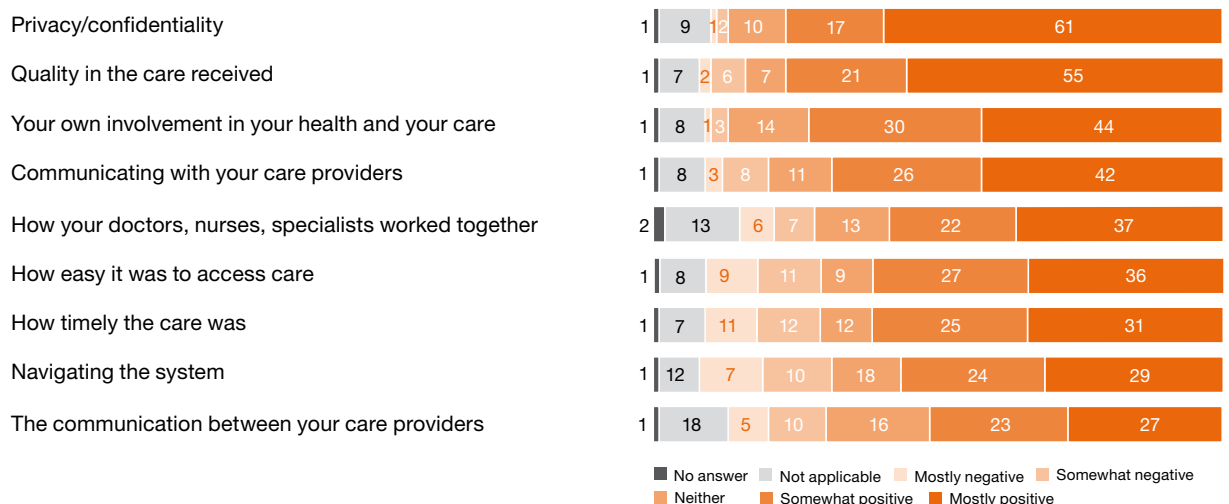
## What's mobile health?

Mobile health (mHealth) is the use of wireless tools to deliver and access virtual care and health information.

Often, virtual health services will be delivered using mobile devices. The device could be a cellphone or tablet, a wireless medical monitor or some other device that's not on the market yet. A doctor, nurse and/or patient could use these devices to communicate, share information, or monitor health in many different situations.

**Figure 1: Overall health care experience**

Q: For each of the following areas, please rate your health care experience over the past year:



# Are Canadians ready for vHealth and mHealth?

Canadians believe there are many benefits to adopting vHealth and mHealth solutions. They see convenient ways to improve access to their care, while allowing them greater control. As more and more services become accessible online, these findings are likely to become more pronounced.

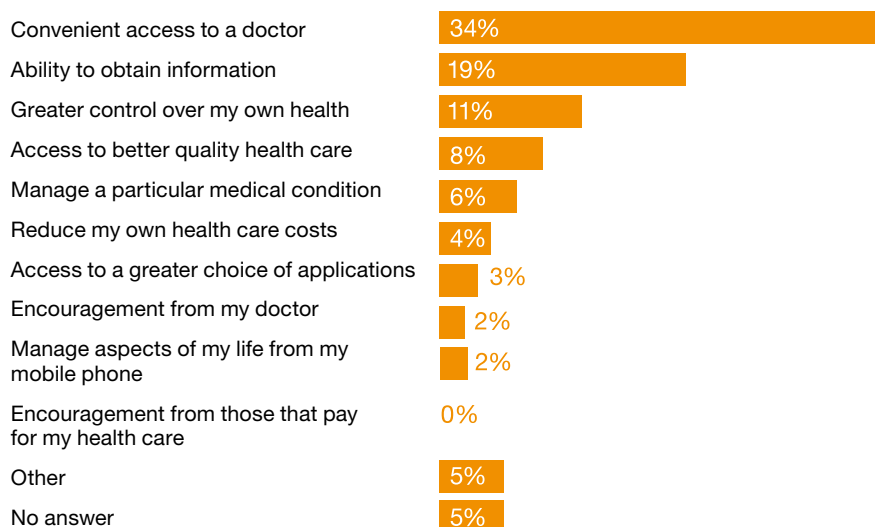
Although very few respondents reported having used vHealth or mHealth solutions to date, most of those who had done so, indicated their experience was positive. Two indicators demonstrate Canadians are highly interested in exploring these solutions further:

- Almost half of Canadians believe that mobile health apps will make health care more convenient in the next three years.
- Nearly two-thirds of Canadians would consider using vHealth options in their own care or for someone they care for.

These findings demonstrate that Canadians are ready for the virtualization of their care and that they believe these solutions will improve their health care experiences once implemented.

**Figure 2: Appeal of mHealth**

Q: What would be the main motivation for you to use mobile health services and applications?



79%

of patients report that they would definitely, or are likely to, use email services with their doctor

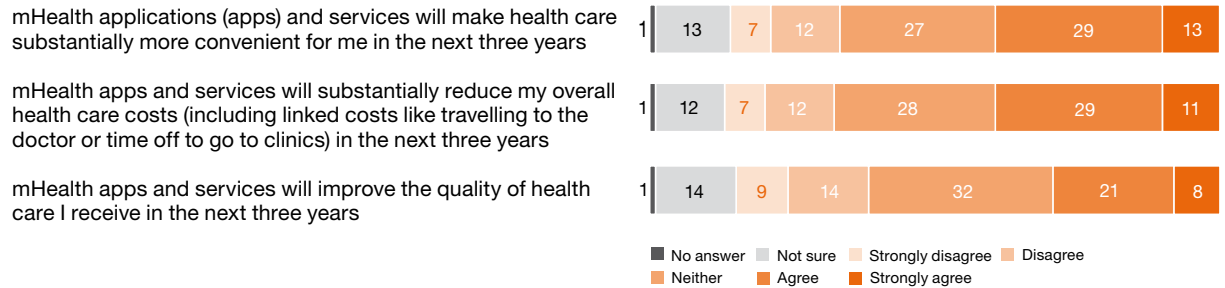


83%

of patients report that they would definitely, or are likely to, use online prescription refill services

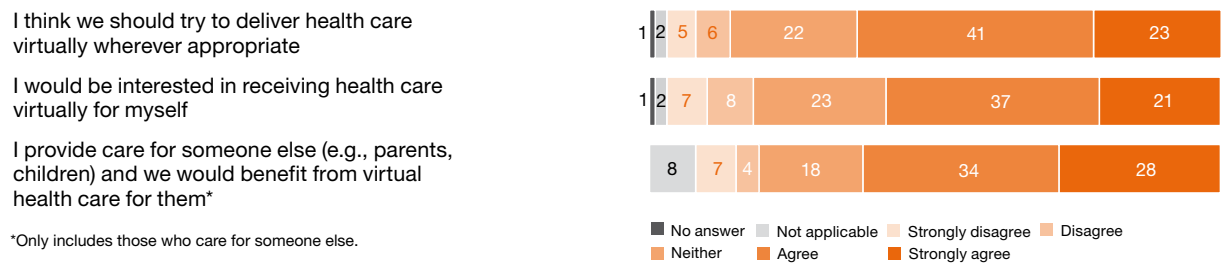
**Figure 3: Expectations for mHealth over the next three years**

Q: For each of the following statements, please indicate how strongly you agree or disagree:



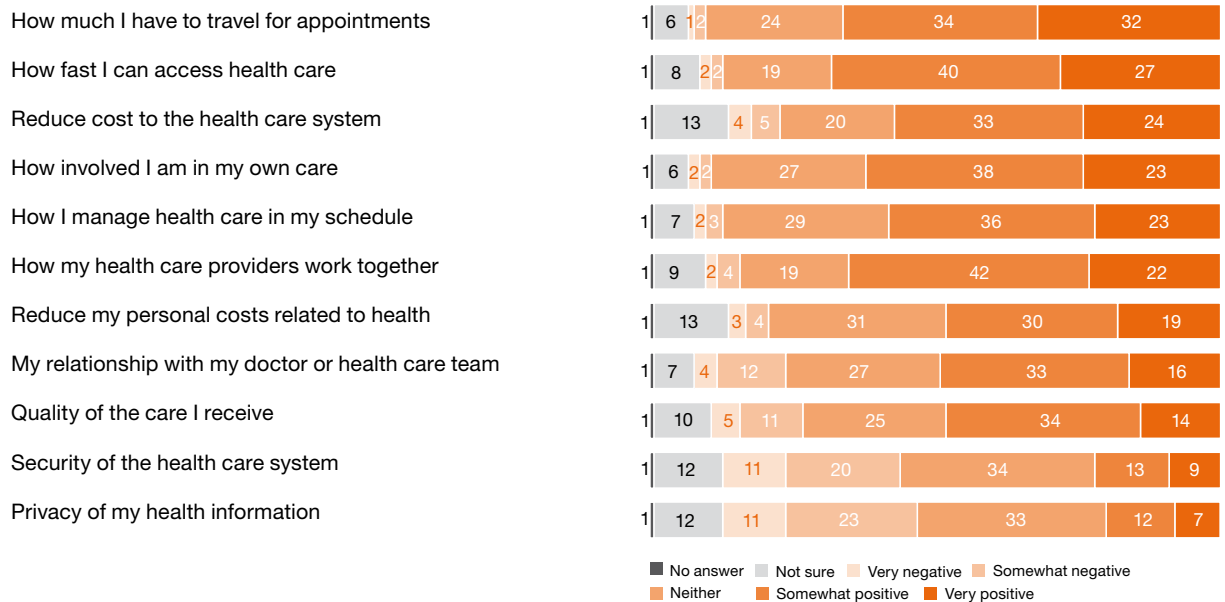
**Figure 4: Attitudes about vHealth**

Q: For each of the following statements, please indicate how strongly you agree or disagree:



**Figure 5: Perceived impact of vHealth by area**

Q: Do you think vHealth would have a positive or negative effect in the following areas?



# Emerging delivery models

After gauging respondents’ overall opinions of the general concepts of mobile health solutions, we posed a series of scenario-based questions to determine if their attitudes shifted when presented with real life situations.

**Canadians told us:**

- they want improved access to their health care providers
- they want the convenience of engaging in their health care in their own time
- they see vHealth and mHealth as a means of doing so

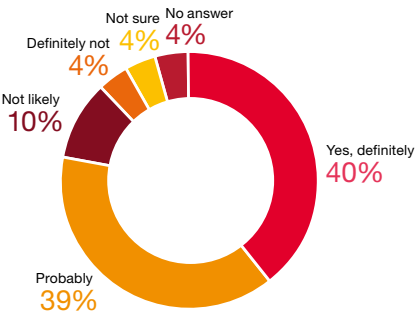
## Canadians will use email for non-urgent health care concerns

There are few industries that haven’t digitized their communication with the people they serve, other than those in the health care profession. While it may never fully replace other service delivery channels, emailing is so common today, Canadians expect it to be an option.

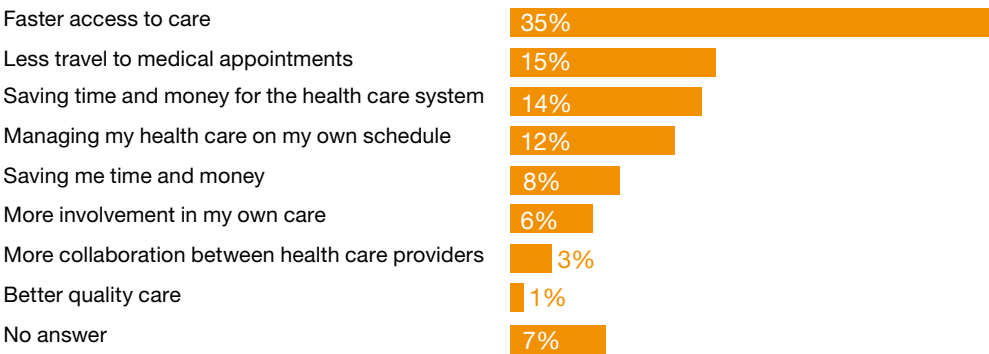
We found an overwhelming majority of Canadians would consider using a secure email system to reach their physician for non-urgent health care issues to increase the speed at which requests could be addressed. Two main factors would make users more comfortable with email adoption; confidence in the security of the system, and records of the email exchange.

Patient-doctor digital communication of routine lab test results was highly ranked by those polled. Just under half of respondents indicated they would definitely use the service and another third indicated they would probably use it if it was available. Survey respondents indicated that concerns with the service may be alleviated if the doctor’s office contacted them regardless of the results being normal or not.

**Figure 6: Likelihood of using secure email for a non-urgent health concern**



**Figure 7: Perceived benefits of secure email for a non-urgent health concern**



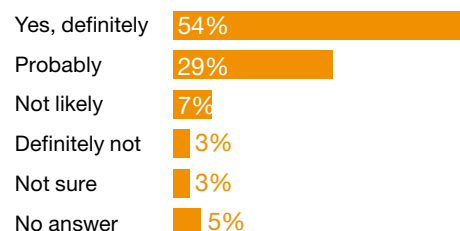


## Canadians will use email for prescription renewal



Online prescription renewal was the most popular scenario, with more than half of respondents saying they would definitely use it and one-quarter of respondents saying they would probably use it. Respondents explained that the appeal of online prescription renewal would be convenient and provide faster access to care. They also reported that if a prescription renewal service existed, it may save them and the health care system time and money.

**Figure 8: Likelihood of using prescription renewal service**



### *Email for health questions and prescription renewal:*

Health care professionals in the United States have begun adopting email as a secure communication channel for patients to ask general health questions, renew prescriptions or to schedule appointments.

In fact, the practice is being encouraged through financial incentives by the federal government. According to *Taking the Pulse*, an annual study of more than 3,000 doctors conducted by Manhattan Research, 85% of US physicians own or use a smartphone professionally, and nearly 40% reported they communicate online with patients through secure messaging or online video conferencing.<sup>4</sup>

Another study by Kaiser Permanente noted that since secure email messaging began in late 2005, the volume of messages increased sixfold over a period of two years and resulted in about 25% fewer office visits.<sup>5</sup> Doctors have noted cost savings and believe their use of technology improves the reputation of their practice. Patients indicated that the service resulted in fewer unnecessary visits and increased access to their health care providers.

<sup>4</sup> Manhattan Research. 2012. *Taking the Pulse U.S. 2012*. <http://manhattanresearch.com/Infographic-Images/data-snapshot-taking-the-pulse-us-image>. Accessed May 9, 2013.

<sup>5</sup> Health Affairs. Volume 28, Number 2. April 2009. The Kaiser Permanente Electronic Health Record: Transforming And Streamlining Modalities Of Care. <http://xnet.kp.org/kpinternational/docs/The%20KP%20EHR-Transforming%20%20Streamlining.pdf>. Accessed May 1, 2013.

## Canadians think there should be an app for that

There are countless mobile phone applications that help users do everything from managing their personal finances to planning social activities. Canadians told us they're ready for apps for non-emergency health care services too.

### bant

bant is an iPhone app that was developed to help teens manage type 1 diabetes by capturing, analyzing, and sharing their blood glucose data. The app was developed by a multidisciplinary team at the University Health Network (UHN) in collaboration with SickKids, and in consultation with patients and their advocates.

bant works by wirelessly connecting the patient's iPhone to their blood sugar monitor to store and track data, such as blood sugar levels, and enter nutrition notes. Unlike other diabetes apps that are simply digital logbooks, bant allows users to connect to other young people with diabetes via social networks and it rewards users for meeting diabetes self-management goals.<sup>6</sup>

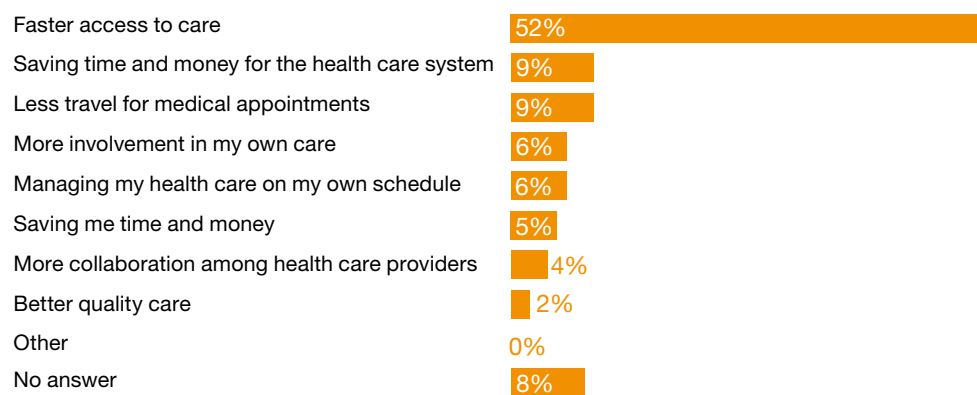
We presented three types of skin assessment apps to participants and all three options were well received. Canadians were asked to tell us how comfortable they would be using the following virtual assessment tools:

- **Physician app:** An app their family physician uses to capture and send a photo of the patient's skin condition to a specialist for assessment
- **Photo-to-physician app:** An app the patient uses to capture and send a photo of their skin condition to their family physician who determines whether a specialist is required
- **Self-assessment app:** An app patients could use to compare their skin condition against a comprehensive database for self-assessment as to whether to seek a specialist

The most popular option – the physician app – had almost two-thirds of respondents saying they would consider using the service. However, 21% of respondents said they would prefer to use the photo app to send a photo to their physician and 20% said they would prefer the self-assessment app. Faster access to care was the reason these options appealed to respondents, while cost savings for the health care system and fewer unnecessary appointments were other key reasons noted.

<sup>6</sup> Human Health Factors. bant—a diabetes app for the ePatient.2012. <http://humanfactors.ca/projects/bant-%E2%80%93-a-diabetes-app-for-the-epatient/>. Accessed April 23, 2013.

Figure 9: Appeal of virtual assessment tool



## Virtual health: A hospital with all the comforts of home

Hospitals are struggling to cope with the demands of caring for an aging population, higher costs for care and tightening budgets. One of the ways to address these pressures is by implementing virtual care. As a larger segment of the population becomes more reliant on the hospital network, other options for care need to be explored to ensure Canadians have access to the care that they need.

We asked Canadians to think about the concept of having their health care provided virtually after a medical procedure. Three scenarios were presented to demonstrate ways in which patients could be monitored by their health care team following a hospital stay. We presented the benefits, which include not having to travel or not having to remain in a hospital longer than necessary. We also presented some of the drawbacks, such as increased personal accountability and potential impact on the quality of care received.

The majority of Canadians indicated that vHealth care would provide good options to use in the right situations. We further explored why vHealth would appeal to citizens; they believe it would reduce travel times for care (32%), allow faster access to care (27%), and may save the health care system time and money (24%).

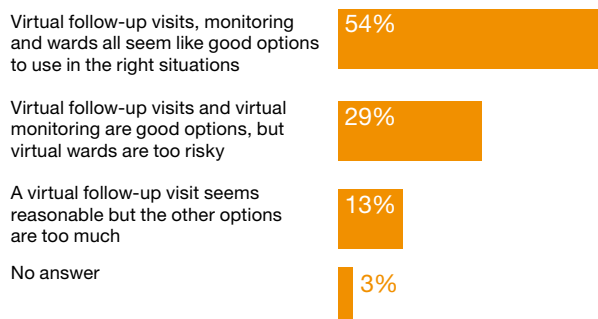
# 24%

of Canadians said they would definitely use virtual monitoring if it were available

# 43%

of Canadians said they might use virtual monitoring if it were available

Figure 10: Virtual Ward – options



### Exploring virtual wards

In Ontario, more than a third of patients discharged from internal medicine wards are readmitted within three months. Because readmissions are so common, the Ontario Ministry of Health and Long-Term Care estimates the cost at more than CA\$700 million a year.<sup>7</sup>

That's why the Toronto Central Community Care Access Centre and several hospitals associated with the University of Toronto are exploring the benefits of virtual wards for high-risk or complex patients released from hospital. The trial, funded by the Canadian Institutes of Health Research, will measure the impact of the virtual ward – around-the-clock access to interdisciplinary medical teams from the comfort of home – on readmission rates for high-risk patients.<sup>8</sup>

<sup>7</sup> Eng S. Towards patient centred care part 2: virtual wards and good old fashioned homevisits. 2011. <http://www.carp.ca/2011/10/31/towards-patient-centred-care-part-2-virtual-wards-and-good-old-fashioned-homevisits/>. Accessed April 23, 2013.

<sup>8</sup> Canadian Agency for Drugs and Technologies in Health. September 2011. The Use of Virtual Wards to Reduce Hospital Readmissions in Canada. [http://www.cadth.ca/media/pdf/ES-27\\_virtual\\_wards\\_e.pdf](http://www.cadth.ca/media/pdf/ES-27_virtual_wards_e.pdf). Accessed May 3, 2013.

## Key considerations

Several concerns were brought forward by respondents throughout the survey. This indicates that while Canadians are ready for digital health care services, they remain cautiously optimistic. As indicated below, the primary and secondary concerns for Canadians in three of the four scenarios were quality of care and the privacy of their personal health records.

Figure 11: Concern with core service ideas

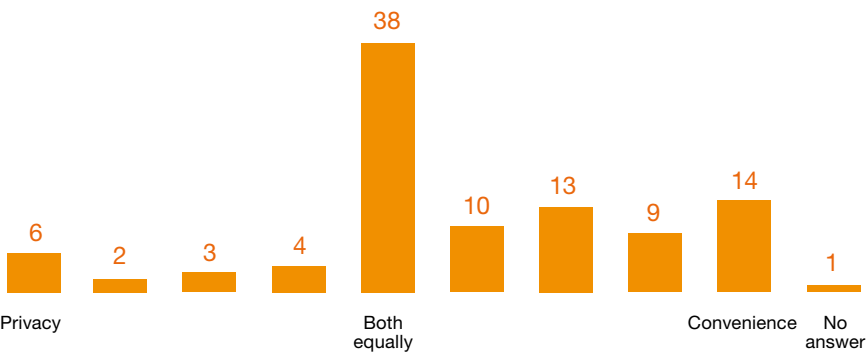
	Email doctor	Prescription renewal	Virtual Assessment	Virtual follow-up
The quality of the care	30	15	50	62
Keeping my health information private	21	20	16	9
Losing the personal relationship with my doctor	19	15	9	11
Keeping the system secure	15	19	13	9
People could abuse the health care system	8	23	5	3
No answer	7	8	7	6

Additionally, we asked Canadians to weigh the advantages of vHealth against the drawbacks of digital health care. Interestingly, they showed more preference for convenience.

These findings demonstrate that citizens value the quality of care they receive in Canada. Quality and privacy are essential requirements, and Canadians expect service providers to continue to get these right. Moving forward there needs to be an increased focus on making health care more convenient and accessible.

The results also indicate that Canadians trust the security of their health care system. For any mobile or virtual health care initiative to be successful, Canadians will need to be assured that their data is protected.

Figure 12: Virtual monitoring: Importance of privacy vs. convenience



# Transforming health care delivery

A dramatic shift is underway as the foundation is being set for the virtualization of health care delivery. Driving this shift is the continuous digitization of data, diagnostic images, and symptom assessment from patients themselves.



We've been through this before. This transformation will be as dramatic as the one that occurred during the 1980s and 1990s, which saw a movement to outpatient care delivery for follow-up and community-based chronic disease management. This shift provided the momentum for major system modernization and restructuring of people, assets, technology and care processes.

Increasingly, vHealth will improve overall health care practices:

- Virtual visits will become more common, or may replace some in-person visits.
- Patient experience will improve, and access to services will be more coordinated.
- Cost savings will be found, especially in supporting patients and family caregivers who are frequent users of health care services.
- Custom-built solutions will enhance doctor-patient communication, coordinate care more efficiently, and make more effective use of time for the patient, family and care team.

mHealth is happening quickly. Hospitals, doctors, researchers, patient advocacy groups, and commercial developers are rapidly creating apps. There are thousands of apps available in the major app stores. We need to construct an apps delivery system to safely and effectively connect patients with the apps they need.

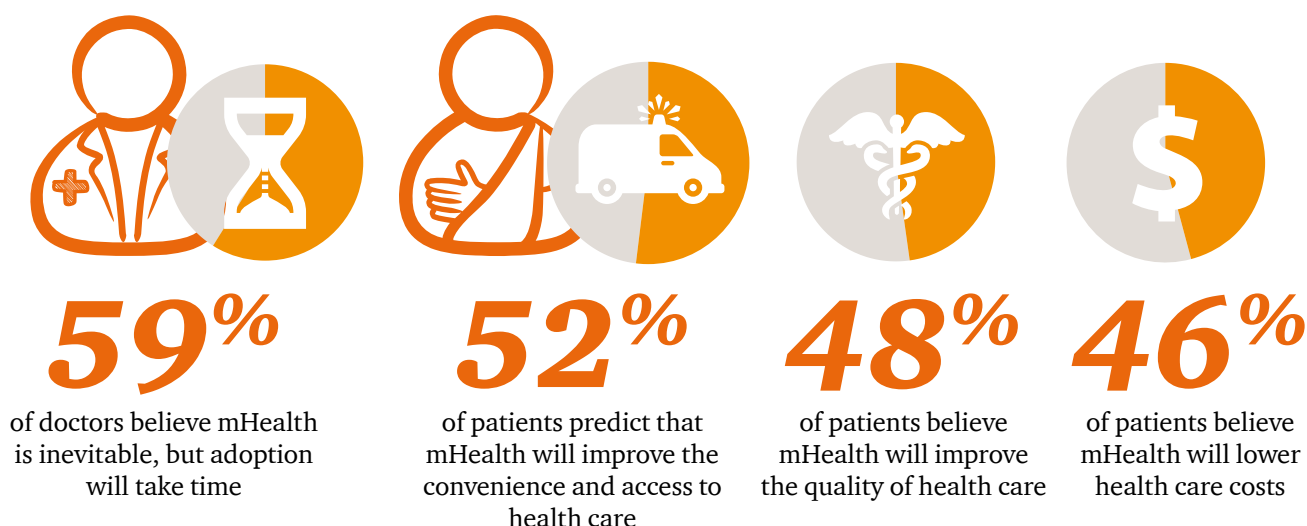
The future of mHealth is promising:

- Health care organizations will start to develop ways to provide physicians with the list of apps that have been tested and approved for use by their patients.
- Consumers will soon be able to easily identify and access health and fitness apps that are credible and well-designed.
- And soon we will start to see an organized approach to delivery and regulation of apps, just like we do with medications in drugstores. Some over the counter, some prescription, some front of store.

Innovation in the mHealth and vHealth space has been fast-moving over the last three years. Early Canadian leaders in mHealth are trying out different approaches, and Canadians have said they are ready and waiting.

## Conclusion

The global opinion of health care is shifting. Doctors and patients all over the world not only believe the virtualization of health care is coming, but that it will improve the delivery of care when it does. For the Canadian health care sector to remain competitive as a leader in medical services, new delivery methods need to be explored and implemented.



### ***Canadians are interested in virtual and mobile health practices that would improve the speed of delivery and access to their care:***

- Canadians believe that secure email would allow them faster access to care and would result in fewer medical appointments, saving the health care system time and money.
- Secure messaging to renew prescriptions and receive routine lab test results is perceived by Canadians as a cost and time efficient solution.
- Virtual assessment tools are appealing to Canadians because patients could be connected to their health care professionals in a more timely fashion.
- While virtual care is also a popular option, Canadians need to be assured that their quality of care would not be compromised.

The health care sector's ongoing commitment to protecting privacy and providing quality care in traditional settings may help alleviate Canadians' concerns with the implementation of virtual health care. While not yet mainstream concepts, mHealth and vHealth initiatives are perceived by Canadians as ways to make health care easier to access, easier to navigate and more timely.

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# Appendix

## Methodology

The data presented in this report is based on a representative sample drawn from the Ekos Probit online panel.

Respondents were randomly selected to participate in this study and were invited to visit the Choicebook site.

The Choicebook is an advanced survey tool that provides participants with an opportunity to explore issues and options and make informed decisions. The strategy was to get a sample that would reflect the Canadian population as closely as possible. In addition, the sample was allocated on a disproportionate basis to get a larger sample in some provinces. To adjust for this sampling strategy and for the tendency for some types of people to be more likely to respond, the data has been weighted to the national population based on age, gender and region.

***Fieldwork took place in March 2013.  
A total of 2,413 completions were achieved.***

A sample of this size has a margin of error of plus or minus 1.87%.

### ***Respondent profile***

**58%**

3+  
medical  
appointments

**39%**

3+ medical  
appointments  
for same condition

**39%**

suffer from  
chronic  
conditions

**12%**

care  
givers

## ***Enhancing value for health care organizations***

Leveraging technology to enable your service delivery model is a critical competency today. Delivering on the promise of business transformation through information technology (IT) not only requires innovative technology, but also a service organization that's agile and effective in managing the value from today's IT spend. We provide consulting services to build trust and enhance value for our health care clients.

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## ***Interested to learn more about the findings?***

Contact our local public sector professionals to request a private briefing.

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