

# Citizen Brief

## Identifying and Harnessing the Potential of Technology in Long-term Care Settings in Canada

15 January 2021



HEALTH FORUM

**EVIDENCE >> INSIGHT >> ACTION**



## The McMaster Health Forum

The McMaster Health Forum's goal is to generate action on the pressing health-system issues of our time, based on the best available research evidence, as well as citizen values and stakeholder insights. We aim to strengthen health systems – locally, nationally, and internationally – and get the right programs, services and drugs to the people who need them.

## About citizen panels

A citizen panel is an innovative way to seek public input on high-priority issues. Each panel brings together 14-16 citizens from all walks of life. Panel members share their ideas and experiences on an issue, and learn from research evidence and from the view of others. A citizen panel can be used to elicit the values that citizens feel should inform future decisions about an issue, as well as to reveal new understandings about an issue and spark insights about how it should be addressed.

## About this brief

This brief was produced by the McMaster Health Forum to serve as the basis for discussions by the citizen panels on identifying and harnessing the potential of technology in long-term care settings in Canada. This brief includes information on this topic, including what is known about:

- the underlying problem;
- three possible elements of an approach to addressing the problem; and
- potential barriers and facilitators to implement these elements.

This brief does not contain recommendations, which would have required the authors to make judgments based on their personal values and preferences.

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# Key Messages

## **What's the problem?**

- Several factors make it hard to identify and harness the potential of technology in long-term care settings, including:
  - residents of long-term care homes have complex health and social needs;
  - there are many long-standing issues in the long-term care sector across Canada;
  - the full potential of technology isn't being used to address these issues and to improve the quality of life for residents, caregivers and their families; and
  - there are many barriers to designing and using technologies in long-term care homes.

## **What do we know about elements of a potentially comprehensive approach for addressing the problem?**

- **Element 1** – Ensure that long-term care homes have the supports they need to use technologies
  - This element could include efforts to: upgrade existing buildings; ensure future buildings are designed and built in a way that is appropriate for facilitating the adoption of technologies; and ensure community supports for technology use are available (for example, availability of affordable broadband internet connections).
- **Element 2** – Engage long-term care home operators, staff, residents, their caregivers and the industry in developing and adopting technologies
  - This element could include requirements to engage all stakeholders in developing technologies to help ensure that they meet their needs and are usable.
- **Element 3** – Make small yet rapid changes that are centred on residents, caregivers and families to support the development, evaluation and implementation of new technologies
  - This element focuses on an approach called “rapid-learning systems.” Decision-makers at all levels (from long-term care operators to those working in the government) could try new technologies, rapidly evaluate them in ‘real time’, and quickly adjust them when necessary.

## **What implementation considerations need to be kept in mind?**

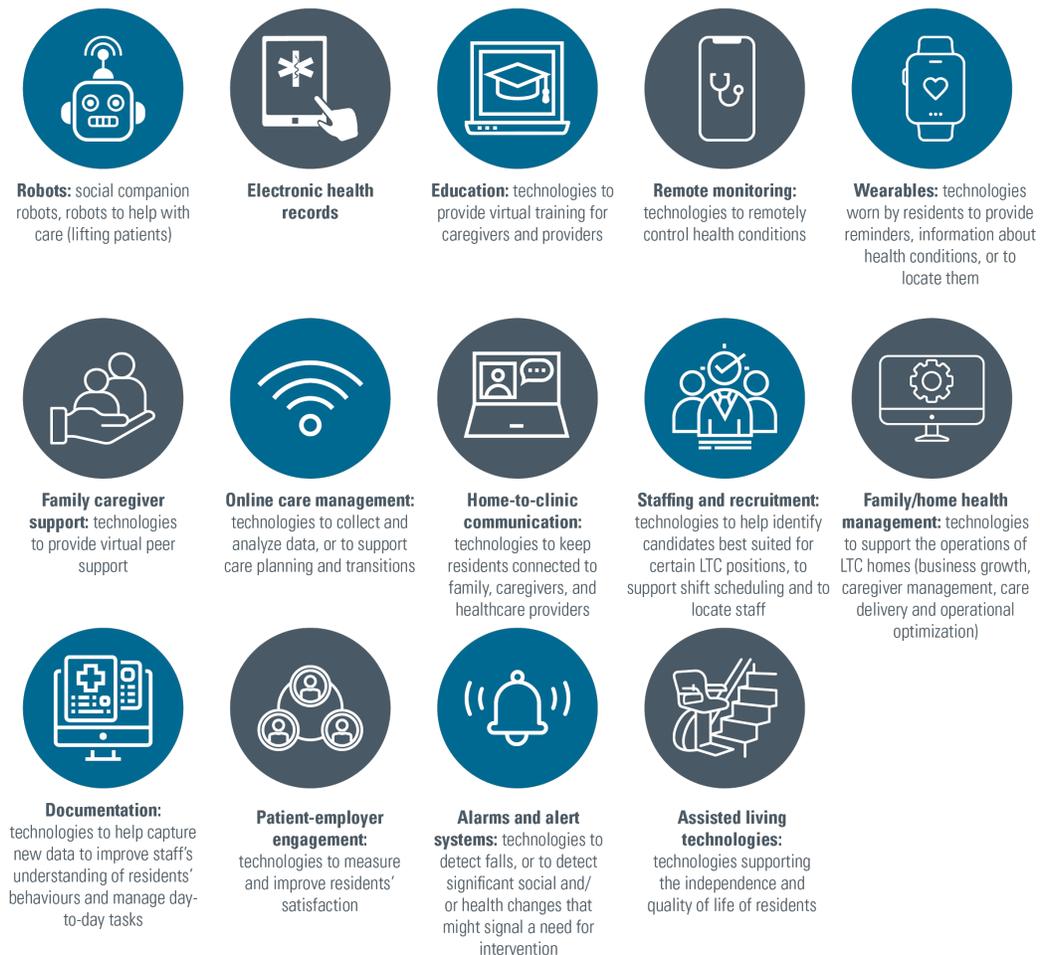
- The biggest barrier may be the long history of not being able to adopt promising health innovations in Canada.
- Windows of opportunity might include the COVID-19 pandemic that has exposed the need for major reforms in the long-term care sector (which could harness the potential of technology).

# Key concepts and questions

>> We want to hear your views about a problem, three elements of a potentially comprehensive approach to addressing it, and how to address barriers to moving forward.

To clarify some concepts, we provide an overview of the types of technologies that could be used in long-term care in Figure 1, and a glossary of important terms in Box 1. In Box 2, we provide the questions that you will discuss during the panel.

**Figure 1: Types of technologies in long-term care homes (1)**



## **Box 1: Glossary**

### **Long-term care homes**

Long-term care homes (sometimes referred to as nursing homes, continuing-care facilities, or residential-care homes) provide 24/7 access to nursing and personal care to residents – generally more than can be safely met through supportive housing or a retirement home, but not so much care that they require admission to a hospital unit. In Canada, there are more than 2,000 long-term care homes, some publicly owned and other privately owned (see Figure 2).

### **Technology**

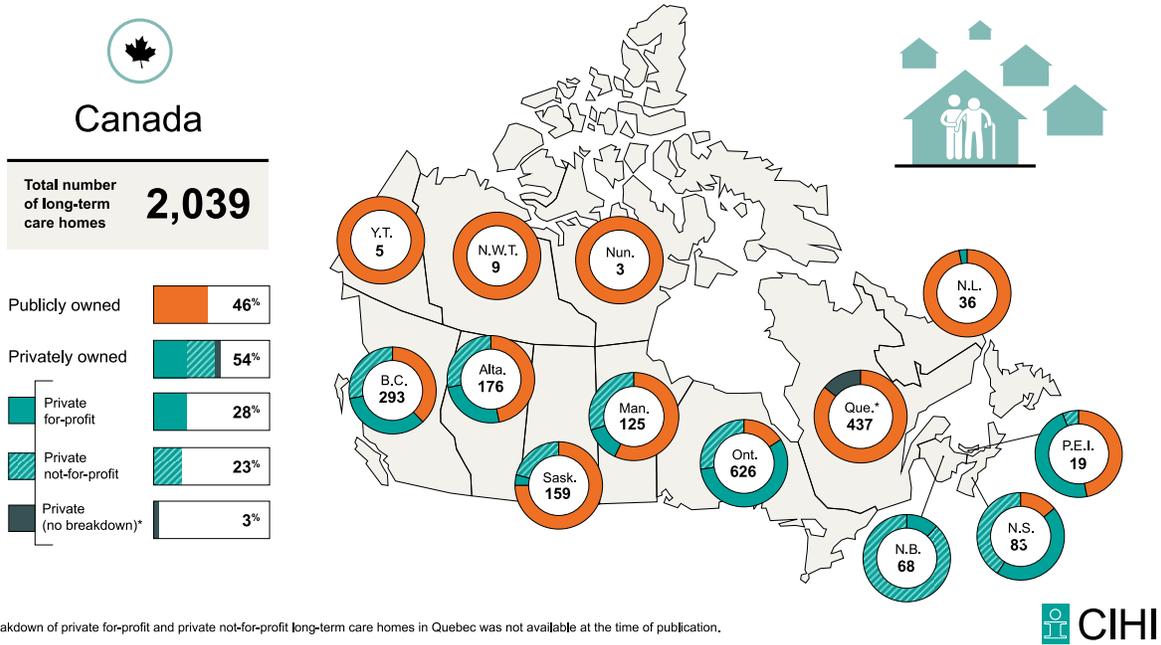
Technologies can take many forms. In long-term care homes, we commonly find 14 types of technologies, which are depicted in Figure 1. For the citizen panel, we focus on technologies that can improve:

- Communication that supports communication between
  - resident, families, and care providers
  - staff
  - residents and families
- Provision of care and supports for
  - activities of daily living (for example, mealtimes)
  - safely moving around (for example, technologies monitoring falls and wandering residents)
  - provision of medical care (for example, diagnostics, monitoring and medication administration)

### **Co-design**

An approach that actively involves all stakeholders (for example, long-term care home operators, staff, residents, caregivers, families and the industry) in the design process to help ensure that the technology meets their needs and is usable.

**Figure 2: Long-term care homes in Canada (2) (reproduced with permission from the authors)**



**Box 2: Questions for citizens**

Questions related to the problem

- What do you view as the most important issues facing the long-term care sector in your province?
  - In general?
  - During the COVID-19 pandemic?
  
- How do these issues affect residents, caregivers, and family members in terms of:
  - Quality of life?
  - Ability to communicate with caregivers and family members?
  - Ability to communicate with staff and/or other care providers (for example, doctors or nurses outside of the long-term care home)?
  - Quality of care provided in the long-term care home?
  - Capacity of caregivers and family members to play a role in the care provided?
  
- Do you think technology (such as the types listed in Figure 1) could help address these issues? If so, how?
  
- What do you view as the key barriers to making greater use of technology in long-term care homes?

## **Box 2: Questions for citizens (cont'd)**

### Questions related to the elements of a potentially comprehensive approach to address the problem

- Element 1 - Ensure that long-term care homes have the supports they need to use technologies
  - What should be the priority for improving infrastructure in existing long-term care homes?
  - What do long-term care homes need internally to be able to make greater use of technology?
  - What do long-term care homes need from external community supports to be able to make greater use of technology?
  
- Element 2 - Engage long-term care home operators, staff, residents, their caregivers and the industry in developing and adopting technologies
  - Do you think co-design processes could improve the development and use of technology? Why?
  - What role do you think residents, caregivers and family members could play in co-design processes (alongside long-term care home operators and staff)?
  - What supports would enable you to play that role?
  
- Element 3 –Make small yet rapid changes that are centred on residents, caregivers and families to support the development, evaluation and implementation of new technologies
  - What is most important for an approach to making small yet rapid changes to support the development, evaluation and implementation of new technologies?
  - How can we support the interest for using technology among residents, caregivers and families?
  - What other changes do you think are needed to adopt the type of model described in this element?
  - How will we know if long-term care homes are learning and improving rapidly?

### Question related to implementation considerations

- What could be the biggest challenges to implementing these elements?
- What opportunities could facilitate the implementation of these elements?



Technology has much potential for helping to address some of the most fundamental problems in long-term care, and ultimately improving the health and well-being of residents.

## **The context:** Why is harnessing the potential of technology in long-term care homes a high priority?

The COVID-19 pandemic has affected those in long-term care homes in Canada more than others. This has been driven, in part, by residents being more at risk for serious and life-threatening health concerns from COVID-19. It has also been made worse by long-standing issues in long-term care homes that have been left unaddressed (for example, staffing problems and outdated buildings).(3; 4)

This has led to the development of several recommendations to strengthen the sector.(3; 5; 6) Making greater use of technology has been identified as a potential solution to help address some of the biggest problems in long-term care and to improve the health and well-being of residents. Technology may have various benefits, such as:

- helping residents who travel around the facility (for example, door sensors);
- promoting social interaction among residents (for example by delivering social programming online);

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- facilitating virtual visits with care providers, caregivers, families and friends (for example through video calls);
- facilitate communication between facilities, and between the various care providers (for example, through electronic health-record systems);
- help to monitor the safety of residents (for example, global positioning systems (GPS) to locate wandering residents, health monitors, emergency response devices, and devices to monitor the usage of appliances);
- touchless hardware and voice-activated devices (for example, asking “Google” or “Alexa” to call the nurse and/or front-desk staff, and activate features in rooms such as lights, blinds, heating, ventilation and air conditioning, and entertainment); and
- artificial intelligence (for example, to support early disease detection, more precise diagnosis, and personalized treatments, or to continuously detect changes in activity and behaviour patterns for early detection of health issues).(3; 7; 8)

However, the use of technology in long-term care homes needs to be done in a way that ensures residents, caregivers and their families are at the centre of care. Focusing only on cost and efficiency is likely to lead to de-personalized care and make many of the existing problems in long-term care even worse. For example, technology should not replace human interaction. Instead, it should be used in a way that can free up staff and care providers for more time for such interactions.

With governments moving to address many of the concerns that have received attention during the COVID-19 pandemic, there is a unique opportunity to seek input about the potential of technology in long-term care homes. This citizen brief will inform the deliberations of four panels bringing together citizens from across Canada. The views of citizens will then inform an upcoming dialogue with system leaders such as federal, provincial and territorial policymakers, healthcare managers, professional leaders, researchers and other stakeholders.



Technology should modernize the sector in a way that contributes to person-centred care.

## **The problem:** Why is harnessing the potential of technology challenging?

Several factors make it hard to identify and harness the potential of technology in long-term care homes, including:

- residents of long-term care homes have complex health and social needs;
- there are many long-standing issues in the long-term care sector across Canada;
- the full potential of technology isn't being used to address these issues and to improve the quality of life for residents, caregivers and their families; and
- there are many barriers to designing and using technologies in long-term care homes.

## Residents of long-term care homes have complex health and social needs

It is estimated that 1.2% of older adults in Canada live in long-term care homes.(9)

Residents in long-term care homes have a wide range of complex physical and mental health needs. More and more residents have cognitive impairments, such as finding it hard to remember, learn new things, concentrate, or make decisions that affect their everyday life. Many also have several co-existing health conditions.

A profile of residents accessing long-term care services in 2019-2020 in British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, Newfoundland and Labrador and the Yukon was recently published.(10) The report revealed that:

- long-term care residents have an average age of 83;
- approximately 6.7% of residents are under age 65;
- 65.2% of residents are female;
- the most commonly diagnosed health conditions are:
  - neurological diseases (for example, dementia and other conditions caused by cerebrovascular accidents),
  - heart and circulation diseases (for example, hypertension, cardiovascular disease, and congestive heart failure), and
  - musculoskeletal diseases (for example, arthritis and osteoporosis);
- 48.5% of residents are suffering with a mild/moderate form of cognitive impairment, and 32.7% of residents are suffering with a severe form;
- 43.9% of residents have reduced physical function (meaning the ability to perform activities of daily living such as using the telephone, dressing, to managing medication, or managing finances);
- 82.8% are dependent or require extensive assistance when performing daily living activities (for example, personal hygiene, toileting, moving around, and eating); and
- 52.8% of residents may have possible depressive symptoms or depressive disorders.

The last point highlights the important social, emotional, cultural and spiritual needs of residents in long-term care. The health needs of residents are often intertwined with social needs. Unmet social needs put residents at greater risk for poor health outcomes.(11; 12)

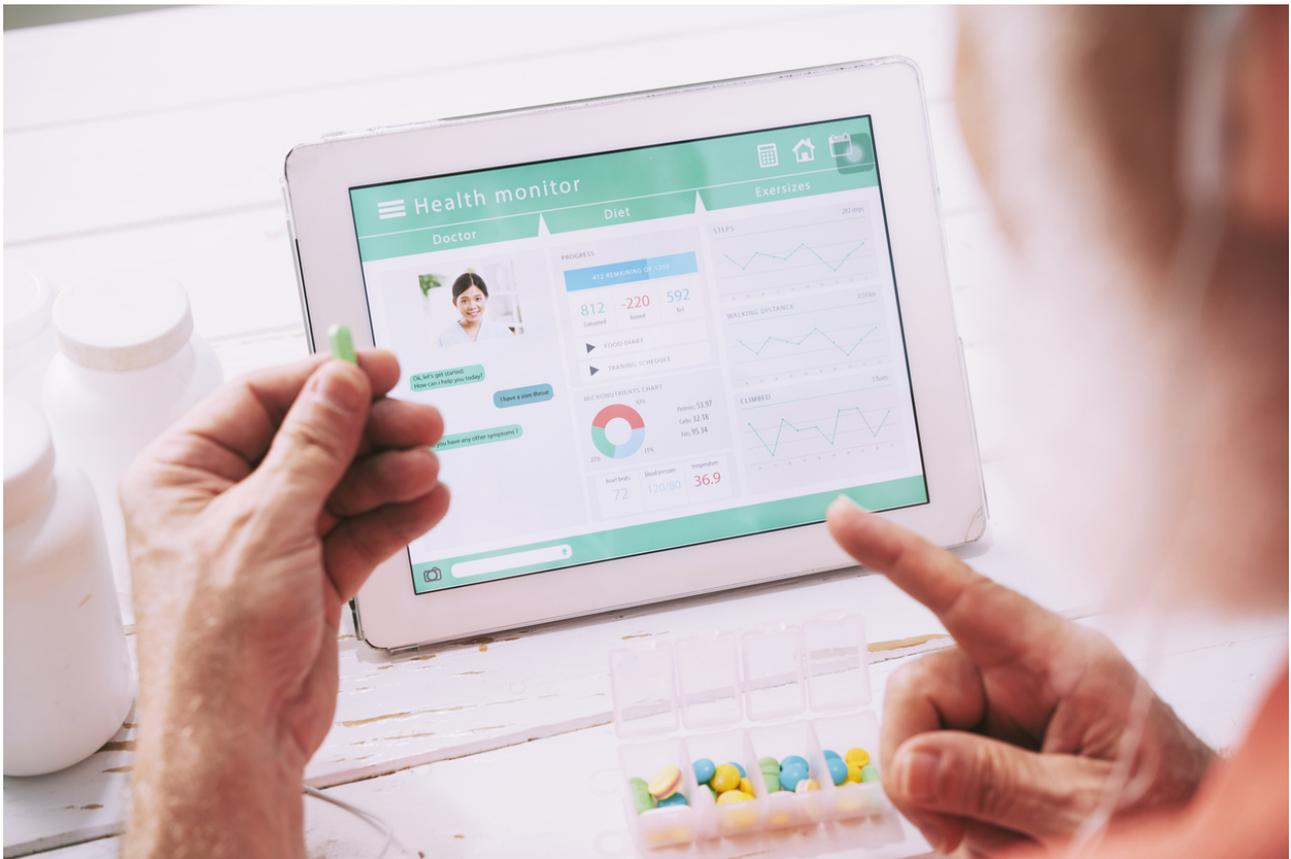
These residents may:

- lack social support;
- be lonely;

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- be geographically isolated from their families and caregivers;
- be financially insecure;
- have limited access to services that are gender, linguistically, culturally or spiritually sensitive; or
- have marginalized identities that put them at greater risk for discrimination and being excluded.(13)

Addressing the wide range of health and social needs of residents is challenging, but must be considered when identifying and harnessing the potential of technology in long-term care homes.



## There are many long-standing issues in the long-term care sector across Canada

There are many long-standing issues in the long-term care sector across Canada, including (but not limited to):

- a lack of coordination across the long-term care sector;
- limited collection and use of data to make improvements;
- limited staff training, satisfaction and retention; and
- limitations in the design and capacity of long-term care homes.

These long-standing issues have been made worse by the COVID-19 pandemic, with dramatic consequences. A federal report indicated that 82% of all COVID-19-related deaths in Canada were associated with long-term care homes.(3)

This is at least partially due to:

- long-term care home residents being at higher risk for COVID-19 because they live in close proximity to each other;
- exposure to staff who may be infected by COVID-19 (which is made worse by long-standing staffing problems); and
- most residents being frail and/or living with multiple complex conditions.(14)

Table 1 below describes some of the long-standing issues in the long-term care sector and how they have been made worse during the pandemic.

**Table 1. Long-standing issues in the long-term care sector and the COVID-19 pandemic**

Long-standing issue	Description
<b>A lack of coordination across the long-term care sector</b>	<ul style="list-style-type: none"> <li>• The health system is fragmented across many sectors (for example, home and community care, hospital care, long-term care, public health)</li> <li>• The lack of coordination makes it more difficult to respond in a coordinated way to crises such as COVID-19 (9)</li> </ul>
<b>Limited collection and use of data to make improvements</b>	<ul style="list-style-type: none"> <li>• Canada lacks the data necessary to identify and respond to emerging issues in the long-term care sector in a timely manner</li> <li>• It also makes it difficult to learn and make improvements</li> </ul>
<b>Limited staff training, satisfaction and retention</b>	<ul style="list-style-type: none"> <li>• The long-term care sector is heavily regulated, extremely reluctant to take risks, and lacks key pieces of regulation related to workforce standards and quality-of-work conditions (9; 15-16)</li> <li>• Understaffing, inadequate pay, burnout and stress, and poor working conditions add to widespread dissatisfaction among providers (15)</li> <li>• Staffing in long-term care homes has been made even more challenging during the COVID-19 pandemic               <ul style="list-style-type: none"> <li>○ Higher-than-normal use of temporary staff who face challenges in learning and implementing protocols and processes in place in different long-term care homes</li> <li>○ Staff members who need to work across multiple facilities increases the points of contact for COVID-19 and therefore increases risk to staff and residents across many long-term care homes</li> </ul> </li> </ul>
<b>Limitations in the design and capacity of long-term care homes</b>	<ul style="list-style-type: none"> <li>• The COVID-19 pandemic exposed the impact of crowded long-term care homes and outdated infrastructure on COVID-19 outbreaks (14)</li> <li>• The pandemic has also strained capacity and resources in long-term care homes, including through:               <ul style="list-style-type: none"> <li>○ Dealing with increased call volume from families</li> <li>○ The existence of poor information-technology infrastructure and WiFi;</li> <li>○ The lack of technology to support communication (for example, not enough computers and tablets to allow for video conferencing or virtual visits, and a lack of technology that lets residents communicate with each other (17)</li> </ul> </li> </ul>

## The full potential of technology isn't being used to address these issues and to improve the quality of life of residents, caregivers and their families

Technology can play an important role in modernizing the long-term care sector in a way that contributes to person-centred care.(18)

However, the adoption of technology in long-term care has been slower than in other sectors.(13) This is at least partially due to slow regulatory approvals that are required to use new technologies. Other barriers could include:

- the view that older populations lack the ability to learn about (and advocate for) new technology;
- costs that prevent long-term care residents from buying smartphones and smart devices; and
- lack of assistance and education on using technology and devices.(6)

## There are many barriers to designing and using technologies in long-term care homes

Features of governance, financial and delivery arrangements within health systems in Canada can shape whether and how technology can be adopted in long-term care homes. For example, regulatory challenges related to either a lack of oversight or cumbersome regulatory approval processes can limit how money can flow to pay for technological supports. In turn, this can constrain how care is organized. This includes the types of technologies that are available and how they can be used to support organizational capacity and care practices. Some of the key examples of system-level challenges are summarized in Table 2.

**Table 2. System-level factors that make it difficult to effectively adopt technology in long-term care homes**

Challenge	Description of the challenge
<p style="text-align: center;"><b>Governance arrangements</b> (who can make what types of decisions)</p>	<p><b>Jurisdictional complexity</b></p> <ul style="list-style-type: none"> <li>• The patchwork of provincial and territorial legislations/ regulations make it difficult to coordinate and optimize the use of technology in long-term care homes in Canada</li> </ul> <p><b>Implementing new technology under regulatory oversight</b></p> <ul style="list-style-type: none"> <li>• Slow regulatory approval processes and a culture where people are reluctant to take risks make it hard to use new technologies (or re-purpose existing technologies) (9)</li> </ul>
<p style="text-align: center;"><b>Financial arrangements</b> (how money flows through the system)</p>	<p><b>Lack of investments to support system-wide adoption of technology in long-term care</b></p> <ul style="list-style-type: none"> <li>• Investments in technology risk diverting attention and financial support from other areas in long-term care</li> </ul> <p><b>The patchwork of publicly and privately funded long-term care services</b></p> <ul style="list-style-type: none"> <li>• There is no coordinated financing plan for long-term care</li> <li>• This combined with a patchwork of regulations means that decisions about what technologies to adopt, and how and for what purposes to adopt them, are likely to be inconsistent within and between provinces</li> </ul>
<p style="text-align: center;"><b>Delivery arrangements</b> (how care is organized to reach those who need it)</p>	<p><b>The gap between consumers and vendors who provide technology products</b></p> <ul style="list-style-type: none"> <li>• Technologies are rarely developed using a partnership approach that could engage management and staff of long-term care homes, as well as residents, caregivers and family members, and the industry</li> </ul> <p><b>Staff lack of motivation or knowledge to fully utilize certain technologies</b></p> <ul style="list-style-type: none"> <li>• Staff in long-term care homes may require training or incentive to use technology in their day-to-day work</li> </ul>

Challenge	Description of the challenge
	<ul style="list-style-type: none"> <li>• The number of regulated staff in long-term care homes has been reduced (19)</li> <li>• The unregulated workforce (e.g., care aides and personal-support workers) that provides approximately 90% of direct resident care have little input, and there are no consistent educational standards for this workforce (9)</li> </ul> <p><b>Infrastructure necessary to implement certain technologies is variable</b></p> <ul style="list-style-type: none"> <li>• Each long-term care home has a unique profile, infrastructure, capacity and needs</li> <li>• This means that adopting technology on a large scale requires that individual needs of long-term care homes are considered</li> </ul> <p><b>Technologies are not integrated adequately</b></p> <ul style="list-style-type: none"> <li>• Many technologies are self-contained and either do not have the capacity to be integrated with one another or simply have not been integrated as effectively as they could be (e.g., using in-room televisions as a medium that most residents are comfortable with as a way to integrate other technological solutions)</li> </ul>



We have identified three elements of an approach to address the problem for which we are seeking public input.

## **Elements of an approach to address the problem**

>> To promote discussion about the pros and cons of potential solutions, we have selected three elements of an approach to identifying and harnessing the potential of technology in long-term care settings in Canada

Many approaches could be selected as a starting point for discussion. We have selected the following three elements of an approach for which we are seeking public input:

1. ensure that long-term care homes have the supports they need to use technologies;
2. engage long-term care home operators, staff, residents, their caregivers and the industry in developing and adopting technologies; and
3. make small yet rapid changes that are centred on residents, caregivers and families to support the development, evaluation and implementation of new technologies.

These elements should not be considered separately. Instead, each should be considered as contributing to a potentially comprehensive approach to addressing the problem. New elements could also emerge during the discussions. Box 3 below summarizes research evidence that has been identified, selected and synthesized for each element.

### **Box 3: Identification, selection and synthesis of research evidence presented in this brief**

- Whenever possible, we describe what is known about each element based on systematic reviews
- A systematic review is a summary of all the studies looking at a specific topic
- A systematic review uses rigorous methods to identify, select and appraise the quality of all the studies, and to summarize the key findings from these studies
- A systematic review gives a much more complete and reliable picture of the key research findings, as opposed to looking at just a few individual studies
- We identified systematic reviews in Health Systems Evidence ([www.healthsystemsevidence.org](http://www.healthsystemsevidence.org)) and Social Systems Evidence ([www.socialsystemsevidence.org](http://www.socialsystemsevidence.org)). These databases are the world's most comprehensive databases of research evidence on health and social systems
- A systematic review was included if it was relevant to one of the elements covered in the brief
- We then summarized the key findings from all the relevant systematic reviews

## Element 1 – Ensure that long-term care homes have the supports they need to use technologies

### **Overview**

This element focuses on ensuring that long-term care homes operate in a context that can support the adoption of technologies. This element could include efforts to:

- upgrade existing buildings;
- ensure future buildings are designed and built in a way that is appropriate to support the adoption of technologies; and
- ensure that the community has supports available to use technology (for example, availability of affordable broadband internet connections).

Evidence and questions to consider during your deliberations are provided below.

### **Evidence to consider**

We found four systematic review (20-23) relevant to upgrading existing buildings. These reviews examined how some long-term care home characteristics (size, cost, location, access to private rooms) may improve patient outcomes (particularly among residents with dementia). A recent review examined important design changes that can help infection-prevention-and-control management in long-term care homes.(22) These include: heating, ventilation and air conditioning systems; the use of devices to control physical distancing; and single and private resident rooms. However, no review focused on how upgrading existing buildings may help to harness the potential of technology.

We found no reviews relevant to ensuring that future buildings are designed and built in a way that is appropriate for enabling the adoption of technologies, or ensuring that the community has supports available to use technology.

### **Questions to consider**

- What should be the priority for improving infrastructure in existing long-term care homes?

- What do long-term care homes need internally to be able to make greater use of technology?
- What do long-term care homes need from external community supports to be able to make greater use of technology?

## Element 2 – Engage long-term care home operators, staff, residents, their caregivers and the industry in developing and adopting technologies

### Overview

This element could include requirements for co-design processes to develop technologies that:

- meet the needs of residents and caregivers (for example, for communication with caregivers and with clinicians, and keeping residents safe);
- support the operation of long-term care homes (for example, providing training for staff); and
- strengthen integration with the broader health system (for example, integrated electronic health records, and remote monitoring).

Evidence and questions to consider during your deliberations are provided below.

### Evidence to consider

We found six systematic reviews about co-design processes.(24-29) There were variations among the reviews in terms of:

- the groups involved in co-design (for example, older adults in long-term care homes, older adults with dementia, community-dwelling older adults, patients in acute-care settings, or the general public); and
- the focus of co-design processes (for example, for co-designing research, technologies, or programs and services).

In general, most reviews found beneficial outcomes for co-design approaches, especially at the idea-generation stage for technologies,(24) and most beneficial outcomes of co-design

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were among patients with dementia (even those at moderate and severe stages of dementia).(25) Table 3 below summarizes key findings from systematic reviews.

**Questions to consider**

- Do you think co-design processes could improve the development and use of technology? Why?
- What role do you think residents, caregivers and family members could play in co-design processes (alongside long-term care home operators and staff)?
- What supports would enable you to play that role?

**Table 3: Key findings about co-design processes**

Area of focus	Types of activities
<b>Beneficial outcomes of co-design processes</b>	<ul style="list-style-type: none"> <li>• There are several beneficial outcomes from the involvement of older adults during the design of technologies, including:               <ul style="list-style-type: none"> <li>○ Improved mutual learning</li> <li>○ Improved knowledge about the needs and daily practices of older adults (for example, maintaining social connections, housekeeping routines, and medications)</li> <li>○ Better information to develop new prototypes and lead to the intended design outcome</li> <li>○ Strong sense of participation (ownership, voice, participation) (28)</li> </ul> </li> <li>• Involving people with dementia has been found to lead to at least one change in the development of supportive technologies, and brought feelings of fulfillment and enjoyment (25-26)</li> <li>• Co-creation and co-production with citizens (not just older adults) was found to increase efficiency and customer satisfaction, and strengthen social cohesion (27)</li> <li>• Positive emotions from individuals participating in a research co-design process was found in another systematic review (29)</li> </ul>
<b>Facilitators for co-design processes</b>	<ul style="list-style-type: none"> <li>• Building relationship and trust, empowering the end-user by improving knowledge, and establishing value and interest</li> <li>• Using multiple communication approaches, provision of flexibility, and appropriate resources for projects</li> <li>• Adopting a philosophy of co-design and ownership of product</li> </ul>

Area of focus	Types of activities
	<ul style="list-style-type: none"> <li>• Using effective prototypes</li> <li>• Using familiar environments</li> <li>• Allowing adequate time between each phase (27; 28)</li> </ul>
<p><b>Barriers for co-design processes</b></p>	<ul style="list-style-type: none"> <li>• Hierarchy, unrealistic expectations, and lack of commitment to co-design</li> <li>• Time and money constraints and lack of buy-in from senior leadership</li> <li>• Limited resources for implementation and collaboration (at the policy level)</li> <li>• Limited skills in co-design, small sample size, and poor mock-ups (24)</li> <li>• One review reported a range of limitations from involving patient with dementia in research design:(25)               <ul style="list-style-type: none"> <li>○ Caregiver burden</li> <li>○ Stress and distress in patients with dementia</li> <li>○ Verbal limitations</li> <li>○ Time-consuming and resource-intensive processes for researchers</li> <li>○ Difficulty generating findings</li> <li>○ Small sample sizes</li> <li>○ Short duration of sessions</li> <li>○ Bias from researchers</li> <li>○ High drop-out rates among patients with dementia</li> </ul> </li> </ul>
<p><b>Recommendations for conducting co-design processes (based on findings from systematic reviews)</b></p>	<ul style="list-style-type: none"> <li>• Older adults have been involved at different stages of technology development (requirements gathering, design ideas, development, re-design, prototype, evaluation), with most involvement at the requirement and design ideas stages (28)</li> <li>• One systematic review examined the involvement of people with dementia in research design,(25) and identified a series of recommendations:               <ul style="list-style-type: none"> <li>○ Offer a quiet, familiar environment with minimal travelling</li> <li>○ Commit to values of flexibility, empathy, patience, and knowledgeable about life experiences of patients with dementia</li> <li>○ Provide information on research ethics</li> <li>○ Contact patients and caregivers directly with the option to recruit throughout the project</li> <li>○ Organize smaller groups than focus groups, with informal breaks during sessions</li> </ul> </li> </ul>

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Area of focus	Types of activities
	<ul style="list-style-type: none"><li>○ Workshops, interviews and focus groups should concentrate on giving space for feedback, identifying needs, and creating content together</li><li>○ Note observations of the interaction between the patients and the prototype while providing space for feedback</li><li>○ Create specific tools and designs according to dementia stage (mild, moderate, severe)</li></ul>



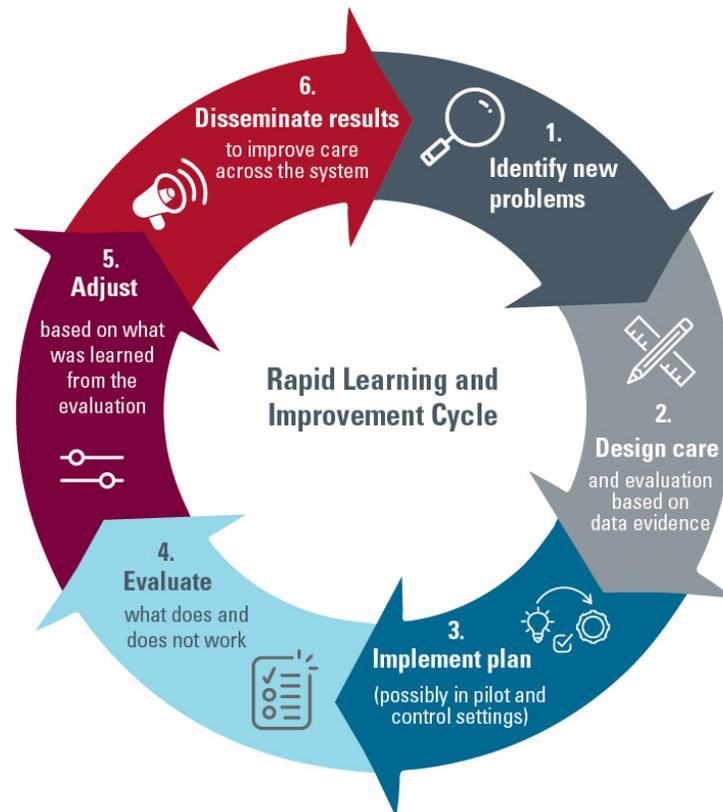
## Element 3 – Make small yet rapid changes that are centred on residents, caregivers and families to support the development, evaluation and implementation of new technologies

### Overview

Bringing about change in health systems is challenging and can be extremely slow. It can take too much time for those working in health systems to act on new research evidence and lessons learned that could improve patient experience and health. For example, it is frequently stated that it takes an average of 17 years for new research evidence to change medical practices.(7)

Health systems may benefit from adopting an approach that allows them to learn and improve rapidly (or at least more rapidly than the current pace). The “rapid-learning and improvement” approach works through rapid cycles such as what is depicted in Figure 3.

**Figure 3: The rapid-learning and improvement approach**



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This element focuses on how to support health system leaders to try new approaches and to make small yet rapid changes to the way in which new technologies are developed, evaluated and implemented in long-term care homes.

Supporting a rapid-learning and improvement approach could be done by:

- 1) making sure technologies help to deliver person-centred care (for example through co-design processes and building acceptance for using technology);
- 2) using data and evidence to drive learning and improvement cycles (for example, through centralized data platforms);
- 3) changing system arrangements to support the adoption, evaluation and use of technologies, such as:
  - a. revising regulations that do not foster innovation and the use of technology, and
  - b. making funding and delivery more flexible to enable creativity and innovation; and
- 4) building competencies and a culture for learning and improvement.

Evidence and questions to consider during your deliberations are provided below.

### **Evidence to consider**

We also found three systematic reviews that may provide insights about what “person-centred care” means and the acceptance of technologies among older adults. An older review highlighted the need to better understand how person-centredness may be defined by residents, families, caregivers and providers. It also suggests that harnessing technology may end up improving patient-centredness.(30)

The two other systematic reviews highlight the importance of understanding older adults’ perceptions of technologies,(31) but also how they perceive themselves.(32) These are critical factors that may affect the adoption of technologies by residents in long-term care homes.

### **Questions to consider**

- What is most important for an approach to making small yet rapid changes to support the development, evaluation and implementation of new technologies?
- How can we support the interest for using technology among residents, caregivers and families?

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- What other changes do you think are needed to adopt the type of model described in this element?
- How will we know if long-term care homes are learning and improving rapidly?

# Implementation considerations

It is important to consider what barriers we may face if we implement the proposed elements to address the problem. These barriers may affect different groups (for example, residents, families, caregivers and care providers), different organizations or the health system. While some barriers could be overcome, others could be so substantial that they force a re-evaluation of whether an element should be pursued.

Perhaps the biggest barrier lies in adopting and diffusing health innovations (including technological innovations) across health systems in Canada. In 2015, a report published by the federal Advisory Panel on Healthcare Innovation noted that most health systems lack the ability to: 1) address the infrastructure problems that arise during the implementation of health innovations; and 2) reproduce health innovations across organizations and health systems.(33)

The implementation of each of the three elements could also be influenced by the ability to take advantage of potential windows of opportunity. A window of opportunity could be, for example, a recent event that was highly publicized in the media, a crisis, a change in public opinion, or an upcoming election. A window of opportunity can facilitate the implementation of an element.

Perhaps the biggest window of opportunity may be the COVID-19 pandemic. The pandemic has exposed the long-standing issues in the long-term care sector and has created a burning platform for major reforms.

Other potential windows of opportunity to implementing the elements include:

- funding announcements to strengthen the long-term care sector (including infrastructure enhancements) in the wake of the COVID-19 pandemic;
- many organizations now promoting patient, family and caregiver engagement (and increasingly co-design approaches) in health, social and research systems;
- increasing emphasis in health systems across the country on “rapid-learning health systems”; and
- the vast majority of older Canadians (as reported in a recent survey commissioned by the AGE-WELL National Centre for Excellence) indicating that they are feeling confident about using technology, and many feel the impact on society is positive.

# Acknowledgments

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## Funding

The citizen brief and the citizen panels it was prepared to inform were funded by AGE-WELL NCE (AWCAT-2019-141) and by the Government of Ontario through a grant provided to Rapid-improvement Support and Exchange (RISE). RISE funding supported the citizen brief and the Ontario citizen panel. The McMaster Health Forum receives both financial and in-kind support from McMaster University. The views expressed in the citizen brief are the views of the authors and should not be taken to represent the views of AGE-WELL NCE or the Government of Ontario.

## Conflict of interest

The authors declare that they have no professional or commercial interests relevant to the citizen brief. The funder played no role in the identification, selection, assessment, synthesis, or presentation of the research evidence profiled in the citizen brief.

## Merit review

The citizen brief was reviewed by a small number of citizens, other stakeholders, policymakers and researchers in order to ensure its relevance and rigour.

## Acknowledgments

We are grateful to Steering Committee members [Alex Mihailidis, Andrew Costa, Andrew Sixsmith, Bridgette Murphy, Candice Pollack, Dorina Simeonov, Heidi Sveistrup, Isobel Mackenzie, Lisa Poole, Paul Hébert, Rob Reid, Stirling Bryan] and merit reviewer [Sherry Baker] for providing feedback on previous drafts of the brief. The views expressed in the citizen brief should not be taken to represent the views of these individuals.

## Citation

Gauvin FP, DeMaio P, Alam S, Drakos A, Lavis JN, Wilson MG. Citizen brief: Identifying and harnessing the potential of technology in long-term care settings in Canada. Hamilton: McMaster Health Forum, 15 January 2021.

## ISSN

2292-2334 (Online)

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