McMaster University | HEALTH FORUM

Citizen Brief

Creating a System to Support the Adaptation and Uptake of Health-system Innovations in Canada

9 February 2024

Context

More than ever, health-system leaders are grappling with a wide range of innovations. Many of these innovations are promising and could strengthen our health systems and improve the health of the population.

However, we have a long history of struggling (and sometimes failing) to adopt health-system innovations in Canada.(1) Electronic medical records, virtual care or new interdisciplinary care models are just a few examples of innovations that health-system leaders have been struggling with for so many years.

Since August 2022, the McMaster Health Forum convened a series of four dialogues with health-system leaders from across Canada to identify and prioritize promising health-system innovations. The final dialogue identified the need to create an integrated system to support the adaptation and uptake of health-system innovations in Canada.(2)

It is important that citizens, patients and caregivers have the opportunity to inform the creation of such a system. This will ensure that the system meets their needs and reflects their values and preferences (for example, prioritizing what innovations should be pursued). In addition, engaging citizens, patients and caregivers will help to advance greater equity through innovation (for example, ensuring that innovations are not harmful and help to reduce inequities in our society).

In the following pages, we will:

- propose a definition of 'health-system innovation'
- explore the problem (why it is challenging to support the adaptation and uptake of health-system innovations in Canada)
- discuss potential solutions
- identify barriers and windows of opportunity to moving forward.

About this citizen brief

This document was produced to inform a series of four citizen panels with citizens from across Canada. Each panel will bring together approximately 14–16 participants. Participants will share their ideas and experiences regarding the issue and learn from research evidence and from the views of others. The panels will help us to understand the values that participants feel should inform future decisions about the issue, as well as to reveal new understandings and get ideas about how it should be addressed.

The panel discussion will inform an upcoming dialogue on this topic in March 2024. This dialogue will bring together policymakers, professionals, researchers, members of the public and other stakeholders from across Canada.

We used three mechanisms to collect the information presented in this document:

- we consulted the committee leading this project
- we interviewed people who know the issue very well
- we examined what is known from evidence syntheses on the issue.

Throughout the document, we provide spaces for you to write down your thoughts ahead of the panel discussion. At the end of the document, we also provide:

- tables summarizing what is known about each solution (Appendix 1)
- the list of all the references we cited in the document (Appendix 2).

Defining 'health-system innovation'

The World Health Organization defines innovation as "a new or improved solution with the transformative ability to accelerate positive health impact."(3) A health-system innovation can improve the efficiency, effectiveness, quality, sustainability, safety and/or affordability of health systems.

When we are talking about health-system innovations, we often think about new technologies relying on software and hardware, such as:

- new devices to remotely monitor patients at home (for example, sensors, cameras and wearable devices)
- new technologies to help patients and healthcare professionals make decisions about treatments
- new systems using artificial intelligence to collect and analyze patient information
- new early warning systems to monitor patients and warn healthcare professionals when patients are at risk.

Health-system innovations can also mean, more broadly, new ways of doing things. Therefore, many health-system innovations do not require technologies, and can include:

- new ways to govern health systems
- new ways to deliver care
- new ways to fund health systems or to pay healthcare professionals
- new health policies to include equity, diversity and inclusion considerations
- new ways to better integrate health and social-services.

However, not all innovation can bring transformative change in health systems. Some may simply help to modernize health systems (for example, sending prescriptions by emails instead of fax machines). Other innovations can be transformative (for example, using artificial intelligence to create patient intake platforms that can screen, recommend and triage patients).(4)

Exploring the problem

We have identified four aspects of the problem, which are outlined in the visual below and discussed in the sections that follow.

Governments are lacking structures to support the ongoing identification, adaptation and uptake of innovations

Governments in Canada are good at supporting health researchers and 'inventors.' For example, governments have agencies dedicated to fund health research (for example, the Canadian Institutes of Health Research). Governments

have also created business 'incubators' and 'accelerators' helping early-stage businesses navigate some of the most challenging aspects of running a business and developing novel ideas.

However, governments in Canada are not always as good at investing in structures that can turn novel ideas into concrete health-system transformations that we can all benefit from. This can be explained in part by:

- the lack of structures embedded in governments that can help identify and prioritize health-system challenges that we are facing, and identify innovations that can address these challenges
- the Canadian innovation system being fragmented (for example, many different organizations from different sectors and from different levels of governments are involved, but are not fully aligned).

One notable exception is that governments in Canada have established structures to support the evaluation and adoption of certain types of innovations, namely health products, drugs and devices. For example, several agencies evaluate and provide recommendations about these innovations, such as the Canadian Agency for Drugs and Technologies in Health, the Ontario Health Technology Advisory Committee and the Institut national d'excellence en santé et services sociaux. However, there are typically no such structures that are specific for health-system innovations and that can be used to support integration of innovations into health systems to address pressing challenges.

Some organizations are not welcoming to innovation from the 'outside'

Health organizations in every sector can benefit from innovation: home and community care, primary care, specialty care, rehabilitation, long-term care and public health. However, some organizations are not welcoming to innovation from the 'outside.' In other words, these organizations may not look to outside innovators and prefer 'locally grown' innovations. This could be explained, at least in part, by:

- a lack of capacity to identify, adapt and uptake innovation to meet their specific needs
- limited budgets to support innovation (for example, many healthcare organizations are able to allocate only a very small percentage of their annual budget to innovation as compared to private sector organizations)
- limited organizational readiness for change (for example, some organizations have a mandate to protect people, which can be perceived as being contrary to the mandate of being innovative, which may carry some risk).(5)

Regarding the last point, many leaders from across the country recognized the importance of increasing the risk tolerance of decision-makers.(2) This was viewed as important to allow for pilot testing of innovations. Such pilot testing will result in some innovations failing and some showing promise. Those that show promise often require continued improvement cycles before being ready for testing innovations at a larger scale and adapting for use across systems.

We are lacking an infrastructure that can help bridge the demand and supply for innovation

There is a disconnect between the demand and supply for innovation. In other words, there is a disconnect between health-system leaders (on the demand side) and innovators (on the supply side). This can be explained, in part, by:

- most innovators pushing out their innovations with the hope of health-system leaders being receptive (as opposed to using health system and policy challenges as a starting point for innovators to respond to with opportunities to pilot in a coordinated way in the system)
- the market being fragmented with innovators at the local, provincial, national and international levels, and working on a wide range of innovations
- a lack of infrastructure for aligning and coordinating the demand for and the supply of innovations (and thus helping health-system leaders to identify the challenges they need solved with innovation, letting innovators move quickly to come up with potential innovations, and supporting the adaptation and uptake of innovations).

Citizens, patients and caregivers play a limited role in health-system innovations

Innovations typically go through different stages: identifying a problem, developing and testing solutions, adopting the innovation and diffusing the innovation across the health systems.

At each stage in the 'innovation journey,' different stakeholders are involved depending on what is needed to help the innovation progress. However, citizens, patients and caregivers currently play a limited role, despite being able to provide meaningful input at all stages. A recent evidence synthesis revealed that they are more commonly engaged in the earlier stages of innovation and mostly on service innovations (as opposed to clinical innovations or health-system innovations).(6) There is a need to strengthen citizen, patient and caregiver engagement in all stages of the innovation journey, but also to leverage their lived experiences and ideas to co-produce health-system innovations.

Questions about the problem

- What do you think of the challenges presented above?

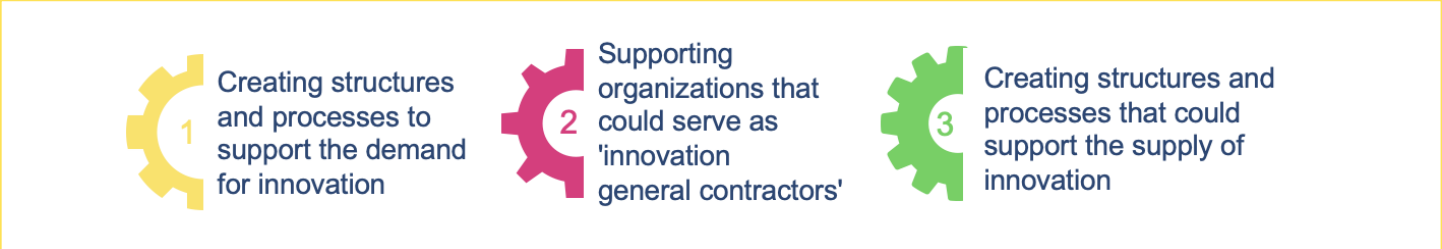
- From your perspective and experiences, what additional challenges do you think can arise during the development, identification, evaluation, adaptation and uptake of health-system innovations in Canada?

- Are there specific challenges related to: 1) structures and process related to innovation demand (for example, identifying the purpose for innovation and regulating innovations); 2) developing new innovations to address policy priorities; and 3) systems that enable testing and scaling of promising innovations?

- What gives you hope that we can bring about change?

Discussing solutions

To promote discussion about the pros and cons of potential solutions, we have selected three solutions to support the adaptation and uptake of health-system innovations in Canada. We discuss each solution in the sections that follow.



Creating structures and processes to support the demand for innovation

Imagine creating structures and processes to better support (and coordinate) all the demands for health-system innovations. These demands may come from all those working in health systems (for example, policymakers, managers and professionals), but also from citizens, patients and caregivers.

More specifically, these structures and processes could help to:

- identify common challenges that could be solved by innovations (for example, addressing the health human resources crisis in the health systems across Canada)
- prioritize these challenges and determine which ones are the most important to address (for example, reducing administrative burden on family physicians to give them more time with patients and to reduce burnout)
- identify and prioritize promising innovations to address these challenges, and build business cases that evaluate their potential system-level benefits, costs and risks in a way that helps system decision-makers identify which ones to further pilot, evaluate and adapt for local contexts
- make decisions about the adoption of innovations, in the same or similar way that we do for products, drugs and devices (for example, making decisions about which innovations will be publicly covered or not, for whom, and under what circumstances)
- support the diffusion and uptake of innovations across health systems.

What evidence can inform this solution?

In our searches for the best-available evidence, we found:

- One medium-quality synthesis about a process called 'horizon scanning.'(7) Horizon scanning is being adopted globally to identify, assess and prioritize innovations and trends at an early stage of their development. This process can help health systems to be proactive and prepare for change. Various methods are being used to scan the horizon. This can include examining the scientific literature and the media, and soliciting feedback from industry, experts, policymakers and other stakeholders.
- One low-quality synthesis about how health technology assessment agencies choose which topics to address.(8) Typically, these agencies use multiple steps to select their topics, notably: 1) developing a framework with specific criteria to choose topics; 2) identifying potential topics; 3) short-listing those topics; 4) scoping of potential topics; 5) scoring and ranking of potential topics; and 6) deliberation and decision on final topics.
  - In Ontario, a framework was developed for assessing health technologies that is focused on identifying potential benefits and harm, assessing costs and cost-effectiveness, and patient-centredness (for example, whether they are aligned with patient values and preferences; consistent with commitments to autonomy, privacy and confidentiality; enhance equity in access or outcomes; and improve the coordination of care).(9)
- One medium-quality synthesis examined how community members and stakeholders are involved in decisions to determine publicly funded services.(10) Various methods are being used, including consultation approaches (e.g.,

surveys, focus groups, public dialogues and citizens' juries), participation in decision-making committees, advisory councils, local planning meetings and appeals mechanisms.

- Another medium-quality synthesis found that frameworks to support the adoption and uptake of health-system innovations typically focus on five components:(11)
  - the innovation (for example, highlighting the importance of it being evidence-based, developed from a credible source, superior to existing approaches, simple to understand, easy to modify or tailor, and aligned to existing culture)
  - the spread or scale-up process (for example, moving from a single pilot to small-scale evaluations in different contexts to systematic efforts to replicate in other settings by using rapid-cycle tests of change)
  - the resource team supporting the implementation (for example, having credible and committed change agents, providing enough resources to support the innovation and defining who has responsibility to implement)
  - the innovation user (or organization) who would ensure that implementing the innovation is important compared to other priorities, and who then provides leadership, infrastructure and incentive systems to support implementation
  - broader environmental factors (for example, considering how socio-cultural values and beliefs, local conditions, priorities, available financing and external pressures can either drive innovation or hinder implementation).(11)

Additional details about the summary of findings from our searches for evidence can be found in Appendix 1.

Questions about solution 1

- What should health-system leaders do to:
  - identify and prioritize the challenges that could be solved by innovations?
  - build business cases for innovations?
  - make decisions about the adoption of innovations?

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- To what extent are you comfortable with health-system leaders spending time identifying innovative ways of doing things in the hope that some (but not all) can improve the system?

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Supporting organizations that could serve as 'innovation general contractors'

Imagine that we could support organizations that could serve as 'innovation general contractors.' Like in home renovation, the best contractors:

1) work closely with the client to build an in-depth understanding of the challenge(s) they face in their current situation and develop a vision for addressing the challenge(s)
2) coordinate among different trades who can contribute to addressing the challenge(s) in a way that meets or exceeds the client's vision.(12)

More specifically, an 'innovation general contactor' could help:

- document the needs of those working in health systems, as well as the needs of citizens, patients and caregivers
- establish partnerships between those on the demand side (i.e., decision-makers who face pressing health-system challenges that need to be addressed) and supply side (i.e., innovators) for innovation
  - for example, the work being done by living labs such as the Living Lab Charlevoix on rural medicine
- innovators build a business case and then test and adapt their innovations in real contexts (e.g., in specific settings or with specific types of professionals and patients).

What evidence can inform this solution?

In our searches for the best-available evidence, we found:

- A growing body of evidence about 'living labs.' Living labs work as intermediaries among citizens, government agencies, research organizations, industry and other stakeholders. These living labs are open innovation ecosystems in real-life contexts using iterative feedback processes throughout a lifecycle approach of an innovation to create sustainable impact. They focus on co-producing innovations, rapidly co-creating prototypes, testing them, and helping the adoption and uptake of innovations.
  - One evidence synthesis found that the level of user engagement is still low in living labs and that living labs are predominantly used in developing clinical innovations, as opposed to broader health-system innovations.(13) However, one low-quality synthesis revealed that living labs are often used to co-produce innovations with vulnerable populations, such as adults with dementia living in the community or nursing homes.(14)
  - One medium-quality synthesis found few studies about approaches or frameworks for evaluating the impact of living labs.(15)
- One low-quality synthesis identified strategies that policymakers have used to increase interaction and partnerships for innovation, which included innovation vouchers (for example, to help small and medium-sized companies access expertise within post-secondary institutions and to form business partnerships), developing coordinated research consortia for evaluation of innovations, marketing support, and/or larger clusters that bring these types of activities together in a region, province/state or country.(16)

Additional details about the summary of findings from our searches for evidence can be found in Appendix 1.

Question about solution 2

- What do you think should be key characteristics of an effective 'innovation general contractor'?

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Creating structures and processes that could support the supply of innovation

Imagine creating structures and processes to better support those producing innovations to address health-system challenges. This could include those working in health systems, universities or in the private sector.

These structures and processes could help to:

- respond to client needs by developing new solutions or adapting existing solutions to meet emerging challenges
- support the co-production of innovations (meaning that clients and innovators work together in a meaningful way to produce innovations)
- refine innovations based on testing in real-world contexts
- provide evidence needed for a business case for innovations, and to help those making decisions about the adoption and uptake of innovations.

What evidence can inform this solution?

In our searches for the best-available evidence, we found several evidence syntheses about the co-design or co-production of innovation.(6; 17–22)

- Citizens, patients and caregivers have been found to play a limited role in the innovation process. A low-quality synthesis revealed that they are more commonly engaged in the earlier stages of innovation and mostly on service innovations (as opposed to clinical innovations or health-system innovations).(6)
- While these syntheses highlight the capacity of the general public to be involved in the co-production of innovation, they also highlight that vulnerable populations can be meaningfully engaged as well (for example, older adults in long-term care homes, older adults with dementia, community-dwelling older adults and patients in acute-care settings).
- Most syntheses found benefits for using co-design processes for innovations, especially at the idea-generation stage and at the user-testing stage.

Additional details about the summary of findings from our searches for evidence can be found in Appendix 1.

Questions about solution 3

- What would you like to see as part of any process to develop or adapt existing solutions to local contexts?

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- What role could citizens, patients and caregivers play alongside innovators?

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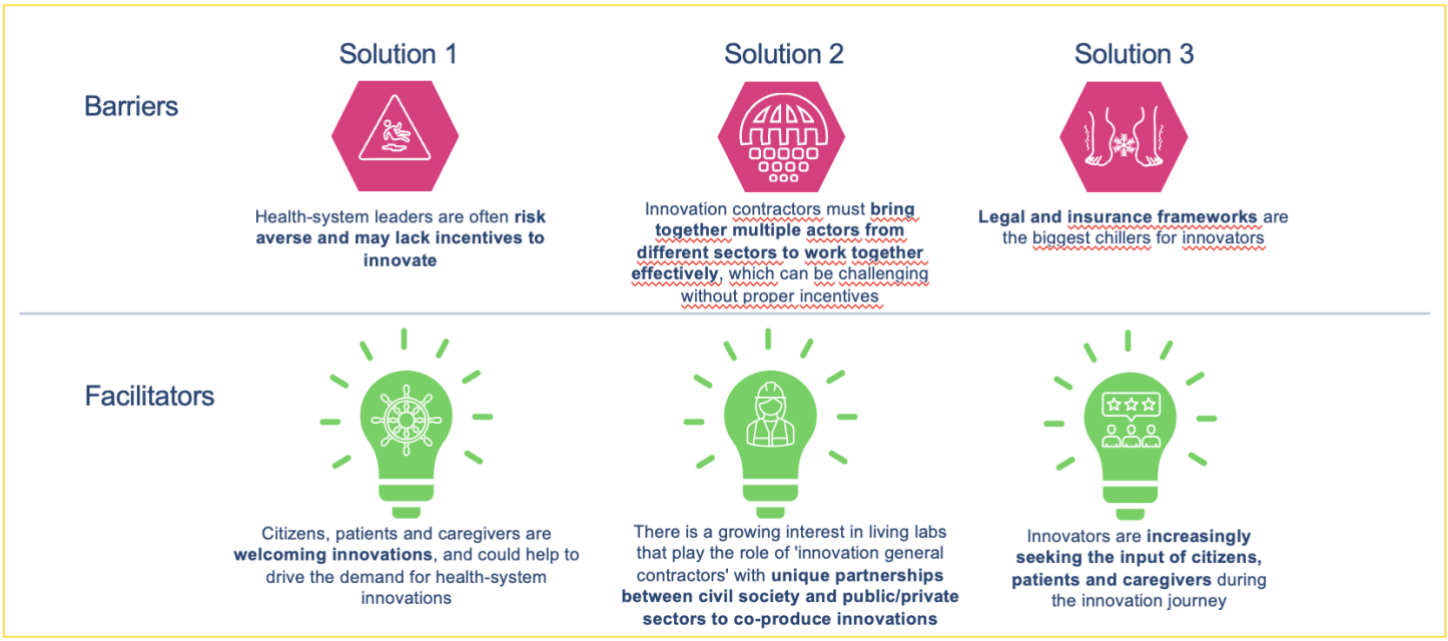
Identifying barriers and facilitators to moving forward

Solutions are great, but only if they can be put into action. **There are often barriers in the way.** Some of these barriers can be overcome. On the other hand, **different things may facilitate the implementation of a solution.** For example, a news story, a crisis, a new public opinion poll or an upcoming election can bring an issue into the forefront. This may encourage people to pay attention to a problem and to implement a solution to address it. We have outlined some potential barriers and facilitators below.



Questions about implementation considerations

- What do you think might be the biggest barrier to these solutions?

- What do you think might be the biggest facilitator for these solutions?

Gauvin FP, Wilson M. Citizen brief: Creating a system to support the adaptation and uptake of health-system innovations in Canada. Hamilton: McMaster Health Forum, 9 February 2024.

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Appendix 1: What is known about each solution

Whenever possible, we describe what is known about each solution based on evidence syntheses. An evidence synthesis is a summary of all the studies that looked at a specific topic. An evidence synthesis uses very rigorous methods to identify, select and appraise the quality of all the studies, and to summarize the key findings from these studies. An evidence synthesis 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 evidence syntheses in three databases:

- Health Systems Evidence (www.healthsystemsevidence.org)
- Social Systems Evidence (www.socialsystemsevidence.org)
- PubMed (https://pubmed.ncbi.nlm.nih.gov)

An evidence synthesis was included if it was relevant to one of the solutions covered in the document. We summarize below the key findings from all the relevant evidence syntheses.

Solution 1: Creating structures and processes to support the demand for innovation

Category of finding	Summary of key findings
Benefits	• Well-conducted horizon scanning has been found to be a flexible and potentially reliable tool that can be conducted with varying approaches to inform decision-making by identifying organizational and system opportunities and challenges (7) • Approaches such as a process called multiple criteria decision analysis have been identified as being useful to identify topics related to health technologies for further evaluation (8)
Harms	• None identified
Cost and/or cost-effectiveness	• None identified
Uncertainty regarding benefits and harms	• A need for more research on community and stakeholder participation in decision-making has been identified given that policy guidelines and resolutions that have included a commitment to community engagement have not led to connecting this work at the country level for policy planning and design (10)

Key characteristics if it was tried elsewhere	• Key considerations for conducting horizon scanning have been noted, including the need to refine criteria used to prioritize areas of focus, managing uncertainty and ensuring that the issues identified are disseminated widely (7)
	• Involving community members and stakeholders in decisions to determine publicly-funded services has been conducted using various methods, including consultation approaches (for example, surveys, focus groups, public dialogues and citizens' juries), participation in decision-making committees, advisory councils, local planning meetings and appeals mechanisms (10)
	• Frameworks to support the adoption and uptake of health-system innovations typically focus on five components:(11)
	  ○ the innovation (for example, highlighting the importance of it being evidence-based, developed from a credible source, superior to existing approaches, simple to understand, easy to modify or tailor, and aligned to existing culture)
	  ○ the spread or scale-up process (for example, moving from a single pilot to small-scale evaluations in different contexts to systematic efforts to replicate in other settings by using rapid-cycle tests of change)
	  ○ the resource team supporting the implementation (for example, having credible and committed change agents, providing enough resources to support the innovation and defining who has responsibility to implement)

Category of finding	Summary of key findings
	○ the innovation user (or organization) who would ensure that implementing the innovation is important compared to other priorities, and who then provide leadership, infrastructure and incentive systems to support implementation ○ broader environmental factors (for example, considering how socio-cultural values and beliefs, local conditions, priorities, available financing and external pressures can either drive innovation or hinder its implementation) (11)
Stakeholders' views and experiences	• None identified

Solution 2: Supporting organizations that could serve as 'innovation general contractors'

Category of finding	Summary of key findings
Benefits	• Living labs refer to organizations that interact with a broad set of stakeholders, such as students, academic institutions, private companies, healthcare organizations, patient groups and potentially other living labs ○ However, there is limited evidence available to determine the impact of living labs on generating and implementing innovations (15)
Harms	• None identified
Cost and/or cost-effectiveness	• None identified
Uncertainty regarding benefits and harms	• None identified
Key characteristics if it was tried elsewhere	• Living labs have been highlighted as being vital for research aimed at older adults with dementia, allowing the development, testing and evaluation of innovative products for optimizing their health and quality of life and reducing caregivers' level of burden • The level of user engagement in living labs has been found to continue to be low, and that living labs are predominantly used in developing clinical innovations, as opposed to broader health-system innovations (13) • Living labs are also often used to co-produce innovations with vulnerable populations, such as adults with dementia living in the community or nursing homes (14)
Stakeholders' views and experiences	• None identified

Solution 3: Creating structures and processes that could support the supply of innovation

Category of finding	Summary of key findings
Benefits	• Most of the evidence syntheses we identified highlighted benefits for using co-design processes for innovations, especially at the idea-generation stage and at the user-testing stage (6; 18–22) ○ A key benefit is that learning, adjusted design and an increased sense of participation can be common results of involving older users in design practice (21) ○ However, citizens, patients and caregivers have been found to play a limited role in the innovation process, with one synthesis noting that citizens are more commonly engaged in the earlier stages of innovation and mostly on service innovations (as opposed to clinical innovations or health-system innovations) (6)
Harms	• None identified
Cost and/or cost-effectiveness	• None identified

Category of finding	Summary of key findings
Uncertainty regarding benefits and harms	• None identified
Key characteristics if it was tried elsewhere	• The process of involving older adults in co-designing technology to maintain their independence and well-being is facilitated by relationships and trust building, stakeholder knowledge building, and methods and skill in co-design (9) • The evidence syntheses highlight the capacity of the general public to be involved in the co-production of innovation, but several also highlight that vulnerable populations can be meaningfully engaged, such as older adults in long-term care homes, older adults with dementia, community-dwelling older adults and patients in acute-care settings (18; 19)
Stakeholders' views and experiences	• None identified

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