Canada’s Drug Agency
L’Agence des médicaments du Canada

Health Technology Review Guidance

Aging in Place

DRAFT

Expert Guidance

Table of Contents

Key Messages 3

The Issue: Need for support for older adults and their caregivers to age in place in Canada 4

The Response: Guidance From the Health Technology Expert Review Panel 5

HTERP Guidance Development Process 5

HTERP's Position on Aging in Place 5

The Importance of Integrated and Coordinated Care to Support Aging in Place in Canada 6

HTERP's Guidance to Inform Decision-Making to Support Aging in Place 6

Summary of the Evidence That Informed HTERP's Guidance 10

Appendix 1: The Health Technology Review Panel 17

Appendix 2: Strategies and initiatives with Promise 18

Appendix 3: Healthcare Excellence Canada's Promising Practices for Enabling Aging in Place 21

Appendix 3: Examples of Technologies to Support Aging in Place 22

Key Messages

What is the issue?

- Canada is experiencing an important demographic transition towards an increasingly diverse aging population with an increased need for care and support during this stage of their lives.
- Despite older adults' strong preferences to live in their home or community for as long as possible, health systems, health professionals, older adults, and unpaid caregivers are challenged to keep up with growing demands to provide and maintain available home and community care and support services.

What did CDA-AMC do?

- CDA-AMC prepared an Evidence Assessment report that identified and described the current context of aging and hinderances to aging in place in Canada; considerations relevant to aging in place for equity-deserving groups; strategies and initiatives intended to address unmet needs and improve outcomes; and systemic considerations related to implementing initiatives supporting aging in place.
- The Health Technology Expert Review Panel (HTERP) used CDA-AMC's Evidence Assessment report to inform deliberations and to develop objective, impartial, trusted pan-Canadian guidance to inform decisions about which evidence-informed aging in place initiatives jurisdictions can consider to support equitable aging in place in Canada.

What Is HTERP's Position on Aging in Place?

- Everyone has the right to age with dignity and in a place that aligns with their values and preferences. Aging is a normal part of life and may be accompanied by changes in our health and/or our abilities to complete everyday self-care tasks.
- Aging in place is a dynamic and complex experience that exists within a larger context that is not limited to health systems.
- Health and social systems designed to meet acute care needs and that operate largely in silos cannot adequately or proactively address the continuum of needs of older adults and their caregivers.
- Older adults' autonomy and preferences for care are realized by the active role of informal unpaid caregivers.
- The population of older adults in Canada is diverse with varying and evolving expectations of cultural norms and values related to aging in place.
- There should be equity in access to culturally appropriate, safe, and sustainable care to support dignity in living in a place that aligns with one's values, preferences, and priorities.

What Is HTERP's Guidance to support Aging in Place?

- Foster a system that prioritizes integrated models of care to address current and future unmet needs and bridge gaps in and between services
- Identify and implement solutions that are aligned with the unique and complex needs of older adults and their unpaid caregivers
- Ensure culturally appropriate and equitable access to solutions for aging in place
- Standardize the collection, analysis, use, and reporting of data regarding interventions for aging in place

The Issue: Need for support for older adults and their caregivers to age in place in Canada

Canada is experiencing an important demographic transition towards an older and more complex population often with an increased need for care and support during this stage of their lives.[1] While the COVID-19 pandemic highlighted older adults' strong preferences to live in their home or community for as long as possible,[2] it also emphasized the fragmentation and ongoing challenges within our current model of health and social systems.[3] These ongoing challenges include limited or reduced access to care and support programs, overloaded emergency departments, delayed discharge of hospitalized patients awaiting placement, poor communication between agencies and/or providers, staffing shortages and low workforce capacity.[3] In addition, there is growing demand for intermediate care, where older patients can recover from their acute illness and optimize and/or regain function. Unmet demand for specialized geriatric services is expected to increase,[4] and the availability of care and support services may be exceptionally limited in rural and remote communities.[5-10] Health systems, health professionals, older adults and caregivers are unable to keep up with growing demands to provide appropriate home and community care and support services. These services may be unreliable due to limited private and public funding and shortages of family physicians, nurses, personal support workers, geriatricians, psychiatrists, and other specialists.[4,5,9,11-14]

Aging in place refers to the ability of older adults to access health and social supports needed to live safely in their own homes or communities for as long as they wish and are able[15,16], and that aligns with their values, preferences and priorities. For this report, we consider *older adults* as people aged 55 and older in recognition of the diversity of older adults, experiences of aging, and eligibility criteria for various programs and services in Canada.[17-21] For older adults and their caregivers, aging in place means having choice in deciding where to live.[7]

Older adults' ability to age with dignity and in a place that aligns with their values and preferences typically relies on the support of unpaid caregivers[7,11,21-23] with almost all (96%) individuals receiving home care in Canada indicating they also have an unpaid caregiver.[24] The critical role of unpaid caregivers and volunteers in enabling older adults to age with dignity and autonomy by supporting their preferences for care has led many to take on an immense emotional, physical, and financial burden. Unpaid caregivers may experience distress and burnout, challenges in balancing family and work commitments, and financial constraints that hinder their ability to sustain caregiving.[6,23,25-27]

Despite the additional responsibilities and costs these individuals incur to support our health and social systems, caregivers face similar challenges with accessing their own supports such as respite care services, training opportunities, and support groups to address their needs.[6,25] Caregiver burden is further exacerbated by the challenge of navigating supports, coordinating care, and may be especially encumbering for racialized and Indigenous caregivers, immigrants or newcomers, those experiencing language barriers, and aging caregivers.[6,25,28] Caregiver burden is further exacerbated by the challenge of navigating supports, coordinating care, and may be especially encumbering for racialized and Indigenous caregivers, immigrants or newcomers, those experiencing language barriers, and aging caregivers.[6,28]

Data from the Canadian Institute of Health Information indicates that over 10% of new admissions to long-term care are potentially avoidable with access to appropriate home-based support and care.[29] Costing data suggest that Canada spends more on institutional long-term care than home and community care.[26,30] To address these challenges, federal, provincial, and territorial governments in Canada are exploring evidence-based aging in place initiatives to enhance the infrastructure and support systems for older adults in Canada.

In 2023, the federal government announced new long-term funding for the shared priority to support people in Canada in aging with dignity close to home, with access to home care or care in a safe long-term care facility.[31] Tailored bilateral agreements with provinces and territories lay out action plans to support people in Canada to age with dignity.
In June of 2024, the National Seniors Council, a panel of experts that provides advice to the Government of Canada on current and emerging issues and opportunities related to the health, well-being and quality of life of older adults, published their recommendations on new and/or enhanced measures that could support older adults aging at home.[31] CDA-AMC's work and HTERP's guidance is complementary to the Aging with Dignity bilateral agreements and the Council's recommendations.

The Response: Guidance From the Health Technology Expert Review Panel

The mandate of the Health Technology Expert Review Panel (HTERP) is advisory in nature and is to participate in the development of guidance or recommendations for CDA-AMC projects on, medical devices, diagnostic tests, and clinical interventions (inclusive of models of care, programs of care, and health systems). HTERP convened to develop objective, impartial, and trusted pan-Canadian guidance to health care decision makers to support evidence-informed, equitable, aging-in-place initiatives.

The guidance provided by HTERP is intended for senior decision-makers responsible for developing and implementing Canada's federal, provincial, and territorial policies and leading Canada's health systems, and the decision-making tables and teams who are tasked with advancing health system priorities. The audience includes federal, provincial, and territorial deputy ministers and assistant-deputy ministers of health, and other senior executives as well as executives at provincial and territorial health authorities, cancer agencies, or other provincial health agencies, hospitals, and health service delivery organizations.

HTERP Guidance Development Process

HTERP is comprised of 7 core members who serve for all topics under consideration during their term of office: chair, ethicist, health economist, patient member, 2 health care practitioners, and a health technology assessment specialist. In addition to these core members, HTERP also includes up to 5 expert members appointed to provide their expertise on a specific topic. To develop guidance to support aging in place in Canada, HTERP appointed 2 members with expertise in caring for older adults, 2 members with clinical experience and healthcare administration, and 1 member with living experience as a caregiver. The HTERP members are listed in Appendix 1.

To support decision-making, CDA-AMC prepared an Evidence Assessment report that:

- Identified and described the current context of aging and hinderances to aging in place in Canada
- Described considerations relevant to aging in place for equity-deserving groups, highlighting perspectives of First Nations, Inuit, and Métis Peoples and communities;
- Described and appraised strategies and initiatives intended to address unmet needs and improve outcomes of importance to older adults in Canada; and
- Described some systemic considerations related to implementing initiatives supporting aging in place in the country.

HTERP used the CDA-AMC Aging In Place Evidence Assessment report to inform their deliberations and to develop this guidance. HTERP members reviewed and discussed the evidence and information, considered public and expert input, and developed the guidance through a series of meetings between March and June 2024. A draft version of this guidance will be available for broad public feedback from July 9 to July 22, 2024. The feedback will be reflected in this final version.

HTERP's Position on Aging in Place

- Everyone has the right to age with dignity and in a place that aligns with their values and preferences. Aging is a normal part of life and may be accompanied by changes in our health and/or our functional abilities including everyday self-care tasks. People may require assistance, whether temporary or long-term, to support them in aging and maintaining independence in their home and community. Older adults' needs change over time, as does what is important to them, and so should the supports around them.
- Aging in place is a dynamic and complex experience that exists within a larger context that is not limited to health systems.
- Health and social systems originally designed to meet the less complex acute care needs of a younger population that operate largely in silos cannot adequately or proactively address the continuum of needs of older adults and their caregivers. There is a need for improved models of acute care for older adults, intermediate care/reablement programs that help to

restore and regain function as well as meet the growing demands for home and community care and support services. Fewer family doctors are available to provide the comprehensive care needed to support aging at home (such as home visits, or comprehensive review office visits) and a transition to integrated interdisciplinary team-based care is required.

- Older adults' autonomy and preferences for care are realized by the active role of informal unpaid caregivers (e.g., unpaid family members or friends).
- The population of older adults in Canada is diverse with varying cultural norms and values related to aging in place. Many cultures and communities may not see aging as in need of intervention, but rather as a natural part of life, with beliefs that it is common and appropriate for family, friends, and communities to provide support.
- There must be equity in access to culturally safe, appropriate and ongoing care to support dignity in living in a place of one's choosing for older adults as they age.
- Hinderances to aging in place may disproportionately affect members of equity-deserving groups that experience multiple and often intersecting historical, social, cultural, medical, structural, institutional, and environmental barriers to care and support.

The Importance of Integrated and Coordinated Care to Support Aging in Place in Canada

- HTERP discussed the primary reasons hindering aging in place in jurisdictions across Canada and acknowledges the most prominent being those that are related to preventing and managing health conditions, and reasons related to social isolation and loneliness.
- HTERP also identifies a lack of integrated and coordinated care as a key contributor that hinders aging in place in Canada.
- Attention to several of the reasons identified in the CDA-AMC Evidence Assessment Report is critical for supporting aging in place; however, because it is a complex system issue, HTERP asserts health systems will achieve a higher impact on aging in place outcomes by implementing solutions within healthcare services and social support systems that support integrated and coordinated care.
- HTERP recognizes that contextualized, flexible, and fit-for-purpose solutions that are also integrated and continuous are necessary for addressing the evolving, culturally diverse needs of older adults amidst the challenges of system navigation and the limited availability and access of care and support services
- HTERP identified the need to transition from the current siloed, episodic acute care approach of addressing individual issues with standalone solutions. Rather, HTERP acknowledged the importance of continuous, integrated, team-based approaches to care that span the continuum of health and social services. By understanding what matters to older adults and all the contributing factors (i.e., chronic disease, dementia, fall risk, housing, social supports), an appropriate, coordinated care plan can be made and delivered by an interdisciplinary team.

HTERP's Guidance to Inform Decision-Making to Support Aging in Place

HTERP has developed the following guidance statements in response to the need for support for older adults and their caregivers to age in place in jurisdictions in Canada.

Foster a system that prioritizes integrated models of care to address current and future unmet needs and bridge gaps in services

HTERP advises that:

- When identifying strategies or solutions, prioritize flexible, fit-for-purpose and adaptive strategies that are contextualized in their implementation to foster responsiveness to changing conditions within a jurisdiction.
- In recognizing that future generations will age differently, additional focus should be placed on interventions that **prevent or slow the progression of impairment**.

- Policies be developed that **enhance the robustness of social systems** to adapt and thrive under uncertainty.
- Investment in the **implementation of technology-based interventions** is necessary to maintain people's right to age with dignity in a place that aligns with their values and preferences. HTERP acknowledges and encourages the continuing efforts of research groups in Canada, such as AGE-WELL to drive innovation and close the gap between ideas and technologies, and testing in home settings.
- Most strategies and initiatives intended to support aging are multifaceted and interconnected, requiring a holistic and multicomponent approach for their implementation. The needs of older adults can change over time and vary from person-to-person. Individuals may need to engage with some of these initiatives regularly (e.g., meal programs for nutrition, group-based programs for social connectedness), whereas other initiatives may serve a purpose at a particular moment in time (e.g., rehabilitation after a hip fracture).
- A key enabler of continuity of care is the **seamless ubiquity and interoperability of health data** between different types and levels of care (care team members) in the community.
- Solutions to support aging in place may require the implementation and coordination of multiple strategies and initiatives **with a view to the whole health system and external and closely related systems** (e.g., housing, transportation, access to mental health supports).
- A **learning health systems approach**[32] be adopted that acknowledges dynamic health systems with multiple influences and that actively incorporates ongoing learning into routine care delivery to provide value to patients, providers, and the broader health system.
- Older adults and caregivers be meaningfully involved in the **co-creation of program and policy development** to build trusting relationships, identify their needs, and ensure their values and preferences are respected.

Identify and implement solutions that are aligned with the unique and complex needs of older adults and their unpaid caregivers

- With an understanding of the main barriers to aging in place, HTERP recommends identifying strategies and initiatives that address the evolving needs of older adults and their unpaid caregivers. There is a need to measure, interpret and consider sources of evidence and context broadly to inform local solutions, given the complex nature of supporting aging in place.
- When considering the **needs of older adults**, HTERP advises:
  - To ensure awareness and facilitate navigation and coordination of available care and support services within their community and available virtually through technology to help ensure equitable access.
  - Individuals' values and preferences or personal outcome goals vary and should play a significant role in the individual-level decision-making processes. Older adults should be involved in the co-creation of their care plans when selecting care and support strategies.
  - Efforts be placed in the advancement of platforms to introduce older adults to one another, to assist and support each other to address social isolation and loneliness. Additionally, intergenerational interventions can enhance social connectivity while combatting ageism.
  - Interventions should consider unique challenges within remote and rural communities, particularly among older adults who do not have family living nearby.
- When considering the **needs of unpaid caregivers**, HTERP acknowledges the additional support required by family members, friends, or people living in the community who are in a care provider role who often have other employment and require taking time off work to care for elderly relatives. HTERP advises that:
  - Strategies should aim to reduce caregiver burden and support caregivers' active participation in care decision-making. HTERP acknowledges the vital role of caregivers, and encourages attention to ensure that responsibilities to support loved ones to age in place are not shifted to them; rather, caregivers should be supported in their roles.
  - Strategies should aim to mitigate the additional financial and emotional strain caregivers face accessing funding and other supports, and in navigating wait times and administrative barriers, all which are significant sources of additional stress for caregivers.

- When considering the **needs of primary care providers**, HTERP advises that:
  - Interventions or models of care prioritize the coordination of communication and the interoperability of health data between and across older adults, paid and unpaid caregivers, other care team members and primary care providers to place older adults at the centre of care.
  - Primary care serves as the centre for coordination of care, supported by the development of individualized care plans that account for individuals' evolving care needs and available supports and services. Older adults with more complex needs would benefit from an interdisciplinary team-based approach. *The Patient's Medical Home*, a vision by The College of Family Physicians of Canada, describes how family physicians work in teams with other health care professionals to provide accessible, high-quality care for their patients. The vision offers an example of an integrated, interdisciplinary team-based approach to help maximize people's well-being, maintain independence, and empower older adults to make decisions about their care.[33,34]

- When **identifying solutions** to support aging in place, in consideration of the available evidence and expert input:
  - HTERP asserts that some categories of strategies and initiatives show promise to support aging in place across jurisdictions in Canada, provided there is consideration of the unique local context of the complex needs of older adults and their unpaid caregivers. These strategies and initiatives are presented in Appendix 2.
  - HTERP recommends referring to a **list of programs and initiatives** in Canada. HTERP recognizes that this list may not be complete and is unable to comment on the effectiveness of all available initiatives. Rather, users can refer to this resource to view and navigate to some of the available government-supported programs and services for older adults in Canada.
  - Decision makers can identify what interventions could be addressed in a health budget, guided by the characteristics of integrated, team-based, multifaceted solutions that recognize differences in needs and preferences and cultural considerations, and that can address inequities in access.
  - HTERP acknowledges that not all initiatives available in Canada were included in CDA-AMC's evidence assessment given the need to only include those studied through systematic, rapid, and scoping reviews to ensure timely guidance. In addition to the evidence reviewed by CDA-AMC, other evidence types and sources may be relevant for identifying interventions or strategies to support aging in place. HTERP recommends looking to the following resources: work conducted by the National Institute on Ageing,[26] promising practices that offer integrated services through partnership with communities identified by Healthcare Excellence Canada (Appendix 3),[35] and a list of technologies to support aging in place compiled by AGE-WELL and expert opinion (Appendix 4).
- When **implementing solutions** to support aging in place, HTERP asserts that:
  - Strategies to support aging in place cannot be simple nor standalone solutions, but rather must be multifaceted and interconnected. To effectively support aging in place, there is a need for integrated and coordinated solutions across the continuum of care and outside of traditional health care.
  - Necessary changes will take time, are complicated, and will require investment from health systems.
  - HTERP acknowledges the implementation of interventions is context-dependent and typically requires coordination and cooperation by all levels of government, sectors, partners, and the public. It is possible that some interventions will lead to improved outcomes in some contexts, and not others.
  - HTERP notes that many aging in place initiatives have been assessed individually when in practice interventions tend to be implemented in a dynamic context that includes access to and use of multiple initiatives. While many interventions appear promising, HTERP recommends attention be paid to cultural and local contexts in their implementation and evaluation.

Ensure appropriate and equitable access to solutions

HTERP acknowledges:

- There are varied funding models and payers for aging in place support. HTERP acknowledges **the need for funding models** to consider and minimize the challenges of any siloed, multilayered structures within existing health and social services systems.

- HTERP advises payment models should address and make explicit through **regular reporting the distribution of population needs and utilization of services, with an eye to identify any potential health or financial barriers** in accessing services.
- **Funding models should consider incentives and disincentives** that can facilitate or inhibit the successful functioning of program delivery
- Payment models may **consider principles of distributive justice** in ensuring publicly funded resources are available to individuals without other means of funding.
- Solutions to help support aging in place need to be developed and implemented with **consideration of the inequities** that disproportionately affect members of equity-deserving groups. Solutions should aim to reduce these inequities, not exacerbate them.

Standardization in data collection, analysis, use, and reporting

HTERP advises that:

- Strategies should be situated within a **learning health system framework** to support the continuous identification, reporting, implementation, and evaluation of innovations that speak to the needs and priorities of older adults and their caregivers and ensure their integration along the entire continuum of care.
- Strategies that aim to **standardize and integrate clinical and administrative data collection**, analysis, use, and reporting across health and social systems need to be implemented to improve interoperability and address fragmentation in the system.
- In addition to measuring data on age and medical conditions, HTERP advises **collecting and assessing data around frailty** at the individual and population level to identify the different levels of need.[36]
- Measures should expand beyond process metrics to **incorporate population needs, patients/clients experiences and outcomes** to support needs-based planning and ensure the quality, safety, effectiveness, equity and sustainability of services.
- Economic evidence should **incorporate a societal perspective** to capture caregiver costs and outcomes as well as those of older adults.
- HTERP acknowledges the **gaps in evidence** resulting both from the challenges in studying interventions implemented within complex systems and a history of inadequately resourced implementation and evaluation. It is not feasible to fund and conduct high-quality randomized-controlled trials on all aging interventions, given the broad nature of the topic and the abundance of types of strategies and initiatives that exist. HTERP acknowledges a need for research on integration mechanisms such as interdisciplinary teams, high-quality care transitions between teams, and enabling technology such as shared care plans.
- While there are gaps in the current evidence base, it is improbable that it will ever be perfect. Although there appears to be good value in the studied interventions from a payer perspective, caregiver (societal) costs and benefits must be considered to understand the full scope of value within a complex system. However, this does not outweigh the need to act despite imperfect data. Decisions to fund and implement initiatives should proceed, despite gaps in and levels of existing evidence, as **the benefits of the identified interventions outweigh the potential harms** caused by lack of availability and inequities of access.
- HTERP recommends that **this topic be revisited in the future** to build upon this guidance and to maintain relevance as new models and strategies are implemented, evidence regarding promising interventions emerges, and to align with changing population needs and preferences.

Summary of the Evidence That Informed HTERP's Guidance

This section summarizes the CDA-AMC Evidence Assessment Report. This report was used by HTERP as an input into their deliberations and to develop their guidance. The Evidence Assessment Report comprised of:

- A summary of evidence regarding the context of aging and hinderances to aging in place in Canada. We obtained this evidence from a variety of sources, including real-world data (RWD), government and policy documents, non-governmental publications on aging in place and aging in Canada, journal articles, and consultations with community partners and health care decision-makers;
- A summary of considerations from the perspectives of First Nations, Inuit, and Métis Peoples and communities, as derived from Indigenous-led, publicly available sources, and as reviewed by First Nations, Inuit, and Métis peer reviewers;
- A summary of systematic review evidence on aging in place strategies and initiatives that are known to successfully address the hinderances that prevent people from aging in place in Canada
- A summary of existing economic evaluations (i.e., cost-effectiveness analyses, cost-utility analyses, cost-benefit analyses, costing studies) relevant to aging in place in Canada. We identified key economic considerations, including economic barriers and opportunities at the individual and health systems level; and
- A summary of lessons learned from initiatives in health systems comparable to Canada, a list of technologies, and a list of programs and initiatives that may potentially support aging in place in Canada
- A summary of policy, funding, and other systemic barriers that may challenge the implementation of promising aging in place initiatives in Canada, informed by consultations with academic researchers, policy analysts, and implementation scientists.

To accomplish this, we searched key information and data sources – including, journal databases, trial registers, and websites focused on Indigenous health – and conducted focused internet searches for relevant evidence on initiatives to support aging in place. Details on the methodology, including the literature searches and inclusion criteria can be found in the Supporting Information document.

To enhance the quality and relevance of this work, CDA-AMC engaged people with extensive personal and/or professional experience with aging, caring for older adults as they age, or healthcare decision-making in Canada.

- In February of 2024, we held 2 roundtable sessions with jurisdictional decision-makers to validate our planned approach and help ensure that our evidence product is relevant and would meet health system needs. Sessions included an overview of our proposed approach to this work, followed by a facilitated discussion.
- In March of 2024, we held 3 community engagement sessions to better understand the reasons why people are unable to age in their home or community for as long as they want to or are able to. Participants included people who are aging in place, or who would like to; family members and caregivers to older adults; a variety of health care professionals, academics and researchers; and other interested community members.
- In April of 2024, we held 1 engagement session with health policy, services, and technology researchers; policy analysts; and implementation scientists with knowledge and expertise on this topic to discuss possible barriers to action in this area.

Findings from our engagement sessions are detailed throughout this report alongside those identified in the literature. The Engagement Summary document details the approach to, and full summaries of, these sessions.

A summary of evidence regarding the context of aging and hinderances to aging in place in Canada.

The summary was derived from evidence from a variety of sources, including real-world data (RWD), government and policy documents, non-governmental publications on aging in place and aging in Canada, journal articles, and consultations with community partners and health care decision-makers.

Key considerations included:

Reasons people are unable to age in place in Canada are interrelated and may disproportionately impact members of groups experiencing historical, structural, and systemic factors causing lifetime disparities in social determinants of health (SDH). These disparities influence older people's agency and opportunities to prevent and manage health conditions and injuries. We identified 3 broad categories of closely related reasons people are unable to age in place including those related to:

- **Preventing and Managing Health Conditions**: As people age, they are more likely to experience frailty, chronic health conditions, and fall-related injuries. These experiences may lead to unsafe living conditions and reduced quality of life at home or in the community, and a greater need for complex care. Limited availability of intermediate care, navigation, integration and continuity of, and physical access to home and community care and supports within the health and social system reduce older adults' capacity to prevent and manage health conditions and injuries in the home or community.
- **Social Isolation and Loneliness**: Social isolation and loneliness are associated with decreased physical, emotional, cognitive, and mental health and quality of life. Lacking opportunities for social participation, connection, and support may limit older adults' ability to age in place.
- **Housing and the Built Environment**: Limited availability of and access to acceptable housing, home adaptations, safe and curated spaces in the built environment, and transportation constrain older adults' agency and ability to participate in social activities and access health care services.

A summary of considerations from the perspectives of First Nations, Inuit, and Métis Peoples and communities

The summary was derived from Indigenous-led, publicly available sources, and as reviewed by First Nations, Inuit, and Métis peer reviewers

Key considerations included:

- First Nations, Inuit, and Métis Peoples generally conceptualize health and healthy aging as holistic harmony between physical, mental, emotional, and spiritual well-being. This contrasts a medicalized, deficit-based view of wellness often framed in relation to sickness.
- Aging in place allows Indigenous older adults and Elders to exercise self-determination and remain connected to their land, family ties and kinship, and culture. This, in turn, empowers them to uphold and revitalize holistic wellness for themselves and their communities. First Nations, Inuit, and Métis organizations and Peoples have advocated for using a distinctions-based approach to embed Indigenous culture into policy, program, and service design. They have emphasized that policies and services should prioritize community health. Additionally, research informing these policies and services should be strengths-based, and grounded in Indigenous worldviews.
- First Nations, Inuit, and Métis organizations and Peoples have prioritized increasing the availability of and access to culturally safe and trauma-informed primary, specialist, long-term, and palliative care in the home and community. Related priorities include providing consistent funding for Indigenous-led services; increasing the availability of culturally safe and trauma-informed health care providers in Indigenous communities; mitigating service fragmentation through coordinated partnerships; enhancing caregiver support; and increasing health benefits.
- Connection to community, family, and kinship are essential to the holistic well-being of Indigenous Peoples. Enhancing social connections and belonging requires ensuring older adults and Elders have adequate social supports; access to social events where they feel safe and respected; and protection from Elder abuse.
- First Nations, Inuit, and Métis organizations and Peoples have emphasized prioritizing adequate housing, accessible transportation, safe and accessible spaces for socialization and intergenerational engagement, and community health infrastructure in Indigenous communities and urban areas.

A summary of systematic review evidence on aging in place strategies and initiatives

The summary was derived from a targeted literature search that was conducted to identify systematic reviews that aligned with the summary of reasons hindering aging in place and leverage existing work published by the National Institute on Aging, which identified 12 categories of initiatives that are relevant to aging in place.

Key considerations included:

- Several initiatives may improve outcomes associated with aging in place, including initiatives related to chronic disease prevention and management, dementia prevention and support, falls prevention, support for unpaid caregivers, at-home care and support, at-home palliative care, reablement, social isolation and loneliness, assistive devices and home modifications.
- Several initiatives share characteristics and are interconnected with one another. Some of the aspects of these initiatives that have shown the most promise are those that are multicomponent, addressing physical, environmental, social, and psychological domains.
- The needs of older adults vary over time and from person-to-person, requiring adaptability of solutions. Offering access to these initiatives through a centralized model or practice may help older adults navigate and access services as they are needed.

A summary of existing economic evaluations relevant to aging in place in Canada

The summary was derived from a targeted literature search that was conducted to identify economic evaluations (including cost-effectiveness and costing studies).

Key considerations included:

- The affordability of implementing interventions from the public payer perspective and individual payer perspective (including caregivers) is an important economic consideration. Costs may include those related to infrastructure, healthcare services (formal and informal), social support systems, and potential cost savings as a result of changes in resource use.
- Economic evaluations frequently incorporate clinical benefits (e.g., avoided hospitalizations) and well-being measures (e.g., quality of life) into their analyses. These measures capture essential well-being outcomes that may not be solely represented by clinical indicators, including patient-reported outcomes and broader aspects of wellness.
- The cost and health outcome considerations described above raise equity considerations related to differential access to services based on affordability, and the inequitable distribution of health outcomes and well-being. Identified evidence also raised that decision makers should strive for equitable implementation and access across populations when considering implementing initiatives that may shift spending from one payer to another, or provide inequitable access to opportunities to support aging at home. Economic evaluation methods, including distributional cost-effectiveness analysis, may support decision making by considering how potential shifts in spending may differentially affect certain populations.

A summary of lessons learned from initiatives in health systems comparable to Canada

The summary was derived from an environmental scan of reports published by governments, non-profit organizations, and agencies to identify international initiatives (e.g., strategies, care models, insurance schemes) that promote aging in place.

Key considerations included:

- The international initiatives emphasized the importance of:
  - Directing efforts towards preventing and/or slowing the progressions of chronic disease, dementia, and injury and maintaining functional capacity in older adults.
  - Providing appropriate training and guidance for the care and support workforce.
  - Collaborating and coordinating efforts across the care continuum and with relevant sectors beyond health (e.g., transportation, housing)
  - Tailoring care and support around the individual's needs and the local context

A summary of policy, funding, and other systemic barriers that may challenge the implementation of promising aging in place initiatives in Canada.

The summary was informed by consultations during an engagement session held in April 2024 with 6 health policy and implementation specialists. The purpose of this session was to understand systemic barriers and catalysts for implementation of promising aging in place initiatives in jurisdictions in Canada from the perspectives of these experts.

Key considerations included:

- Participants indicated that innovative ideas, infrastructures, and practices support aging in place. They emphasized that contextual, flexible, and fit-for-purpose policy, research, and service delivery that values older adults and considers accessibility catalyzes their sustainable and equitable implementation. However, they noted that such implementation will require a shift from traditional paradigms prioritizing consistency, standardization, and efficiency and grounded in ageism and ableism. They suggested shifting traditional mindsets, infrastructures, and practices will take time.
- Approaches to support sustainable and equitable implementation identified by participants included:
  - Engaging those with lived and living experience in the design, early evaluation, and knowledge mobilization practices. This ensures the implementation of fit-for-purpose and equitable initiatives that attend to older adults' well-being, dignity, and diverse needs.
  - Advancing shared and coordinated decision-making across multiple government sectors at different administrative levels, especially with local municipalities and communities.
  - Strengthening capacity building within the community to support the implementation of flexible, fit-for-purpose, equitable, and culturally safe aging in place solutions.

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Appendix 1: The Health Technology Review Panel

The mandate of the Health Technology Expert Review Panel (HTERP) is advisory in nature and is to participate in the development of guidance or recommendations for CADTH projects on medical devices, diagnostic tests, and clinical interventions (inclusive of models and programs of care).

HTERP comprised 6 core members to serve for all topics under consideration during their term of office: chair, ethicist, health economist, patient member, 2 health care practitioners, and a health technology assessment specialist. In addition to the core (plus specialist) members, HTERP comprises up to 5 expert members appointed to provide their expertise on a specific topic. For this project, HTERP appointed 2 members with expertise in caring for older adults, 2 members with experience in healthcare administration, and 1 member with living experience as a caregiver

HTERP Core Members

Leslie Anne Campbell – Chair, Nova Scotia

Louise Bird – Patient member, Saskatchewan

Brian Chan – Health Economics, Ontario

Sandor Demeter – Health Care Practitioner, Manitoba

Lawrence Mbuagbaw – Health Technology Assessment Specialist, Ontario

Duncan Steele – Ethicist, Alberta

Expert Members

Jenny Basran – Division of Geriatric Medicine at the University of Saskatchewan, Saskatchewan

Alexandra Borwein – Qikiqtani General Hospital, Nunavut

Connie Clerici – Closing the Gap Healthcare, Ontario

Don Juzwishin – University of Victoria, British Columbia

Maggie Keresteci – Lived Experience, Ontario

Conflicts of Interest

None identified or reported.

Appendix 2: Strategies and initiatives with Promise

Strategies and initiatives to support aging in place may be categorized as follows:

- Strategies that support the prevention and management of health conditions and injuries
- Strategies that support social connectedness and engagement
- Strategies that support housing and the built environment
- Strategies that combined 2 or more types of interventions across these 3 categories

HTERP acknowledges that in addition to these categories, strategies that include solutions targeting health and society-level issues such as integration between different agencies or ministries be considered.

Favourable Strategies and Initiatives With Promise Identified in CDA-AMC Evidence Review

- In consideration of the available evidence, information, and expert input, HTERP asserts the following non-exhaustive list of strategies and initiatives show promise to support aging in place in jurisdictions across Canada.
- The strategies and initiatives are those that have been assessed through CDA-AMC's evidence review as favourable (i.e., those that indicated better effectiveness of an intervention versus a comparator, or had a beneficial effect on outcomes).
  - Many interventions described within the published literature demonstrate favourable effects on outcomes important to older adults and many appeared to have good value from a payer perspective in the settings they were assessed. Similarly, most interventions demonstrate few or no adverse or negative outcomes, suggesting they may be beneficial if implemented in an appropriate context.
- When seeking examples of the types of strategies and initiatives that show promise, this published list can be used as a tool to identify specific solutions available across jurisdictions in Canada.
- HTERP asserts that it is critical that these strategies and initiatives not be standalone options, but rather need to be addressed in an integrated approach and guided by what is most important to the older adult.

Table 1: Supporting the Prevention and Management of Health Conditions and Injuries

Catgeory	Intervention or strategy	Description
Chronic disease prevention and management	**Telemonitoring** to improve self-care behaviours	Telemonitoring interventions include telephone or videoconference support, interactive telemonitoring devices with physiological data collection, and interactive telemonitoring devices without physiological data collection[37]
	Community-based interventions to decrease ED attendance	Community-based interventions took place either in a primary healthcare setting or in the community and involved holistic management of the patient.[38] Generally, interventions took the form of integrated care plans, care coordination, advance care planning, and palliative care.[38] Most community interventions were multifaceted and emphasized education, self-monitoring of symptoms, and regular follow-ups.[38]
Dementia Prevention and Support	**Personally tailored activities** to reduce challenging behaviour, improve quality of life and caregiver distress	Personally tailored activities refer to activities that have been developed to the individual interests and preferences of a person. The precise activities offered can vary and are based on the interests, preferences, and capabilities of participants.[39]
Falls Prevention	**Multifactorial interventions** to reduce falls	Fall prevention interventions are typically designed to address risk factors for falls.[40] The components included in multifactorial interventions in this review were exercise, education, environmental modification, medication, mobility aids, and vision and psychological management.[40] The intensity of the intervention was classified as either active or referral.[40] Active

		interventions assessed risk factors and resolved fall-related problems. Referral interventions provided referral to other services or information.[40]
At-Home Care and Support Services	**Home Meal Delivery Service** to improve nutritional intake (related to malnutrition, frailty, etc.)	Home delivered meal services provide ready-made meals to a home or to a congregate setting (e.g., seniors centres) for older adults who require nutritional support.[41]
At-Home Palliative Care	**Home-based end-of-life care** to increase likelihood of dying at home, improve patient satisfaction	Home based-end-of-life care entails active and continuous treatment by healthcare professionals in the patient's home, when they would otherwise require inpatient care (i.e., in hospice or hospital).[42]
Reablement	**Home Exercise and Multi-component home-based rehabilitation** to improve muscle strength, gait speed, quality of life, mobility, balance, and activities of daily living.	Multicomponent home-based rehabilitation interventions are those that incorporate exercise, education, and environmental modifications. Home exercise interventions are those that include exercise components only.[40] The purpose of both types of interventions are to help individuals regain functional independence.[40]
Support for Unpaid Caregivers	**Empowerment** interventions to improve caregiver burden, physical well-being, psychological well-being, confidence in providing caregiving, caregiver-care receiver relationship, social support, caregiving situation	Empowerment-oriented interventions are those that aim to enhance the caregiver's control of mind and body, improve proactive care and caregiving capabilities, and equip them with skills to support care receivers' independence and build relationships.[43]

Table 2: Supporting Social Connectedness and Engagement

Catgeory	Intervention or strategy	Description
Social Isolation and Loneliness	**Group-based treatment and internet training** to reduce loneliness	The initiatives examined to reduce loneliness were broadly categorized into group-based interventions, individual interventions, training on internet use, and miscellaneous (i.e., those that did not fit into any other established category).[44] Group-based interventions were further subdivided into group-based treatments, group activities, and group exercise.[44] Individual interventions were further subdivided into in-person administration, telephone administration, and internet administration.[44]

Table 3: Supporting Housing and the Built Environment

Catgeory	Intervention or strategy	Description
Housing	**Homesharing** to provide companionship and support	Homesharing is an exchange-based housing model in which a home provider, often an older adult, shares a spare room in their home with a home seeker in exchange for money, service provision, or a combination of the 2.[45] This model is often intergenerational in nature where the home seekers are younger adults, such as students.[45] All homesharing

		programs in this study were agency-assisted, meaning that an organization facilitated the homesharing process.[45]
Assistive Devices and Home Modifications	**Multi-component home modification models that use an ooccupational therapist** to improve patient functional status	Multicomponent models of home modifications include environmental modifications plus one or more additional interventions in the categories of clinical, physical activity, behavioural, and social.[46]

Table 4: Interventions Spanning Multiple Categories

Catgeory	Intervention or strategy	Description
Community-based complex interventions	**Individualized care planning with medication optimization and follow up** to maintain independence	Service models for older adults that incorporate tailored care approaches to meet their specific needs, which are routinely asssesed and include a regular review of their medications.

Appendix 3: Healthcare Excellence Canada's Promising Practices for Enabling Aging in Place

- Healthcare Excellence Canada has compiled a list of promising practices as part of their Enabling Aging in Place program that can also be used as a resource when identifying promising solutions (Table 5). Healthcare Excellence Canada has indicated that these promising practices lead to improved safety, health and quality of life for those who remain at home.
- Healthcare Excellence Canada has also indicated that these promising practices can delay entry to long-term care, reduce emergency department visits, lessen demands on care partners, and make better use of health and social care resources.

Table 5: Healthcare Excellence Canada's Promising Practices for Enabling Aging in Place

Promising Practice	Description
Community Paramedicine at Clinic (Ontario)	The Ontario-based Community Paramedicine at Clinic (CP@clinic) Program is an evidence-based initiative, focusing on chronic disease prevention, management and health promotion. Implemented by local community paramedics, this program supports community social housing with a high concentration of older adults.
Naturally Occurring Retirement Communities (Ontario)	Ontario's Naturally Occurring Retirement Communities (NORCs) represent housing environments in the community (e.g., apartments buildings, condos, trailer parks, residential neighbourhoods) that have organically adapted to the increasing population of older adults. These settings offer a unique opportunity to bring seniors together in one area, creating a supportive community that meets their needs.
Nav-CARE (British Columbia and Alberta)	The Navigation – Connecting, Advocating, Resourcing, Engaging (Nav-CARE) program is a national social innovation program providing quality of life navigation for adults with declining health at home. Experienced volunteers connect individuals with skilled navigators, addressing unmet needs which extend its reach to Alberta and British Columbia, enhancing the well-being of those facing health challenges at home.
Nursing Home Without Walls (New Brunswick)	The Nursing Home Without Walls program optimizes nursing home resources to support older adults living in the community. It works to prolong home residency, minimize unnecessary emergency department visits and aims to combat social isolation, enhance health-related knowledge and empower local communities to meet the evolving needs of an aging population in New Brunswick.
Oasis (Ontario)	Oasis Senior Support Living Inc. is an innovative program that started in Kingston, Ontario, specializing in aging within Naturally Occurring Retirement Communities (NORCs). Guided by onsite coordinators and utilizing communal spaces, the program empowers older adults to curate activities tailored to their community's needs.
Ottawa West Aging in Place Program (Ontario)	The Ottawa West Aging in Place program, serving Ottawa, Ontario, offers comprehensive support and home care services for older adults in social housing. This initiative addresses the challenge of premature long-term care admissions by providing affordable assistance, enabling seniors to stay at home for an extended period.
Maple Ridge/Pitt Meadows Community Services Seniors Social Prescribing Program (British Columbia)	The Maple Ridge/Pitt Meadows Community Services Seniors Social Prescribing Program provides a formal pathway for healthcare providers to address the social determinants of health of their older adult patients. The program connects older adults with community programs, services and resources that support their mental, physical and social well-being.

Appendix 3: Examples of Technologies to Support Aging in Place

- There is growing interest in adopting technologies to support aging in place.[12,47] To complement the evidence on initiatives, CDA-AMC provides examples of technologies identified through AGE-WELL and through expert opinion. CDA-AMC categorized the listed technologies as they relate to the types of initiatives outlined by the National Institute on Ageing.[26]
- Of note, CDA-AMC did not perform a comprehensive literature search to identify or critically appraise the evidence regarding the listed technologies. We also recognize that this list does not provide a comprehensive picture of all of the available technologies that support aging in place. The purpose was to identify examples of potentially important technologies not yet widely used in health systems in Canada.

Table 6: Technologies to Support Aging in Place

Type of Technology	Examples
Chronic Disease Management and Prevention	
Mobile Health	Apps that supports and incentivizes healthy habits for certain conditions and mental health.
	Apps for users to track their health status and adhere to their care plan.
	Remote biomarker monitoring devices that allow users and health care providers to view collected data and insights.
	Remote biomarker monitoring systems that allow users and health care providers to view data, as well as access virtual care or support.
	AI digital health assistants
Medication Management	Smart medication trackers or dispensers to manage and help adhere to medication plans.
	Apps that send customizable reminders about medications.
Dementia Support	
Assessment Tools	Devices that aim helps providers assess pain using facial analysis technology
	Tablet-based tools that intends to help detect cognitive impairment using speech analysis.
	Virtual cognitive assessment platforms
Mobile Health	Apps that may help self-manage care designed for individuals with dementia or mild cognitive impairment.
Brain Engagement	Tailored digital therapies for cognitive training.
	Platforms to log and preserves memories for older adult.
Falls Prevention	
Assessment	A digital tool to evaluate risk for falls and identify potentially appropriate rehabilitation to prevent falls.
Mobility	A portable lift and rollator walker with an adjustable height and seat.
Activity Monitoring	These are monitoring systems that can help detect falls and emergencies. Some leverage AI to enhance the user's privacy, detect unusual behaviour, or deviations from routines *(marked with *).*
Assistive Devices and Home Modification	
Hand Support	A wearable glove that may stabilize hands
	The device supports users with limited fine motor skills to perform tasks involving their hands (e.g., writing, drawing) by promoting the use of shoulders instead of hands.
Hearing Support	An app that listens for noises and alerts when immediate attention is needed (e.g., fire alarms).

Type of Technology	Examples
	An app that aims to eliminate background noise.
Vision Support	Glasses for macular degeneration
	Sensor activated lights to guide users during the night time
	Reablement
Digital Rehabilitation and Mobility	Devices that use sensors for real-time feedback for rehabilitation
	Devices that delivers non-invasive FES therapy to the upper body
	Platforms for digital physical therapy
	Smartphone apps for rehabilitation programs
	Devices simulating a biking using augmented reality and users must "pedal" to travel.
	Home Care Support Services
Care Coordination	Software that may support care management and coordination.
Care Delivery and Customer relationship management	Online platforms to find and hire home care providers or support workers.
	End of Life Care
End of life planning	Funeral planning platforms
	Care planning for users with conditions in advanced stages
	Support for Unpaid Caregivers
Support and Online Community	Platform to access digital tools, personalized guidance, and an online community to help alleviate stress and burnout for caregivers
	Online communities for carers
Training	Platforms that provide training for caregivers
Assistive Devices	Automated systems to help caregivers transfer patients.
	Wetables to monitors posture and provides immediate feedback to avoid injury
	Housing
SMART technologies	A service that helps integrates home technologies into 1 system
	A system to help user with mobility issues control their home environment.
Home Share	A platform for older adults to find a roommate or to rent a space.
	A website designed for older adults to book stays during trips.
	Transportation
SMART technology	Sensors that can transform wheelchairs into a "smart" wheelchair.
Other	Platforms to helps users access transport services and order necessities for delivery.
	Smartwatch apps that monitor mobility and predicts health outcomes.

Type of Technology	Examples
Social Isolation & Loneliness	
Digital and Robot Companions	Virtual companions that also helps with self-managing care
	Robotos as a social companion
	Remote companions for users to access for support
Social Media and Communication	Platforms to facilitate communication with loved ones and care team.
	Platforms to meet others.