COURAGE
Action for Better Aging

The Path Forward for Aging in Canada

Discussion Paper

Covenant Health | Covenant Care | Covenant Living | Health

August 2021

Contents

It's time for a new era for aging in Canada. It's time for people with big ideas, passion and vision to create a new future that embraces and supports healthy aging—body, mind and spirit.

Today's older adults are engaged, mobile, healthy and motivated to ensure quality of life, choice and independence as they age. Soon, one in five Canadians will be over the age of 65 and they will live longer, continuing to manage multiple health conditions as they age.

As we plan for this future, Canadians have made their wishes clear. They want to stay in our homes and communities as they age. They want the opportunity to maintain their freedom, self-worth and identity, comfort, and active roles in the community. They want to have the independence, choice and supports they need to live full lives connected to everything they love.

As organizations devoted to healthy aging in Canada, SE Health and the Covenant family are mobilizing action through COUR**AGE**: Action for Better Aging, inviting Canada to reimagine aging and spark innovation for change.

Numerous reports have made it clear that our approach to senior's care in Canada, with a heavy reliance on costly institutional care, is not sustainable and not what today's aging population wants. As we look around the world, we know that Canada is lagging behind, carrying on with an outdated model that is too expensive without a clear vision for change.

The volume of research and a host of isolated efforts to understand and resolve this in Canada have not moved us forward. The COVID-19 pandemic was a wake-up call to the critical gaps in our approach to aging, but the signals had been pointing this way for some time. And the urgency is real.

Canada needs a bold and practical road map for change. We need a strong consensus on action and the commitment to act. We've named this initiative COUR**AGE** because we believe this is a call to action that speaks to the heart—the essence of who we are as a society and human beings. It is a call to action that will require individual and collective imagination and fearlessness.

This challenge transcends the health sector, involving every aspect of our lives. COUR**AGE** will engage Canadians, decision-makers and health, social, industry and other partners across Canada in an action plan for change, harnessing the power of innovation, design thinking and technology.

This discussion paper is an open invitation to begin addressing that challenge together. It begins with a clear look at the challenge and crossroads we find ourselves at today. It then takes an evidence-informed look at some of the most compelling models and practices from the last 10 years to support older adults to live at home. The themes that have emerged explore the whole-person needs of older adults in their homes and community—safety, social connection, mental and emotional well-being.

We invite you to join us. As part of this initiative, we're opening discussion and exploration with those who believe in this call to change and are ready to work together to mobilize action around key recommendations to bring about change. You can get involved at www.actionforbetteraging.com.

It has been said that courage is the capacity to be moved by what can be imagined. Together we can speak up and act for better aging in Canada. Join us as we imagine and build a better future, where we can all age with courage and grace.

Regards,

Shirlee Sharkey
CEO, SE Health

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Executive Summary

Our approach to care of older adults in Canada is not sustainable and not what today's aging population wants. This challenge transcends the health sector, involving every aspect of our lives. We need a bold and practical road map and a strong consensus on action and the commitment to act.

This discussion paper is an open invitation to begin addressing that challenge together. It begins with a clear-eyed look at the challenge and crossroads we find ourselves at today. It then takes an evidence-informed look at some of the most compelling models and practices from the last 10 years to support older adults to live at home.

Section 1: Crossroads of Change

Canada is at a crossroads. As Canada's population ages, there is an urgent need to reimagine aging to meet the clear expectations of a growing population of older adults.

Numerous reports have shown that Canada's approach to supporting older citizens is lagging behind the world in innovation and sustainability and that our systems will be overwhelmed by growing demands in the decade to come.

As Canadians live longer and manage multiple health conditions as they age, the country faces serious questions about the appropriateness and sustainability of the status quo

It is also not what Canadians hope for in their future. The overwhelming majority of older adults want to age in their own homes and communities for as long as possible. However, these expectations are significantly challenged by uncertainties in family support, personal finances and a system that already has long wait lists for support and care.

As Canadians live longer and manage multiple health conditions as they age, the country faces serious questions about the appropriateness and sustainability of the status quo. There is still a heavy reliance on the health system as the primary gatekeeper to support Canadians as they age—triggering at points of acute illness or injury. Much of the system serving older adults is structured around a disease-based model of aging focused on what is deemed medically necessary, episodic care, prevention of harm and risk avoidance

Canada's per capita spending on health is one of the highest in the country. The high use of hospital resources and long term care is both costly and problematic: many older adults are waiting in hospital for lack of supports to go home and many admitted to long term care might have been cared for at home with the right supports. Wait lists for home care are large and will grow.

The COVID-19 pandemic and devastating long-term care experiences of residents and their families have exposed serious long-standing shortfalls in our current approach. It has raised important questions about safety, independence and quality of life as older adults struggled to live at home without co-ordinated supports. COVID-19 has generated an impetus for reform—and it has a high price tag.

Under the current system, the double impact of population expansion and the need to address pandemic reforms will bring serious economic challenges, even as Canada's approach lags behind global peers. The situation suggests the answer cannot lie solely in more spaces and more spending.

Improving and expanding institutional or home care is one part of the solution. But Canadians are signaling the need for a deeper change—one that puts their needs and wishes at the centre and supports dignity, choice and quality of life in their final years.

Other countries have effectively prepared for the changes in population, shifting direction and taking action to create the social and system changes to help older adults to live in their homes and communities with timely and effective supports. We can learn from these social innovations and work together to break down barriers and forge a new path for aging, creating the conditions where all can grow and thrive.

Section 2: The Path Forward

The path forward will require both removing system barriers and enabling innovations that support a new vision and inclusive approach for aging in Canada. The second section of this document provides an evidence-informed look at some of the most compelling models and practices in Canada and elsewhere to support older adults to live at home.

We searched the literature from the last 10 years for examples of upcoming and successful models and practices from around the world to find those proven or promising to help maintain older adults' living at home. We also sought to understand the benefits of these models, what worked well, and the facilitators and barriers to their uptake.

Our findings are grouped into five main chapters, reflecting the themes that were summarized during the review process. Each chapter ends with a series of questions that invite discussion and reflection on how key findings and information in the chapter might be used to support better aging in Canada.

We begin with the World Health Organizations' Age-Friendly Communities (AFC), which is spreading and scaling across Canada and worldwide to support the desire of older adults to live at home. Many communities are planning or have implemented design features to improve transportation, increase social participation and enhance outdoor spaces and public buildings. One of the key facilitators driving the AFC approach is its purposeful engagement with older adults, inviting them to be active participants in community planning processes.

Chapter 2 looks at innovative housing and home living models in the community to support older adults as they move from independence and self-management to requiring more supports at home to meet their quality of life needs and aspirations. Sharing home spaces and other options offer affordable housing with a built-in network of mutual support and companionship. Virtual Villages

and Naturally Occurring Retirement Communities (NORCs) offer affordable and integrated services for those with more complex needs. Outside Canada there are home-like housing model alternatives to long-term care that offer built-in intensive healthcare in Demarks and the USA.

The pivotal role of technology to help support older adults to age at home is described in Chapter 3. The pandemic has reinforced the necessity of technology to keep older adults safe in their homes while connecting digitally with families and friends, engaging in new learning, and accessing healthcare providers. Technology also plays a role in supporting caregivers. With an ever-expanding suite of connected technologies and tools, older adults and their caregivers are offered better ways to save energy, maintain health and wellness, and meaningfully engage with their communities and their interests. The evidence suggests that older adults welcome new technology and prefer a person-centred approach to support regular use.

... supporting older adults to live at home in Canada will require a cross-sector, whole-system approach to develop, spread and scale upcoming and proven models.

The availability of different forms of home and community healthcare is the focus of Chapter 4. The expected shift to more formal caregiving from trained professionals is noted along with the importance of care being person-centered, relationship-based, and integrated. A diverse range of models are presented, including innovative and mixed home care models, community paramedicine, home-based primary care, and transitional care. The examples speak to the importance of having good care relationships based on reciprocal trust and mutual decision making. New home health care models are described that were created during the COVID-19 pandemic, relying on digital technology for remote communication and consultation.

The final chapter focuses on practices to help older adults stay well and socially connected within their community. Ways to increase belonging and decrease social isolation and loneliness are described, including community-based social interventions, social prescribing, intergenerational programs, and technologies to promote social inclusion. Physical activity models for older adults are examined including walking and group exercise programs, and self-management programs are considered.

The models and practices in this document demonstrate provide a vision of better aging in community with wrap-around emotional, social, practical and health and wellness supports to promote safety, connection and purpose. These approaches exist but are mostly under-implemented.

Given its complex nature, supporting older adults to live at home in Canada will require a cross-sector, whole-system approach to develop, spread and scale upcoming and proven models. Ultimately, a sustainable approach to better aging requires the courage and commitment of many stakeholders working together to set priorities and an action plan for change.

This discussion paper is a starting place intended to clarify challenges, spark imagination, fuel innovation, reveal possibilities and spur action.

SECTION ONE

Crossroads of Change

Canada is at a crossroads. From an economic and social perspective, it is clear that Canada's approach to supporting older adults is not sustainable and out of step with what Canadians want. As Canada's population ages, this country joins the rest of the world in the need to reimagine aging to meet the clear expectations of a growing population of older adults.

Introduction

Canada's population is aging rapidly and perceptions of what it means to grow old are changing. This reality is raising serious questions at a time when Canada is already experiencing challenges in providing the resources to support older adults through the last decades of their lives.

Over the past few years, studies and reports produced by Canadian experts on aging, policy, health and economics highlight that Canada's approach to aging is unaffordable, economically unsustainable, lagging behind world standards and not meeting Canadians needs or expectations [1] [2] [3] [4] The forces driving this complex problem have been well-documented and paint a compelling picture of a complex challenge that needs urgent attention.

As the demand continues to grow in the coming decades, Canada is grappling with both the volume of anticipated needs and significant shifts in expectation from older adults and their families. Today's generation of Canadians 55 to 75 years old are a driving force in Canada, transforming aging and challenging our systems and society to respond. They are engaged, mobile, healthy and motivated to ensure quality of life, choice and independence as they age. This presents both a great opportunity and challenge to understand what is not working in our current system and to reimagine a way forward.

Currently one in four Canadians over the age of 85 is living with dementia, and the number of Canadians with dementia is **projected to double to over 900,000 in the next decade.** [52] [53]

Population and Demand

The demands on Canada's systems to support older adults are outstripping capacity. Canadians are living longer than previous generations, with more complex health, social and physical challenges. [5] [6] Over the past four decades, the number of adults over 65 has increased by over 4 million and over the next two decades it's estimated this age group will grow by another 4 million. [7]

About seven percent of Canadians aged 65 years and older live in a care facility.[8] More Canadians will

need support and care for chronic and complex conditions as the number of those older than 75 is expected to double to 5.5 million in the next few decades.[9] Currently one in four Canadians over the age of 85 is living with dementia, and the number of Canadians with dementia is projected to double to over 900,000 in the next decade. [10] [11]

But today's older adults plan to do all they can to stay in their homes as long as possible and work to maintain their health and wellbeing in their final years.[12] They are banking on the supports to help them feel safe and live with relative independence. And they are hoping to avoid the loneliness reported by so many older adults today—a condition known to carry serious health impacts that can shorten life.[13]

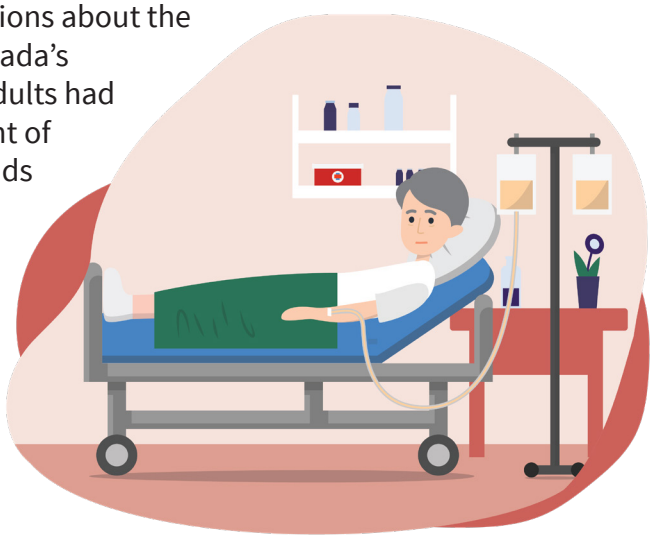
These expectations are challenged by current realities. The list of those awaiting home care for medical and personal care and equipment continues to grow in Canada.[14] Much of the supports to help keep Canadians in their homes today comes from unpaid care by family and other supporters—with almost one in three Canadians over 65 caring for an aging parent. [15]

It's estimated that this accounts for over three-quarters of the care older adults receive and represents many billions of dollars in unpaid work annually in Canada.[16] There is a recognition that the need for this support will more than double over the next thirty years as the population ages. At the same time, projections suggest far fewer family members and friends will be able to provide this kind of care. [17]

For many, personal finances also pose a barrier. Older Canadians are already under significant debt[18] and a key consideration for many is whether they have the financial means to maintain quality of life as they age. The median income for Canadians over 65 is just over $30,000.[19] A substantive portion of those facing retirement say they have no savings and the median retirement savings for those families without access to a workplace pension is $3,000.[20] [21] [22] And it's possible that the COVID-19 pandemic's negative impact on retirement savings and employment, especially among older people, will be felt for decades to come

Canada's Performance

The expectations of older adults are raising serious questions about the appropriateness and sustainability of the status quo. Canada's publicly funded health system, established when older adults had shorter life expectancy and made up the smallest segment of the population, did not envision meeting the high demands and needs of today's aging population. Today, Canada's per capita spending on health care is one of the highest in developed countries, with those over 65 years accounting for about 44 percent of total spending. [23] [24]



Approaches that treat aging solely as a state of disease or decline carry the human toll and financial burden of systems structured around episodic care, prevention of harm and risk avoidance. In Canada, there is a reliance

on the health system as primary gatekeeper for services—triggering at points of acute illness or crisis and, often, with Emergency Departments as a first point of entry.[25] At this point, individuals must demonstrate a significant, sustained or permanent change in function/health in order to meet health-defined criteria for services.

Hospital-based care is the biggest expense to the system, providing the costliest care per day—more than five times the cost of long-term care and 20 times more expensive than home care.

This is not sustainable. Hospital-based care is the biggest expense to the system, providing the costliest care per day—more than five times the cost of long-term care and 20 times more expensive than home care.[26] Older adults use a disproportionate amount of hospital services by population. In addition, those assessed in hospitals are significantly more likely to be admitted to residential care than seniors who are assessed in the community.[27]

Overall, it's estimated that one in nine residents admitted to long term care could have been cared for at home with the right supports and access to care in their home and community. At the same time, many wait in hospitals for home care services and supports to be arranged. If both of these issues were resolved, analysts suggest this would free up about 1,600 hospitals beds a day and 5,000 long term care spaces across Canada.[28] [29]

COVID-19

The pandemic has exposed these long-standing shortfalls in our care for those most frail and vulnerable and has shone a public light on important issues of safety, independence, and quality of life for all Canadians as they age. Canada's predominant focus on hospital care and long-term care during COVID-19 revealed a system bias towards a curative health care model in our approach to aging. Limited resources were focused on institutional care at a time when the vast majority of older adults struggled to live distanced and isolated in their homes and community.[30]

COVID-19's impact on Canada's older population in 2020 is driving national scrutiny of systems and performance in response to the pandemic. Canada's deaths in long term care facilities across the country were the highest rate of any G20 country.[31] Reports indicate that aging infrastructure with poor ventilation, overcrowding and chronic understaffing contributed to the spread of the virus in long term care.[32]

It's expected reviews of the COVID-19 crisis in long term care will lead to numerous reforms. Implementing recommendations that focus on better qualified workers, better infrastructure, more sanitary protocols, and greater safety will significantly increase overall costs for long term care.[33]

Economic Realities

In an uncertain economic future, Canada is facing some significant economic challenges in dealing with these realities.[34] The health system is cost-prohibitive and not able to keep up with demand. The situation is more critical because, at the same time, Canada's health allocation to support and care for older adults has also not kept pace with the rest of the world.

Canada's funding for long term care as a portion of GDP lags well behind its international peers. National spending on home care is one of the lowest allocations in the OECD. Also, Canada's current practice of spending more than 6 dollars on institutional care for every dollar spent on home care is out of sync with the balance achieved by other countries.[35] [36]

Canada spends more than 6 dollars on institutional care for every dollar spent on home care.

At the pace of Canada's current reliance on residential care, analysts have estimated the number of long term beds would need to double within the next two decades. This scale of planning for new beds would need to be already underway, and is not.[37] [38] It's also estimated that taking this approach would triple Canada's spending on long term care as a portion of GDP, soaring well above other peer countries.[39]

At the same time, Canada also has one of the lowest ratios of long term care workers to residents among its international peers. It's estimated that addressing this discrepancy would increase long-term care costs by one-third.[40]

Reimagining Aging

An examination of the current situation suggests the answer cannot lie solely in more spaces and more spending, and that simply improving and expanding institutional or home care will not be enough. In her report "From Risk to Resilience" Canada's Chief Public Health Officer pointed to an investment in community health and social services that support older adults to continue living independently at home as a way to "prevent the emotional, social, physical and financial hardships associated with leaving home to live in LTC residences"[41] This is one part of the solution.

By making their expectations clear, Canadians are signalling the need for a deeper change—one that puts their needs and wishes at the centre and supports dignity, choice and quality of life in their final years. New models have emerged around the world that focus on longevity and aging as a sustained, 25-year period of gradual or cyclical changes in health and capacity.

Over the past several decades, countries such as Denmark, the Netherlands and others have responded to this challenge effectively, embracing aging as a natural aspect of life and community. Using predictive and proactive approaches, other countries around the world have adopted health and social models that enabled prudent risk-taking, innovation and intentional change. These are models that Canada can emulate in finding ways to bring communities, governments, service providers, industry together to build a sustainable, collaborative national approach to aging.

Action for change

The path forward will require both removing system barriers and enabling innovations that support a new vision and inclusive approach for aging in Canada. The World Health Organization has drawn the link between ageism and people's health and well-being—particularly for older adults.

Globally, one in two people demonstrate ageism against older people. This form of social prejudice can pervade health and social system through rationing of resources and access or removal of choice and agency in institutional care. Ageism, and the systems that may unintentionally perpetuate it, can impact lifespan, physical and mental health, recovery and cognitive decline and increase social isolation and loneliness.[42]

Social innovation has the potential to harness new resources and ideas to help combat ageism and advance Canada's goals for accessible and affordable health and social systems. There is good evidence that the elements of an innovative ecosystem exist in Canada and can be harnessed for change. [43]

In Canada and around the world, many have already begun this work through innovative approaches outlined in this paper. These examples cross boundaries and sectors to find solutions—harnessing policy and social entrepreneurship, research and new ideas, talent and facilities, private sector partners and funders, incubators and entrepreneurial-minded organizations. They present a path forward, a starting point for Canadians to work together across sectors to set priorities for action.

SECTION TWO

The Path Forward

It is time to embrace a new vision for aging—one that promotes purpose, connection, health, and wellbeing and maintains choice and quality of life for older adults. The path forward calls for a shift in direction and action to support older adults to live in their homes and communities—building on successful approaches that have been developed around the world.

Introduction

Drawing on successful models that already exist, Canada has the resources to work together, across all sectors, to reimagine aging and focus on supporting quality of life with dignity and choice.

In many parts of the world, governments, organizations and communities have developed innovative ways to support longevity as a sustained, 25-year period of gradual or cyclical changes in health and capacity. This is the new path forward. This includes combatting the pervasive ageism[44] [45] (that poses barrier to healthy aging[46] and creating cities and communities where all can thrive[47].

As Canada looks to these models, there is an opportunity to address the cracks the pandemic has exposed in communities: high levels of loneliness among older adults[48] and a heavy reliance on a shrinking number of unpaid caregivers already under stress.[49] [50]

We recognize that many reports, recommendations, and strategies have been written before this one, but few have resulted in clear paths forward to help adults remain in their homes. Evidence gathered from the volume of research on older adults over the past decade provides a place to start. The five chapters in this section provide an evidence-informed look at some of the most compelling upcoming and existing models and practices to support older adults in living at home.

As Canada looks to these models, there is an opportunity to address the cracks the pandemic has exposed in communities: high levels of loneliness among older adults and a heavy reliance on a shrinking number of unpaid caregivers already under stress.

These innovative ideas and approaches, implemented in Canada and around the world, are intended to be a catalyst for further discussion, insight and analysis. These chapters will support important conversations with Canadians and interested partners for change, leading to a consensus action plan across Canada.

Figure 1: Five themes in determining the path towards better aging

1. Better living within a community
2. New Communities of Living
3. Connected at Home by Technology
4. Care Comes to You at Home
5. Keeping Well and Socially Connected

Approach

We conducted a scan of the literature from the last 10 years (2011-2021) along with a review of recent reports to find and summarize proven or promising new models and practices to help maintain older adults' living at home, along with facilitators and barriers to their uptake. We defined older adults as 65+ years[51].

We looked for examples of upcoming and successful models and practices from around the world, focusing on ideas such as healthy aging, independent living, aging in place, homecare service, and autonomy. This work did not include looking into theoretical models; jurisdictional comparisons in policies or financing; institutional settings, such as long-term care homes and palliative care; nor specific health issues particular to aging, such as Alzheimer's, dementia, and frailty.

Five themes emerged from the review of the literature and these formed the basis of our chapters (see Figure 1). Each theme covers a different aspect of helping older adults to live at home as they age.

We summarize the models and practices at the end of each chapter. We also provide cross-cutting facilitators and barriers and a set of reflective questions to help position solutions, drive a shared vision, and spark conversation about how to better honor the desire for older adults to live at home.

While the focus of this section is on older adults living in Canada and abroad today, the findings relate to all of society, as we all age. We encourage individuals of every age to take time to reflect on the findings and information—and to have important conversations with family and friends about what's important to them. These chapters provide helpful evidence to inform options for those working to shape the future for seniors—whether through new products and services, systems design, policy development or practice changes.

We hope that these pages help to spark imagination, fuel innovation, reveal possibilities and spur action.

Limitations

Our work has several limitations. We restricted our search to English language text only. We focused on published articles that were reviews of reviews rather than single studies. It has limited information on jurisdictional comparisons, policies, or funding models. There was limited exploration of cultural identities of aging and community driven solutions. We recognize that some relevant studies and reports may not be covered here due to the vastness of the topic and limited time.

CHAPTER ONE

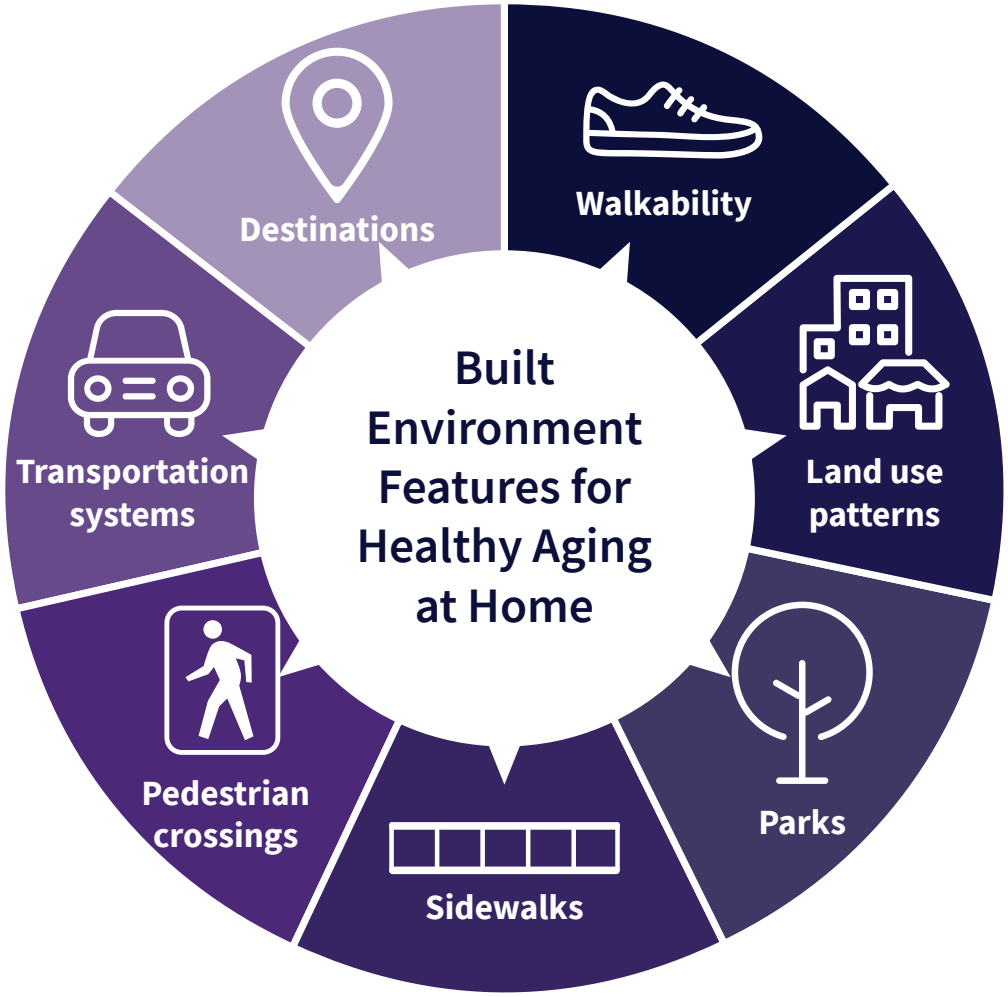
Better Living Within the Community

Aging at home depends, at least in part, on having a supportive environment in our community so that we are mobile, can access the services we need, visit those we want to see, and do the things we enjoy. Being able to experience these things is a function of the built environment in our community which research tells us is a crucial contributor to healthy aging at home[56]. For example, older adults living in neighborhoods with more community and recreational resources, close to public transit, and with public spaces in good condition have been shown to have a better cognitive function and slower rates of decline[57].

There are many features of the built environment that have been linked to healthy aging as described below.

Built Environment Features for Healthy Aging at Home[58]

- **Walkability:** Street connectivity, intersection density, block length.
- **Land use patterns:** Mixed use (commercial, retail, and residential).
- **Green space/parks:** Size, quality, and accessibility.
- **Sidewalks:** Continuity, material, quality, width, lighting.
- **Pedestrian crossings:** Curb cuts, curb extensions, crossing signals, time allotted to cross at crossing lights, etc.
- **Transportation systems:** Quality, type, frequency of services, etc.
- **Destinations:** Proximity to commercial destinations, community centers, religious centers, and others.



Age-Friendly Communities (AFC)

A widespread and scaled example of a built environment is the World Health Organization (WHO)'s AFC platform[59] [60]. To support the desire of older adults to live at home, the WHO has launched a variety of frameworks over the past few decades, the most recent of which is its Age-friendly cities and communities (AFCC), known in Canada as Age-friendly communities (AFC)[61].

WHO's Policy Frameworks and Definitions to Support Age-Friendly Communities

- **Active aging (AA):** "The process of optimizing opportunities for health, participation and security in order to enhance the quality of life as people age"[62].
- **Healthy aging (HA):** "The process of developing and maintaining the functional ability that enables well-being in older age"[63].
- **Age-friendly cities (AFC):** "An age-friendly city encourages active ageing by optimizing opportunities for health, participation and security in order to enhance the quality of life as people age." The Age-friendly cities guide was developed using focus groups with older adults, caregivers, and services providers in 33 cities around the world. The guide provides a checklist of 88 age-friendly features that optimize opportunities for health, participation, and security as people age in urban environments[64].
- **Age-friendly cities and communities (AFCC):** "An age-friendly city or community is a place in which people want to grow older. Age-friendly cities and communities foster healthy and active ageing. They enable older people to: age safely in a place that is right for them; be free from poverty; continue to develop personally; and to contribute to their communities while retaining autonomy and dignity. Because older people know best what they need, they are at the center of any effort by local governments to create a more age-friendly community"[65].

What AFC entails

The WHO has listed eight features of the physical and social environment to help older adults live in their community[66].

Age-friendly Communities Design Features[67] [68]

Outdoor spaces and public buildings: Pleasant, clean, secure, and physically accessible.

Transportation: Accessible and affordable.

Housing: Affordable, appropriately located, well-built, well-designed, and secure.

Social participation: Leisure, social, cultural, and spiritual activities.

Respect and social inclusion: Respectful treatment and included in civic life.

Civic participation and employment: Opportunities for employment and volunteerism that cater to older persons' interests and abilities.

Communication and information: Age-friendly communication and information are available.

Community support and health services: Tailored to older adults' needs.

Access to transportation is a key element of AFC. Older adults need access to transportation for daily living, such as shopping, going to medical appointments, and visiting people. Transportation is a particular concern in rural and remote areas, where there is a reliance on friends and families[69]. As indicated in the National Seniors Strategy[70], more work needs to be done to help ensure older adults in Canada have access to inclusive transportation options. Several models are worth considering[71] [72]:

Innovations for Transportation of Older Adults[73] [74]

- **Uber:** Launched Uber Assist to train drivers to provide accessible rides and extra support to people with mobility issues.
- **CareMore company:** Partnering with on-demand ride programs like Lyft.
- **Go-Go Grandparent:** Provides on-demand transportation services such as Uber accessible to older persons who don't have smartphones.
- **New collaborations:** Between existing companies and those targeting older adults, such as CareRides—a partnership between CareLinx that makes Lyft's ride-sharing service available through CareLinx's mobile app.

Designing Home Interiors

Well-designed interior features can support older adults to live in their homes[75] as part of AFC. Careful remodels of existing homes and well-conceived features of new homes can help to avoid preventable admissions of older adults into long-term care. For example, the unsuitability of the home environment is one of the main reasons for long-term care admissions. This could include mobility issues related to stairs, lifts, wheelchair access, falling hazards, and others. The Canadian Certified Aging in Place Specialists (C-CAPS) program, designed by the Canadian Home Builders' Association, offers training for renovators and builders to help older adults make their homes more age-friendly, including some of the features described in Box 1[76].

Canada has adopted its own approach to AFC based on the work of WHO. (Government of Canada 2021[77]. To help communities become age-friendly, the Public Health Agency of Canada and its partners created the Pan-Canadian Age-Friendly Communities Milestones, describing the steps a community should take in applying the AFC model in Canada. The first three milestones must be reached so that a community can be recognized by the PHAC or the WHO as becoming Age-friendly. To date, all ten Canadian provinces have some level of AFC activities[78].

Pan-Canadian Age-Friendly Communities Milestones[79]

- Create an Advisory Committee that actively engages older adults.
- Obtain a local municipal council resolution to support, promote, and work towards becoming an AFC.
- Establish a plan of action that is in keeping with the needs identified by older adults in the community.
- Publicly post the action plan.
- Demonstrate commitment to measuring activities, evaluating action plan outcomes, and public reporting.

Ireland's AFC effort provides a good example[80]:

- Recognized in 2019, as the first age-friendly country for its decade of work[81].
- Focus on active aging, strong community ties, and reducing loneliness.
- Successfully implemented every element of AFC and provided, for example:
    - Walkable streets
    - Broadened accessible housing and transportation options
    - Opportunities for older adults to join in community activities
        - Age-friendly training for architects, planners, and engineers.
- Key to success: Collaboration among agencies, organizations, and older adults.

Box 1: Sample Features of Well-designed Home Interiors for Older Adults[295]

- **Spatial and safety:** Minimizing stairs, handrails and grab bars, slip free flooring.
- **Ambience:** Good visual access to daylight and sunlight.
- **Lighting:** Using overhangs and avoiding glare from windows, well-lit staircases and rooms, and wall washers instead of recessed down lights.
- **Color and contrast:** Using a high degree of contrast to notice differences in spaces, reducing color contrast in flooring, and avoiding sudden changes in lighting patterns.
- **Sound and noise reduction:** Using thicker walls or acoustical materials.
- **Indoor temperature:** Using thermostats that are user-friendly or smart temperature thermostats.
- **Natural spaces:** Viewing natural landscapes, incorporating plants, and gardening.
- **Universal design:** Accounting for the broadest range of body types and movement, and specific design needs of physically and mentally challenged older adults.

How Helpful is an AFC approach?

A review of AFC around the world shows some common goals. AFC aims to help older people be active and independent to lessen isolation and ensure all members can access affordable housing options[82]. Not all meet these goals due to differences in strategies and approaches. The action plans, strategies and policies used to establish AFC fall into two groups. Top-down approaches are driven by formal planners and levels of government. Bottom-up approaches depend on the actions and input of older adults. There are challenges with both approaches, such as lack of commitment with top-down strategies and lack of resources with bottom-up models. Most use both approaches.

AFC aims to help older people be active and independent to lessen isolation and ensure all members can access affordable housing options.

Researchers have studied various aspects of AFC to understand the success of specific interventions in creating healthy and safe environments where older adults can live and thrive[83]. The reviews of AFC in urban settings have a strong focus on several key factors (in order of importance): transportation, respect and social inclusion, housing, community support and health services, social participation, outdoor spaces and buildings, civic participation, employment, and communication and information. The overall success rate of specific interventions was high at 72.7%. However, the success varied with the area of focus. Transportation and housing interventions were most successful, followed by increased participation in a lifestyle-related behavioral change.

Summary of Models and Practices

This chapter focused on the built environment for healthy aging at home and considered well-designed interior features in new or remodeled homes that can support a better living space for older adults. The World Health Organizations' AFC is spreading and scaling across Canada and worldwide to support the desire of older adults to live at home. Many communities have plans for or have implemented design features to improve transportation, increase social participation and enhance outdoor spaces and public buildings with high success.

Facilitators

- **Purposeful Engagement**. Purposeful engagement with older adults in creating age friendly plans as active participants in community planning processes was one of the key facilitators indicated in many reports[84] [85]. A successful bottom-up approach that depends on input and action from older adults also requires top-down support from funders, planners, and various levels of government[86].

- **Making AFC a Priority in Municipal Planning**. Some of the ways of prioritizing AFC are noted in the literature. These include incorporating AFC goals into provincial land-use policy to make population aging a municipal priority and clearly stating AFC commitments in official municipal plans. Integrating the AFC concept into the planning process and integrating policies for AFC into the development review process are also key. Finally, it's also beneficial to identify priority areas for secondary plan review, such as beginning with car-dependent neighborhoods where a significant percentage of residents live in single detached dwellings and are aged 55+ years. In addition, [87].

Barriers

- **Lack of Sustained Funding**. In their interviews with 27 key informants from across Canada, the CSA Group[88] identified several barriers to implementation, including funding, particularly for smaller communities with greater infrastructure needs. Tight economies, reductions to private and public resources, and austerity plans in many cities and communities have hindered implementing, monitoring, and evaluating AFC programs[89].
- **Difficulties with Strategic Planning**. Victoria, Australia found challenges with limited strategic direction for AFC at federal, state, and local levels due to the fragmented nature of government departments and multisectoral partnerships[90]. There is a need to focus more on how different entities, such as local, state-regional, and national policy and political action groups, and the non-profit and private sectors can support communities to create AFC[91]. When trying to implement the AFC framework at municipal planning tables in Canada, the AFC sometimes competes with other good planning models or it is unclear which municipal department should be responsible. In addition, municipal planning is future-oriented while AFC goals are focused on present needs[92].
- **Lack of Focus on Rural and Remote Settings**. While the WHO's AFC initiative focuses primarily on adapting urban settings, the standards it promotes are still applicable in any community setting. Despite this, the need to create more age-friendly physical environments and spaces is particularly lacking in rural areas. A common barrier is a lack of sidewalks (or continuous sidewalks), resulting in the need to walk or use mobility devices on streets and highways[93]. This lack of proper sidewalks also puts the reliance on driving to get around, which worsens the situation for rural older Canadians.
- **Accessibility of Buildings and Spaces.** One key barrier is limited emphasis on accessibility of buildings and spaces[94] [95] in terms of distance and physical accessibility. From a physical standpoint, the spaces and buildings used for living, work and recreational purposes must be, at a minimum, accessible to older Canadians to ensure they can actively navigate their environments[96].

Questions for Reflection and Discussion

1. Have AFC gone far enough? Are these communities truly allowing people to live their full life in the community? Or is it more appropriate for young older adults? How can we leverage AFC to design communities, homes, and programs across the aging life course, including end of life?
2. Which design features (or bundles) work to create more AFC and in which context? Is the full package of design features necessary for full impact?
3. How do we refocus community-planning efforts to encourage the development of age-friendly neighborhoods that allow people of all ages to live healthy, productive lives?
4. Approximately 66% of the Canadian population lives in some form of suburb[97]. It has been suggested that the car dependent suburbs are the most challenging communities for older adults[98]. As older adults age, many lose their ability to drive or access to a car. When vital amenities such as grocery stores or doctor's offices are too far to walk, older adults become less active and more isolated. Should we redirect the priorities of AFC toward suburban environments?
5. The design of new homes and remodels of existing homes should not only be safe and functional, but also conducive to health and longevity. How do we bring together architects, engineers, healthcare providers, and builders together to design and offer services to redesign interior structures for older adults so that they may better live at home for as long as possible?
6. AFC are built through a collective response involving the participants of governments, community organizations, businesses, and older adults. How might we help to ensure that these community agents come together to create imaginative and inclusive environments, in which older adults thrive, e.g., public policy, government incentives, a new agency?

CHAPTER TWO

New Communities of Living

Aging in place is a term that surfaced in the last decade[99] to describe the desire of older adults to live in their home and community safely, and comfortably, regardless of age, income, or ability level[100]. Creating one's own shared living space and community is an exciting shift in how older adults are aging in place[101]. These self-designed models of community living and housing challenge the prevailing medical model of aging with a focus on institutional care. In particular, long-term care, has been criticized for reducing the freedom and self-determination of older adults by institutionalized practices of when and where you eat, sleep and socialize[102]. Older adults report that one of their greatest fears is going into long-term care[103]. While many realize that they may need higher levels of care one day, for the present time they would like to age in place.

Aging in Place Models

A wide variety of aging in place housing models were found in the literature[104] [105] [106] [107] [108]. The National Institute of Aging[109] provides a framework to help understand the various types of housing and home living models to support older adults as they transition from healthy with minimal care issues to having more complex health issues requiring intensive services. The following sample models are inspired by this continuum of needs and community living arrangements.

Healthy with Minimal Care Needs

Sharing homes spaces is a vital shift to help older adults live at home[110]. These home living arrangements can take the form of multigenerational living with family members of different generations. They can also mean sharing one's home with a friend or peer to forge a partnership in aging, living with a university student who provides intergenerational support, or co-housing with other older adults.

Multigenerational Housing

There is a continuing rise in multigenerational housing[111] [112]. In 2016, 403,810 (2.9%) of households in Canada were multigenerational, housing at least three generations of the same family under one roof[113]. Furthermore, multigenerational households rose 38% between 2001 to 2016 and were the fastest growing type of living arrangement in Canada. The growth of multigenerational households is partly due to increasing immigration as this type of living arrangement is more common among Indigenous and immigrant populations[114]. In addition, an increasing number of adult children are continuing to live at home, with nearly 1.9 million people in Canada, or 9% of the adult population aged 25 to 64, living with one or more of their parents in 2017[115]. Multigenerational housing is not just situated under one roof: It can be a whole community. An example of a multigenerational housing model designed as an innovative alternative to long-term care is seen below.

Minka's Multi-Ability Multigenerational Inclusive Communities (MAGIC)[116] [117]

- Launched in 2017 in the USA.
- Aspire to reduce social isolation and facilitate interaction among diverse generations.
- Prefabricated modular housing system lets older adults stay independent in small, manageable homes.
- Can be a stand-alone residence placed in the backyard of another resident, situated in a community of similar modular homes.
- Founder is creating Minka developments that combine student, family, and older adult housing.

Homesharing

Homesharing is another cohabitation option for older adults[118] [119]. There are two main types of homesharing arrangements[120]. One includes intergenerational support where older adults and university students live together. For example, several older adult retirement communities have started intergenerational residences where college students rent rooms at low rates and students provide companionship and assistance in return[121]. Arrangements to share one's home can be self-initiated or happen organically. This can also be agency-sponsored, whereby organizations buy or build a home and recruit participants, or agency-assisted to facilitate the home sharing process for homeowners[122].

The concept of home sharing was adopted in Spain in 1991 and now programs exist in 16 countries (e.g., Australia, France, and Japan) around the world[123], including over 350 programs in the USA and at least four programs operating officially in Canada[124]. It is likely that other home sharing arrangements exist but are not publicly reported. Below are two homesharing examples in Canada.

Women's Housing Initiative (WHIM), Manitoba[125]	Hygge Homesharing for LGBTQ2S+, Ottawa[126]
• Offers shared housing for women who are nearing retirement or retired and living on fixed income that is low to moderate. • Goal to avoid social isolation and loneliness and to prevent institutional living. • House has 5 bedrooms, 3 bathrooms, 2 living rooms, and 2 guest rooms. • Costs are shared and economical.	• Designed to support the aging in place of older LGBTQ2S+ adults, who might otherwise be concerned with entering mainstream supportive housing or long-term care. • Older LGBTQ2S+ adults are provided a room, with subsidized rent to students, in exchange for support with household chores.

Studies over the past two decades looking at the impact of homesharing in North America and Europe identify four major benefits[127]:

Companionship. Feeling less lonely and isolated corresponded with increased well-being and quality of life. This included better sleep, less anxiety, more motivation to engage in activities and leave home more often, an increased sense of safety, and better eating.

Financial benefits. While help with financial tasks like bill payments were beneficial, older homeowners attached less importance to these benefits.

Receiving support in daily tasks. Simple supports like cleaning, cooking, shopping, gardening, and housekeeping resulted in greater independence and ability to follow through on tasks of daily living, such as doctor's appointments.

Intergenerational engagement. The mutual support between generations living together was evident, particularly involving students and homeowners.

Co-housing

Co-housing is the final example of a shared home space model for older adults with minimal care needs.

Co-housing[128 129 130 131]

- First introduced in Denmark in mid-20th century; brought to USA in the 1990s.
- Each co-housing compound is unique:
  - Group of individual homeowners enter into a formal agreement to buy land and build a mutually supportive living community.
  - They invest capital upfront and work collaboratively on designing all aspects of the community including infrastructure, governance, social mandate, and co-care protocols.
- Can be intergenerational, gender-specific or older adults only.
- Typically made up of approx. 20-30 individually owned housing units, oriented around central common areas, and a common house for socialization.
- Social mandate to participate in communal living and to deliver mutual support when it is possible.
- Examples: Harbourside Cohousing, Sooke, British Columbia[132].

Moderate Complex Care Needs

Virtual Villages and Naturally Occurring Retirement Communities (NORCs) are two examples for older adults who have moderate to complex care needs. They are more prominent among more frail and older adults in need of moderate intensive services[133 134].

Virtual Villages[135 136 137 138]

- Originated in the USA.
- Unites home-owning neighbors to form a virtual "Village" with three main elements: volunteer services, social programming, and referrals to reliable professional providers if unavailable.
- Some private-public mix of funding, e.g., Beacon Hill Villages in Boston, Massachusetts USA has collaborated with NCB Capital Impact, with funding from the MetLife Foundation and other sources, to develop a VtV (Village to Village) Network that offers web-based assistance for communities seeking to establish their own villages.
- Operated through membership dues, donations, and grants.
- Philanthropic organizations, such as SCAN and the Archstone Foundation, invested in developing and evaluating Villages in other areas of the USA.
- Membership provides access to on-demand services such as homemaking, transportations, companionship, grocery delivery, light home repairs, and other services.

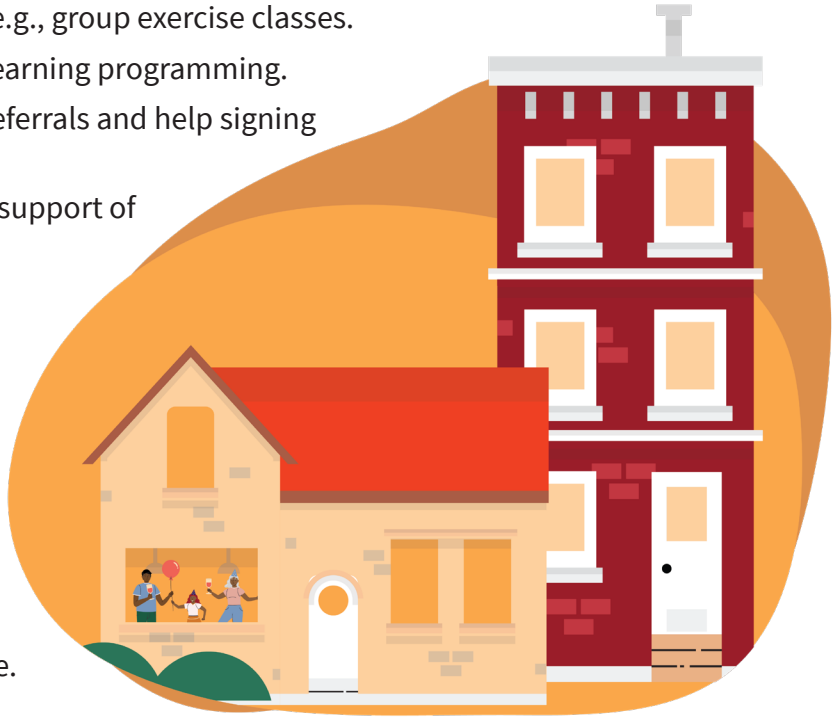
- As of 2020, there were more than 220 Villages and over 50 in development, with only one attempt in Canada.

Naturally Occurring Retirement Communities with Social Service Program[139] [140] [141] [142] (NORC-SSP)

- Living area is designated a NORC if more than 40-60% older adults, aged 60 years and above.
- Two kinds: Vertical NORCs in high-rise apartment buildings or co-ops and horizontal NORCS in several low-rise buildings or single-family homes.
- Involves public-private partnerships: Lead agency, health partner, social service partner, housing partner, community organizations, resident advisory committee, and advisory board. NORC programs have secured both private philanthropic and local government funds to support expansion to other areas in the USA.
- Provides social services, e.g., volunteer opportunities for older adults and health services, e.g., medication management.
- Other needs met: Loneliness and isolation, health system navigation, and first responder in emergency situations.
- Examples: OASIS Senior Supportive Living in Kingston, Ontario, Canada; Co-op Village NORC in New York City, New York USA.

The Connected Care Hub[143].

- A futuristic concept intended to be installed in buildings deemed as NORCs.
- Unites residents, building owners, community agencies, government, and health and social service providers to help older adults remain in their own homes.
- Hybrid human-tech model mixes physical (onsite) and digital support to deliver health and wellness services including:
  - Health promotion and education, e.g., group exercise classes.
  - Social participation, e.g., lifelong learning programming.
  - Information and navigation, e.g., referrals and help signing up for community-based services.
  - Health Coaching, e.g., “nudges” in support of health and well-being goals.
  - Healthcare monitoring and management, e.g., advice on self-management techniques.
  - Other clinical services, e.g., flu clinics.
- CCH model in Toronto to connect to a Family Health Team or Community Healthcare Centre or a program such as Telehealth Ontario to offer virtual care.



Advanced Complex Care Issues

There are also alternative and emerging home-like residential models that incorporate meeting the need for higher levels of care within an aging in place approach.

Sample Homelike Residential Models

Lillevang Community (Denmark)[144] [145]	Green House Homes (USA)[146] [147]
• 24 units sectioned into three smaller eight-unit, enclosed "family pods". • Residents live in distinct units of around 430 square feet, each with a patio and garden. • Meals and activities happen in a communal area in each family pod. • Workers assist the same "family" (which helps prevent spread of infections like COVID-19). • Monthly, residents pay for their room, meals, heating and TV/Cable—the Danish government reimburses most or all of these fees. • Residents are active in planning their care, giving them some control over their lives.	• First built in 2003 in Tupelo, Mississippi, USA. • Self-contained dwellings for 7-10 older adults needing higher levels of care. • Offers residents opportunities for privacy (with private rooms and full bathrooms) and participation in community life with a residential-style kitchen where meals are prepared, a dining area with a communal dining table, a living room with a fireplace, a sunroom, accessible patio, and outdoor space. • Frontline care staff are Certified Nursing Assistants and have broad roles such as cooking, housekeeping, laundry, personal care of residents, implementation of care plans, and assisting residents to spend time according to their preference. • Model emphasizes individual growth and development and good quality of life under "normal" rather than therapeutic circumstances.

Residential Care Communities (USA)[148]

- Emerged in the USA in the mid-1980s.
- Community-based congregate care settings range from 2-100+ beds and fall midway between home and long-term care.
- Most are for-profit and chain-affiliated, where care is provided by direct care workers (DCWs), with no formal healthcare training.
- Follows a person-centered philosophy: Maximizing independence, autonomy, choice, dignity, privacy, safety, and ability to age in place in the least restrictive environment.

How Helpful are Aging in Place Models?

There has been significant study of how community-based housing models help older adults to age in place. Four key themes emerged from a look at international studies conducted over 15 years (2004-2019) and covering five types of housing models—villages, congregate housing and cohousing, naturally occurring retirement communities, sheltered housing, and continuing care retirement communities[149]. The themes included:

- **Social connection.** The housing models and built environments provided an increased sense of community, social connectedness, and opportunities to socialize. Shared spaces, participation in social activities, and communal programming (day trips, coffee time, group meals) increased older adults' levels of engagement and connection with others in their community.
- **Health and wellbeing.** Older adults report that such features as parks, gardens, pools and safe spaces improved their overall quality of life and general satisfaction with their lives.
- **Sense of self and autonomy.** Housing models with secure built features and living environments with available support seemed to support older adults' sense of self and autonomy.

- **Participation.** Easily accessible programs that catered to the older adults' interests and needs held within the community increased levels of participation and social connectedness.

Summary of Models and Practices

In this chapter we examined innovative housing and home living models in the community to support older adults as they transition from healthy older adults with minimal care issues to needing more intensive support at home. Sharing home spaces opens the possibility of older adults sharing their place with a friend or peer, a university student, or in co-housing with other older adults. For many, these options offer affordable housing with a built-in network of mutual support and companionship. There are options of Virtual Villages and Naturally Occurring Retirement Communities (NORCs), offering affordability and integrated services for those with more complex needs. Across the world, there are home-like housing model alternatives to long-term care that offer built-in intensive healthcare, such as the Lillevang community in Denmark and Green House Homes in the USA. Aging in place models have been evaluated and demonstrated many advantages to health and well-being of older adults.

Facilitators

- **Affordability**. Cost-savings is one of the key facilitators of new models of community living. For example, older adults see the advantage of multigenerational housing, where living with their children lets them share expenses, while supporting childcare needs[150]. Similar shared costs and responsibilities are found with co-housing models[151]. NORCs-SSPs and Virtual Villages help older adults lower their individual costs as they benefit from economies of scale, such as bulk purchasing[152].
- **Access to Support.** All of the models in this chapter offer a varying degree of support depending on level of need. For example, homesharing provides built-in shared support for daily living tasks from grocery shopping to transportation.[153] Virtual Villages provide reassurance of community support[154] and homelike residential models offer care from certified staff if needed[155].

Barriers

- **Access to Models.** Many of these models are not readily available, well known, or sufficiently implemented in Canada. For example, there has been only one reported attempt at creating Virtual Villages in Canada, despite the widespread use in the USA[156]. The Connected Care Hub remains a futuristic concept with plans to trial in a Toronto NORC[157].
- **Does not Necessarily Prevent Isolation.** Many models in this chapter are designed to prevent isolation, such as multigenerational housing and homelike residential models. However, older adults living in individual apartments, such as Virtual Villages or NORCs, may still experience social isolation. This is particularly true if they limit their contact with volunteer services and if they have mobility challenges[158].
- **Difficulty Adjusting.** It may be challenging to adjust to sharing a living space with another person or persons, due to decreased privacy and control, and managing interpersonal relationships[159]. Furthermore, some models may involve moving to another home location which can be difficult for older adults.

Questions for Reflection and Discussion

1. How might we provide opportunities for older adults to take an active role in building new kinds of communities based on shared priorities[160]?
2. What types of multigenerational housing options exist in Canada and how successful are they?
3. Since home sharing has the potential to save health and social services spending, what actions can be taken to spread and scale its implementation?
4. In light of COVID-19 and to mitigate future pandemic adverse effects on older people, should the CCH be fast-tracked into communities like Toronto?
5. Given that individuals vary in what is required to age in place and that each housing model may not be appropriate for all older adults, how do we actively inform older adults in Canada about these options so that they can make better informed decisions?

CHAPTER THREE

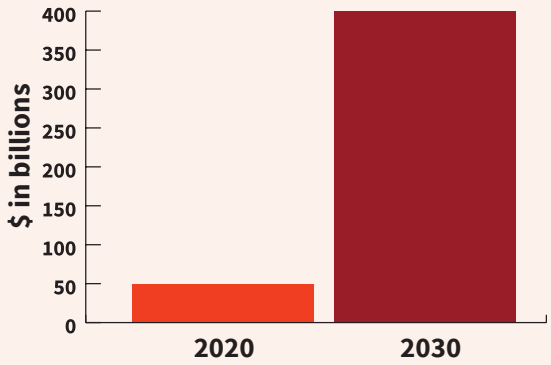
Connected at Home by Technology

Technology offers many opportunities to help older adults live at home[161]. The pandemic has helped us realize the necessity of technology to help keep older adults safe and connected at home[162]. According to an AGE-Well 2019 survey[163], more than 80 percent of Canadians over the age of 65 years reported that technological advances can help older adults be safe, live in their own homes longer, and stay independent. Seven out of ten reported that these advances can help them stay active, manage their health better and reduce social isolation.

Suite of Connected Technologies and Tools

A recent report indicates that the new connected technologies and tools will climb from $50 billion in 2020 to $400 billion in 2030 and offer older adults[164]:

- **Security management** (security cameras, door locks)
- **Energy and resource management** (lights, thermostats)
- **Convenience and comfort** (washing machines, blinds)
- **Media entertainment** (internet-connected audio systems and speakers)
- **Health and wellness management** (remote monitoring, tracking health status).



New connected technologies and tools will climb from $50 billion in 2020 **to $400 billion in 2030**.

Health and Wellness Management Technology[165]

- Best Buy acquired GreatCall—a connected health and personal emergency response services to the older adult population.
- GreatCall makes mobile phones and wearable devices that connect the user to operators who can connect them to family caregivers, provide concierge services, or dispatch emergency personnel.
- Offers connected health and safety services, including daily medication monitoring.

Robotic Technologies

Robotic technologies are promising offerings to help older adults live at home, many providing direct assistance with daily tasks[166]. A research study systematically reviewed the types of robotic technologies for older adults and found the following nine models[167].

Robotic Technologies for Older Adults[168]

Companion robots: Address health and psychological well-being, including social isolation. They can listen, respond, talk, recognize touch, and sense sound and light. They come in the shape of an animal (dog, cat, rabbit) or humanoid.

Telepresence robots: Provide two-way communication and help with social isolation.

Manipulator robots: Arm-like attachments to carry things and support independent living.

Rehabilitation robots: Provide mobility assistance, such as wheelchairs and assistance with walking.

Fall detection: Help prevent or detect falls.

Health-monitoring robots: Monitor physical health status (weight, sleeping patterns, blood pressure). Send feedback to caregivers.

Reminder robots: For medication management and appointments.

Entertainment robots: Provide connection to the arts and entertainment.

Domestic robots: Help with daily living tasks (cleaning, cooking).

Digital Tools and Technology Devices

It's clear that health care delivered through digital tools and technology devices can assist older adults to live healthily at home[169] [170]. A review of digital tools and technology devices[171], which focused primarily on community settings, revealed the most common interventions:

- **Telehealth:** sensors to monitor vital signs, such as heart rate, blood pressure, physical activity, to support self-management mainly.
- **Telecare:** remote care technologies, such as reminders, alerts, communication with health professionals, wearable sensor or sensors in the home to monitor falls and movement.
- **Tele-education:** digital tools that provide education on such topics as diet and self-care.

The research found that computers were the most common delivery method, followed by sensors.

Technology also has a role to play in supporting caregivers of older adults living at home. Research into the information and communication technology used by those caring for older adults (in this case, following a stroke) reveals these technologies are mostly used for emotional and psychological support[172]. Main technologies used by these caregivers, mostly women, included remote access

The tangible benefits of these technologies included more social connection, reduced caregiving hours and fewer hospital re-admissions.

to information (internet and telephone) and online communities, and other support services providing contacts and peer support. In caring for these older adults, who had dementia or memory impairment, caregivers also relied on alarm and monitoring systems, telecare, tracking and sensing devices and on-line systems to co-ordinate care. Technology helped caregivers with follow-up support to identify problems during the transition back home after a stroke. On-line material, interactive exercises and interactions with other participants and a trained facilitator also provided valuable education and information. The tangible benefits of these technologies included more social connection, reduced caregiving hours and fewer hospital re-admissions. According to the caregivers, customizing these solutions for individual situations would help even more.

How Helpful is Technology?

Which technologies add the most value in helping adults remain in their homes as they age? One study looked at this from the lens of communication, emergency assistance, physical wellbeing, and mental wellbeing[173]. The technologies that added the most value to help improve the lives of older adults were: neurofeedback headbands and EEG system with iPod-supported mindfulness training (improved reaction time in terms of attention and reduction of somatic symptoms), accessible computer systems (reduced loneliness and increased perceived social support and well-being), wristbands with a pedometer and online video platform (increased daily steps), and biofeedback devices (improved alertness).

For family caregivers using telehealth, videoconferencing was most common, followed by telephone-based and web-based information, and telemetry/remote monitoring[174]. These were most often used for education, but also consultations, behavioral therapy, social support, and data collection and monitoring. The research showed significant improvements for caregivers in psychological health with less anxiety, depression, stress, burden, irritation and isolation. These caregivers achieved a greater comfort with telehealth and improved their skills and knowledge in managing care and communicating with providers. Their quality of life was higher. They felt supported socially and found they were better able to cope, solve problems, and make decisions. Some reported cost savings, and better physical health and productivity.

Summary of Models and Practices

The pivotal role of technology to help support older adults to age at home was the focus of this chapter. The pandemic has reinforced the necessity of technology to keep older adults safe in their homes while connecting wirelessly with families and friends, engaging in new learning, and accessing healthcare providers. Technology also plays a role in supporting caregivers. With an ever-expanding suite of connected technologies and tools, older adults are offered better ways to save energy, maintain health and wellness, and be entertained. Robotic technology is a promising innovation providing help with daily tasks and offering companionship. Research demonstrates the benefits of different types of technology to older adults and their caregivers. Older adults welcome new technology and prefer a person-centred approach to support regular use.

Facilitators

- **Older Adults' Positive Attitude[175] and Confidence in Using Technology[176]**. The literature underscores that older adults have a positive attitude towards technology[177]. This attitude comes with a perceived confidence. According to an AGE-Well 2019 survey, 74% of those aged 65+ reported feeling confident using current technology in general[178]. More specifically, 86% of older adults reported being online daily; 58% own smartphones, of which 93% find them easy to use; and 63% have a Facebook account.
- **A Person-centered Approach to Implementation.** One size does not fit all when it comes to offering new technologies to older persons[179]. There is a need for person-centered guidance, training, peer mentoring, and follow-up[180]. Denmark goes a bit further in accommodating to the technology needs of older adults by recommending five phases to implementing new devices[181]: 1) evaluating the need for assistive technology, 2) acknowledging the need for technology, 3) incorporating technology into daily life, 4) using assistive technology and 5) considering future use of assistive technology.

Barriers

- **Lack of Access to Reliable and Affordable Internet[182]**. Internet access has become seen as a necessity, on par with electricity and clean water[183]. Indeed, the percentage of older adults who accessed the Internet rose from 32.2% in 2007[184], to 71% in 2018.[185] Furthermore, the Canadian government recognizes the importance of access to high speed, particularly during a pandemic, and aims to connect 98% of Canadians to high-speed internet by 2026[186]. Over 94% of Canadians now have internet access[187] suggesting that this goal is achievable. However, cost is a prohibitive factor to Internet use among older adults[188] and needs to be addressed.
- **Fading Interest and Engagement with New Technology**. Engagement with new technology along with its positive health outcomes have been reported as fading over time as older adults lose interest[189]. The issue of how to intrinsically motivate older adults to become longer term users of assistive technology is something that needs further study.

Questions for Reflection and Discussion

1. How do we help older adults be full participants of digital technology, including the internet?
2. Patient-centeredness is crucial when integrating technology at home. This demands training, guidance, and close-follow-up. How do we encourage those delivering technology solutions to provide continued support to older adults?
3. How can we ensure that older adults are engaged in the discussion around digital technology development?
4. Given the growth and potential of digital tools for active aging at home, how do we combine the technical, clinical, and research elements of digital tools and technology devices to ensure it best meets the needs of older adults and caregivers?
5. What types of new technology needs have arisen as a result of COVID-19? How can these be advanced?

CHAPTER FOUR

Care Comes to You at Home

Wanting to live at home also requires that older adults have access to high quality home health and social care services. Over the last ten years, there has been an emphasis on home and community healthcare delivery instead of care within institutional settings, such as hospitals[190] [191]. A 2015 national survey indicates that most Canadians (89%) want the provision of more home and community care[192]. While about 75% of in-home care of older adults is provided by spouse and family caregivers, it is predicted that the future caregiver economy will shift to more formal caregiving from trained professionals[193] [194]. Current service models to deliver healthcare to older adults in support of living at home provide some insights and options.

Person-Centered Healthcare Support at Home

Person-centered care focuses on the whole person, engaging caregivers and family in shared decision-making to improve health outcomes. This is also sometimes referred to as care that is client-centered, relationship-based, or consumer-directed. When research looked at aspects of person-centered care for older adults outside of the hospital setting, some key themes emerged as critical[195]. It is essential for caregivers to know and confirm the patient as a whole person and to recognize that person-centered care is relational and needs to be tailored to the older adult's capacity. Co-creating a tailored personal health plan is key.

A 2019 summit held in Canada discussed new and emerging person-centered models of care to empower older adults to live at home[196]. A dozen or more models were explored. Some of those providing care in the home are described here[197]:

- **Home is Best, Fraser Health**. Consists of post-surgical wound care and reablement, inter-professional home visits, personal care assistance, urgent response, equipment assessment and supports, rehab services, palliative care, working with family physicians, adult day programs and respite.
- **H.O.P.E. Model of Care™ (SE Health, Canada)**. Includes a self-managed team of nurses and other care providers within defined neighborhoods, supported by a coach. Nurses accept the referral, provide 24/7 support, organize their own schedules, design and actively refine the care plan jointly with clients/families, and manage their caseloads. The pilot model tested a number of digital tools to improve coordination, communication and optimal use of resources, while maintaining compassionate care. A key feature of the model is to continue long-term follow-up with patients well after active involvement with nursing service has ceased. This provides opportunities for early identification of issues, restarts services quickly, as well as ensuring supports and programs are in place and working as intended.
- **COACH - Caring for Older Adults in Community at Home (P.E.I.)**. Involves a geriatric nurse practitioner delivering care in the community through in-home assessments with older adults to identify needs. Geriatric nurse develops a care plan and communicates with the older adults' primary care team and home care coordinator to empower them to make positive health/lifestyle changes.
- **Buurtzorg Sweden Neighborhood Care Model (Sweden)**. Model currently has 50 salaried nurses forming 4 teams to deliver self-empowered home care in neighborhoods. Aims to provide high quality and cost-efficient care that fosters warm, trusting relationships. Time is not an important indicator for care delivery, rather the main concerns are to help ensure that the older adult receives the care they need and feel supported. Buurtzorg is expanding in Britain and Ireland.

Relationship-based Home Care

Relationship-based home care is a model promoted in Europe to help older adults navigate the health system while living at home[198]. The model supports home care from trained professionals. It has some similar features to the empowered home care models[199]:

- Person-centered, concentrating on emotional and physical needs of the older adult.
- Supports families and caregivers in their relationship to the older adult receiving care.
- Enables coordination across the whole care team, including family caregivers and healthcare providers.
- Recognizes that the needs of the older adult continuously change.
- Is outcomes-based and preventative, supporting the highest quality of life while living at home for as long as possible.

There are many benefits to relationship-based home care including[200]: Reduced health and social care costs; better coordination across the care team; enhanced emotional well-being (less social isolation and loneliness); greater trust and comfort in caregiving, care of people living with dementia, flexibility and peace of mind for families, job satisfaction and retention of professional carers; and increased employment opportunities and gender equity. Several countries around the world have begun to experiment with different options, including Australia, Ireland, and Germany.

Australia's Home Care Packages Program is another type of person-centered home healthcare support for older adults[201].

Australia's Home Care Packages Program[202]

- Designed for older adults with complex needs.
- Uses a "consumer-directed" care approach to help ensure support matches an older adult's needs and goals.
- Home Care Package includes: help with household tasks, equipment, minor home modifications, personal care, clinical care such as nursing, allied health, and physiotherapy services.
- Australian Government provides funding for Home Care Programs under various Acts.
- Approved providers work with care recipients to plan, organize and deliver Home Care Packages.
- Older adults register and are referred for an eligibility assessment to determine their level of care.
- Four levels of packages—level 1 (basic care) to level 4 (high care needs).
- Packages assigned to older adults not providers; a person can choose a provider in their area that best meets their needs.
- An Aged Care Quality and Safety Commission assesses and monitors home care services to ensure they comply with quality standards.

Integrated Home Care Services

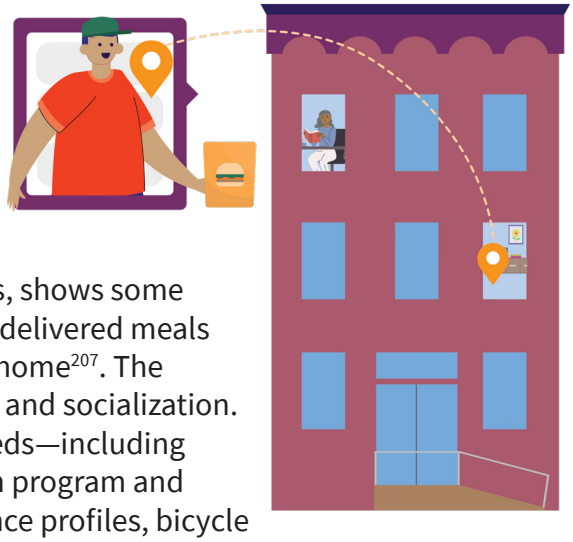
While formal home care services are expected to grow in the coming years, there remains a significant reliance on caregivers, allowing older adults to remain in their homes. Caregivers provide a wide range of care, including meal preparation, shopping, medication management, driving, bathing, snow shoveling and companionship[203]. There is some concern as to why social and community supports are not more integrated and easily accessible so that older adults--particularly those without caregiving support--can navigate service-providing organizations on a short-term or periodic basis[204].

An integrated at home program available to veterans from Veteran Affairs Canada is one example of what's available in Canada.

Veterans Independence Program[205] [206]

- Program provides yearly support for home care services to veterans by offering:
  - Ground's maintenance (lawn mowing, snow removal)
  - Housekeeping (meal preparation, laundry, errands)
  - Nutrition (meal delivery)
  - Professional healthcare and support (diagnostics, assessments)
  - Personal care
  - Ambulatory healthcare (care and transportation to services)
  - Transportation
  - Home adaptations (one-time only grant unless change of residence).
- Funds are also available for short-term care when, for example, a person transitions from hospital to home.
- A cost analysis found this model to be of more value for money than long-term care.

Meals on Wheels



Meals on Wheels (MOW) is one of the longest-standing services that could be included in a service bundle to help older adults remain in their homes for as long as possible. Founded in the UK in 1943, MOW operates in the USA, Canada, Australia, and most of Europe, achieving measures of success. Research in the USA, where the MOW programs are designed to meet local needs, shows some success. A 2011 survey of Florida residents receiving home-delivered meals indicated that 97% reported that it helped them remain at home[207]. The program shows positive outcomes, such as better nutrition and socialization. Various innovative MOW models have emerged to meet needs—including the privatization of meal preparation, cost-sharing between program and clients, delivery of multi-day meals, individualized preference profiles, bicycle deliveries, and greater corporate involvement. These highly demanded programs also work to find ways to keep and find volunteers, reach into rural communities and meet changing dietary needs.

Mixed Home Care Models

Mixed care models that combine home care services and caregiving roles have been shown to help reduce the burden to family caregivers[208] [209] [210]. The research suggests that caregivers of older adults living at home with assistance from home care services expect a high level of collaboration[211] and need quality interaction among caregivers, older adults receiving care and home care services. This corresponds with a desire for trustworthy, predictable, and flexible service information and education about conditions and practical self-care skills. Caregivers are looking for a shared approach to care, characterized by a shared sense of responsibility and collaboration with all home care providers. They seek a sense of empowerment driven by a strong, supportive relationship with home care services. They are also interested in managing role expectations and knowledge sharing to adapt to the ever-changing needs of the older adult[212].

Other Healthcare at Home in the Community

Community Paramedicine

Community paramedicine is becoming more popular to help older adults live at home longer[213] [214] [215]. CSA Group in Canada[216] defines a community paramedic as one who has *"completed a formal and recognized educational program and has demonstrated competence in the provision of health education, clinical assessment and monitoring, point-of-care diagnostics, and treatment modalities within or beyond the role of traditional emergency care and transport"* (p. 13). There are four main roles for the community paramedic in caring for older adults[217]:

- Assessment for diabetes, fall risks, home safety and to see whether the patient should be transferred to the emergency department (ED) or treated at home.
- Referral to urgent care, the ED or community resources/services.
- Education with a focus on disease prevention and health information.
- Communication of the patients' health information with their family physician.

Reviews show that community paramedics bring positive impacts, including improved patient health outcomes in older adults. This includes reduced blood pressures and reported levels of care, patient satisfaction and personal health. Positive outcomes also include reduced emergency calls, transport to ED, ED visits, or hospitalization, and thus decreased healthcare costs. Community paramedicine depends on strong integration with existing services; stable and sustainable partnerships among numerous community-based agencies, teams, and organizations.

Consistency in the role—with adequate training and good communication between providers—is also key. An example of a recently funded Paramedic program in Kitchener-Waterloo, ON is found in the Box 2.

Home-based Primary Care

House calls from a primary care provider may be an option when homebound older adults with medical needs are not able to visit a physician's office. Studies reveal that such approaches tend to include fully integrated interprofessional care teams of geriatricians, general practitioners, nurses, dieticians, dental hygienists, and others.[218] The model involves regular meetings to review care plans, comprehensive geriatric assessments, and after-hours urgent telephone services. Overall, results were positive, with lower levels of emergency department visits, hospital stays and admission to long-term care and better screening for common geriatric conditions. This approach also showed better individual and caregiver quality of life and satisfaction with care, vaccination rates, and engagement in end-of-life care discussions.

Box 2: Paramedicine Program for Older Adults[296]

- Kitchener-Waterloo Region received $7.8 million over three years from the Province of Ontario.
- Program is run by the region's paramedic service.
- Community paramedics go into the homes of older adults to help them with non-emergency medical care including:
  - Education about healthy living or how to manage chronic illness.
  - Ongoing monitoring of health conditions to prevent or reduce visits to the ER.
  - In-home visiting and testing.
  - Access to health services 24-7, via in-home, online or virtual supports.
  - Connections for older adults and their families to home care services and community supports.

Transitional Care

Safe and timely transitional care is important when an older adult leaves a hospital and returns home[219] [220]. High quality, effective care supporting the transition to home results in lower hospital re-admissions and high levels of patient satisfaction[221]. Transitional care models can vary. Research shows that integrated models of care most often include coordination or partnerships among health, social, and community care and a wide breadth of services from palliative care to mental health[222]. Much of transitional care is provided by at-home caregivers, such as nurses, personal services workers and rehab therapists, who need adequate information about the condition, treatment and management, as well as about the health system and the roles of various health professionals[223]. Caregivers also need adequate skills in negotiation, communication, and using technology[224]. Transitional care models work best when there is a clear articulation of what is important to older adults and their families/caregivers and the assistance they need[225] [226].

Innovative Home Health Care Models During COVID-19

COVID-19 has reinforced the benefits of older adults living at home. It has also brought to the forefront innovative approaches to accommodate their health care needs while self-isolating at home. Digital technology (telemedicine) is seen as a cost-effective tool for older adults to gain access to health care professionals and resources from the safety of their home[227] [228].

A rapid review was conducted to assess the utility of remote communication in the current pandemic. A study of the use of remote communication in geriatric outpatient clinic assessments showed

that providing continued care to older adults while incorporating social distancing measures was perceived as positive[229]. Patients and physicians were satisfied with the virtual clinic model of care. The clinic experienced benefits of cost effectiveness, transportation savings, scheduling advantages, and cost savings for patients. There were positive benefits to patient care outcomes, including more appropriate medication use, lower risk of hospitalization and fewer hospital admissions and emergency visits. The approach was facilitated by clear mask-free communication during virtual sessions and the flexibility to combine in-person consultation and a physical examination with virtual follow-ups. Strong partnerships between departments made a positive impact, with robust pathways, good clinical governance, and clear documentation strategy with clear avenues of information for patients.

Another model of care for older adults living at home started in Italy during the COVID-19 pandemic as seen below.

The Long Live the Elderly COVID-19 Model of Care[230]

- Model created in 2020, to help older adults living at home in the community cope with COVID-19.
- Designed to address unexpected events that affect older adults like heatwaves.
- Counteracts loneliness and social isolation through continuous efforts to reinforce social relationships in a network of older adults.
- Facilitates access to social and health services, monitors persons in need of assistance through telemedicine, and maintains updated health education and training programs.
- Strives to enroll all residents over the age of 80 in activities they organize in wards and neighborhoods in many Italian cities.
- All older adults over 80 years frequently contacted and continuously monitored.
- Priority given to frailest.
- Results indicate: Those receiving LLE program had lower morality rates than a comparative city and the LLE populations indirect standardized death rates were lower than those of the general population.

Summary of Models and Practices

The availability of different forms of home and community healthcare was the focus of this chapter. The expected shift to more formal caregiving from trained professionals is noted along with the importance of it being person-centered, relationship-based, and integrated. A diverse range of models were found, such as the SE Health H.O.P.E Model of Care™ and Australia's Home Care Packages program. Mixed home care models that combine home care services and caregiving roles reveal the importance of having a good relationship based on reciprocal trust and mutual decision making. Recent forms of home-provided healthcare models include community paramedicine, home-based primary care, and transitional care. Finally, new home health care models were created during the COVID-19 pandemic, including the Long Live the Elderly COVID-19 model out of Italy. These models rely on digital technology for remote communication and consultation.

Facilitators

- **Client-centered, Relationship-based, or Consumer-directed Care Approach.** The research evidence supports these relational-based approaches to home care which call for caregivers to know and confirm the patient as a whole person and co-create a personal health plan based on an older adult's capacity[231]. This means knowing the client and family's circumstance and goals. With a shift from transactional care, these models vary around the world in response to local community contexts and connections to social and health services. The research shows that transitional care models work best when there is a focus on the needs of older adults and their families and caregivers[232] [233].
- **Integration with Existing Social and Health Services.** Home care services are in an ideal position to form an integrative bridge between the older adult and different types of services and providers. Therefore, it is important that home care services have strong connections with these services. For example, the research indicates that community paramedicine depends on strong integration with existing services and stable and sustainable partnerships among numerous community-based agencies, teams, and organizations[234]. In addition, a key facilitator of Empowered Home Care models is a seamless connection between social and health services, such as housing, primary care, rehab services, and others.
- **Choice.** Choice is a common element across the many models outlined in this chapter. For example, the relationship-based home care models give the older adult a choice of caregiver with a wide variety of provider options. They are also able to choose the timing of care visits. Similarly, Australia's Home Care Packages are assigned to older adults, not providers, and clients are given a choice to select a provider who they think best suits their needs.

Barriers

- **Capacity Issues.** Gaps in human resources and capabilities are barriers noted in many of the models. For example, staff shortages and delayed discharge from institutions to the right supports in the community are barriers within Empowered Home Care Models[235]. Capacity issues were found in meeting the needs of both the older adult and their caregivers in mixed home care models[236] [237]. Additional work responsibilities for providers, such as general practitioners, posed a barrier to the transitional care model[238].
- **Technology.** There were some barriers noted with the use of the technology within certain models. For example, some patients struggled with technical difficulties and confidentiality issues associated with the use of remote communication in geriatric outpatient clinics[239]. The LLE program indicated that the program required ongoing support with monitoring patients' conditions (telemedicine)[240].

Questions for Reflection and Discussion

1. For empowered home care models to work, there is a need for home care staff to develop deeper relationships with other health, social care and community care players. How can these relationships be created and supported?
2. Person-centered needs of caregivers can no longer be ignored. Results indicate that care partners want a trustworthy home care service that adapts to their needs, desire more information and training, and need relief and support. How do we address such needs so that caregivers no longer feel like a third wheel in their partners at-home care?
3. Why aren't social and community supports the first formal and integrated point of entry for older adults needing help with yard work, snow shoveling, grocery shopping, meal preparation, housekeeping, and other unmet needs that can threaten[241]?
4. Community paramedics have been shown to be a safe and effective option for responding and treating older adults at home and reducing the strain on paramedic services and the ED. How can this model be scaled and spread into the wider healthcare system?
5. Better ways to manage hospital to community transitions are needed, and integrated care approaches are a promising solution for enhancing hospital and community service coordination and collaboration. How can we make whole-system service integration a patient- and family-focused reality by involving them more in decision-making, goals-setting, training, and evaluation?

CHAPTER FIVE

Keeping Well and Socially Connected

This chapter presents models and practices that emerged from our research into supports for older adults staying well and connected socially to their families, friends and communities. It first considers new and evolving ways to help older adults and their caregivers combat the critical problem of social isolation and loneliness. Many of these possibilities have been discussed in previous chapters—from different transportation options to shared housing models. It also looks at new models and practices to help older adults maintain their wellbeing and quality of life through two effective supports that were revealed in the course of our research —exercise and self-management.

Belonging

Much has been written about the importance of belonging for older adults to prevent social isolation[242] [243] [244] [245] [246] defined as *"low quantity and quality of contact with others"*[247]. Older adults living at home are particularly vulnerable to social isolation due to retirement, loss of a spouse or friends, changes in access to transportation and other reasons[248]. Spousal caregivers are also susceptible in need of social support[249]. Social isolation is a serious concern, linked to a variety of health concerns among older adults such as depression, cognitive decline and reduced physical activity among others[250]. An estimated 12% (525,000) of older adults in Canada feel socially isolated and 24% (over 1 million) report low social participation[251]. Quarantine measures imposed due to COVID-19 have increased social isolation in older adults[252].

This document has explored many models and practices that are designed to help prevent social isolation and loneliness. Furthermore, research points to the preventative outcomes of social interventions for older adults, particularly depressive symptoms[253]. Community-based social interventions (CBSI) and social prescribing—when health professionals refer patients to support in the community in order to improve their health and wellbeing—are two types of formalized intervention models to address social isolation. A review of social interventions (CBSI) for older adults from around the world show a wide range of approaches[254].

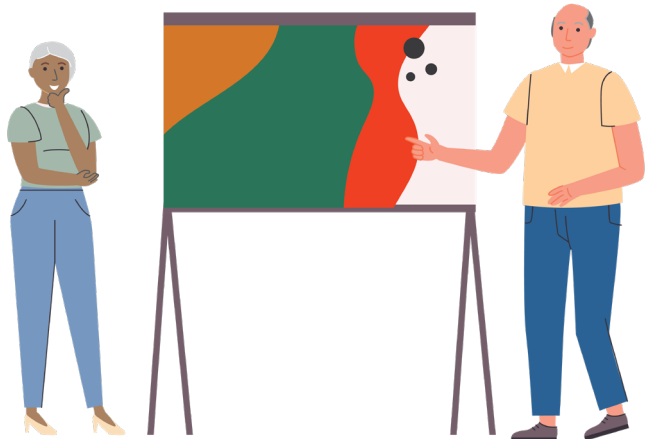
Sample Community-based Social Interventions to Reduce Social Isolation[255]

- **Senior centers:** Offer health, education and recreation, volunteer and social interaction (USA).
- **Call in Time Programme:** Telephone support for older adults needing the befriending service (UK).
- **Pairing upper secondary school language learners of Chinese, German and Spanish with older speakers of the languages (Australia).**
- **Green care farms:** Older adults engage in farm-related and outdoor activities (Netherlands).
- **Health promotion project for older adult Indigenous women:** Morning get-togethers, home meetings, participation in community committees, etc. (Canada).
- **Men's cooking group:** Prepare and eat a meal and receive advice from a registered dietician (Japan).
- **"Men in Sheds":** Do it yourself activities for older men (UK, Canada).
- **Intergenerational project:** Older adult shares their life experiences with students in the classroom (Brazil).

Most studies reported that interventions had positive impacts on physical and mental health, satisfaction, exercise, diet, relatedness, quality of life, and perceived health status and wellbeing. Overall, research suggests CBSIs provide a sense of togetherness by fostering social interaction, contribute to improved health and sense of wellbeing, equip older adults with new skills that enable and empower, and foster resilience in individuals and community.

Social Prescribing

When older adults have social, emotional or practical needs that impact their overall health, social prescribing by a physician can create important connections[256]. Primary care providers can refer their older patients to allied health and social care professionals, such as connectors, health advisors, coordinators, care navigators, or community navigators—who in turn provide links to needed services. This can include bereavement support, creative arts, nature-based activities, gardening, museum-based activities, lunch clubs, and walking clubs[257].



Social prescribing is common in the United Kingdom, practiced by one-third of family doctors. It is viewed favorably by many other countries, including Ireland, Canada, the Netherlands, Scandinavia, USA, and Australia. Research has found positive outcomes, such as increased self-esteem, improved mental health, reduced social isolation and loneliness and reduced health service use. Empathetic support from social prescribing coordinators as they shared detailed knowledge of local services was a key factor of success. Reviews suggest further study and development is needed as the model evolves.

Intergenerational Programs

Intergenerational programs offer another way to help with social isolation in older adults[258] [259] along with combatting ageism[260]. Programs offer a range of possibilities to bring older adults together with younger people for[261]:

- Friendly visiting to share stories, take walks.
- Explore the arts with theater classes or gallery visits.
- Health/wellness with students providing chronic disease and medication management.
- Oral histories through reminiscence and interviewing.
- Language/literacy, with older adults tutoring younger students.

Adopt a Grandparent Intergenerational Program began in October 2019 initiated by CHD Living in the UK, with the idea that people would visit care facilities to socialize with older adults[262] [263]. The program moved on-line since COVID-19, with approximately 82,000 volunteers and a waiting list for volunteer applicants. Pairings between the grandparent and adopted grandchild are based on shared interests. Plans are underway to create a mobile app. Benefits of this type of model include a strong relationship between pairings, reduced social isolation, mutual learning, reduce ageism, a sense of purpose, improved well-being, and increased student performance[264] [265] [266].

Guides are available to support individuals and organizations who wish to set up intergenerational programs[267] [268].

Innovative Technologies to Promote Social Inclusion

A wide variety of innovative technologies are available or under development to promote social inclusion in older adults[269] as seen below[270]

- **Robots**: Provide emotional connections with older adults as companions, e.g., Jibo, Tinybots (Netherlands).
- **Cubigo** (https://www.cubigo.com/en): Software is installed on any device like a computer or phone and the user creates a profile of their living situation and what they need, e.g., find social activities to combat loneliness, like playing bridge (USA, Netherlands).
- **Giving & Getting**: Provides a platform for receiving support in specific areas of life. Has a system that transfers tokens between members and encourages social engagement and mutual exchange of support and favors (UK).
- **Klup**: A web application for activity and companionship that helps older adults connect based on their shared interests and location, e.g., having someone to walk with (Netherlands).
- **Sentab** (https://www.sentab.com/product): Uses the television to deliver a virtual meeting place for older adults (Estonia, USA, UK).
- **Adaptivecity** (https://adaptivecity.com/): Mobile phone for emotional care and social inclusion (Spain).
- **AgeWell** (https://www.agewellglobal.com/): Provides virtual and in-home support for people who are confined to their home due to physical and mental limitations or those who lack strong social connections (South Africa).

Successful Models and Toolkits

The general types and characteristics of successful programs targeting social isolation in older adults are found in the Box 25. As there is no one-size-fits-all for these types of programs, several toolkits have been developed on how to create one for your community, such as the Nelson Allan Project Toolkit[271], Innoweave[272] and the UK Campaign to End Loneliness—the Hidden Citizens project[273].

Types and Characteristics of Programs to Successfully Combat Social Isolation in Older Adults[274]

Types of Programs:		Characteristics of Programs:
• Group • One-on-one • Arts and culture • Leisure • Intergenerational • Educational • Friendship	• Telephone support • Gatekeeper programs • Internet groups • Religious • Support-provision and groups	• Based on sound theory • Involve older adults throughout • Include members who share a common interest • Directly target social isolation and loneliness • Use more than one intervention • Train and support staff • Activate community-based resources • Mobilize nurses and other health professionals as champions and gatekeepers

Physical Activity

Physical activity is viewed by many as a key factor in helping older adults maintain the ability to live at home[275] [276] [277]. Tai Chi and group and home-based exercise programs, usually containing some balance and strength training exercises, have been shown to effectively reduce falls[278].

Australia's Heart Foundation Walkwise Framework

Australia's research-based Heart Foundation Walkwise provides a "Healthy Active Ageing" framework to support and encourage its citizens 65+ years to become more physically active[279]. The framework provides guidelines for physical activity type and duration as recommended by the WHO and suggests that healthy active aging includes:

- Physical activity at all ages, with particular emphasis on regular walking.
- An environment that enables activity, such as walkable neighborhoods.
- Social engagement and belonging to help motivate older adults to maintain physical activity, specifically walking.

Peer-led Community-based Physical Activity Programs

Peer-led community-based physical activity programs, led by non-professional community volunteers, aim to promote the general health and physical functioning of older adults[280]. Studies show that peer leaders help older adults maintain exercise activity levels and improve overall health—with improved physical performance, fewer falls, social health, and quality of life. They are less costly to deliver than professionally led programs and help sustain community-based programming. Successful programs included such features as door-to-door transportation; a support organization to assist with implementation and successful recruitment strategies, and social support from family and others; and peer leaders with social awareness and empathy.

A sample fitness model for older adults in Canada is found in the Box 3.

Self-management

Self-management educational and supportive interventions help older adults remain in their homes by enhancing their ability to carry out daily activities in their homes and to manage declines in their health capacity[281] [282]. A systematic review was conducted to study the effects of self-management support programs on daily living activities of older adults living at home, ranging from bathing to handling finances[283]. Self-management supports vary in intensity and duration from health promotion, information, and education about conditions and disabilities to personal coaching on personal health plans. Some approaches include practical training and exercises or social supports through communication with peers and professionals. For the most part, the research indicates that self-management helped adults live their daily lives with less disability. Programs using a personalized plan, tailored to the participants' individual goals or targeting individually identified problems, led to better outcomes compared to programs not having this component. However, the intensity and duration of the program did not seem to matter; all types of self-management support programs demonstrated improvements in daily living. Research suggests these programs could be offered as a booster or complementary approach to regular programs with appropriate cost and time commitments.

Box 3: Choose to Move at Home[297]

- Science-based approach to help older adults with daily physical activity to help remain independent.
- Developed by the Active Aging Research Team at the University of British Columbia initiated by the Active Aging Society, British Columbia.
- Free program whereby older adults work with a trained activity coach to develop a tailor-made physical activity plan alone or with others, e.g., Tai Chi, yoga, gardening, walking.
- Group sharing on successes and challenges.
- Resources: Strength, balance, flexibility, bone and joint health, endurance and heart health, and chair exercises.
- Tips sheets: Managing mental health and improving brain health.
- Additional resources: At Home Resource Digest, Move for Life DVD, Physical Activity Log and Get Active Questionnaire.

The Be He@lthy Be Mobile Program

Another self-management program for older adults uses digital technology to support aging at home. The Be He@lthy Be Mobile handbook provides guidance for national programs and organizations responsible for the care of older persons to develop, implement, monitor, and evaluate an mAgeing program[284]. The mAgeing program is founded on WHO's Integrated Care for Older People (ICOPE) guidelines for community-based interventions to manage declines in health capacity, including mobility loss, malnutrition, visual impairment, hearing loss, cognitive impairments, and depressive symptoms. The initiative uses mobile phone text messages to send evidence-based behavior change techniques to older adults to help them self-manage at home and prevent decline. Messages provide suggestions for healthy lifestyles, ways to maintain function, and live as and healthy as possible with age. The mAgeing program encourages self-care and management to supplement the care provided by healthcare professionals. The messages also prompt family members or other caregivers to provide further explanation and encourage follow through.

Summary of Models and Practices

The final chapter focused on practices to help older adults stay well and socially connected within their community. Community-based social interventions, social prescribing, intergenerational programs, and technologies are available to increase belonging and decrease social isolation and loneliness in older adults. Physical activity models designed specially for older adults have been identified including walking and group exercise programs, such as Choose to Move at Home. Finally, self-management educational and supportive interventions have been shown to be beneficial to help older adults by enhancing their ability to carry out daily activities in their home and to manage health declines. The Be He@lthy Be Mobile program is an example of a self-management program for older adults using digital technology

Facilitators

- **Involvement of Older Adults.** Models that involve older adults in planning, implementation and evaluation are more likely to succeed than those with non-participatory approaches[285]. For example, a key facilitator of the Be He@lthy Be Mobile Program is to involve older adults in decision-making and goal setting right from the start. When it comes to programming to reduce social isolation, it is particularly important to consider needs and preferences of specific groups of older adults, including Indigenous, older women living alone, LGBT seniors, seniors who are caregivers, immigrant seniors and others[286].
- **Offer a Variety of Options**. Models that offer a variety of programming options have greater potential to succeed than those with limited choices[287]. For example, a common element of community-based social interventions and social prescribing practices is the variety of options they offer. Choose to Move at Home offers a wide variety of physical activity options that the older adults can select, including individual and group support[288]. Intergenerational planning toolkits highlight the importance of variety in creating these programs for a given community.

Barriers

- **Ageism**. Ageism is associated with increased social isolation and loneliness in older adults[289]. Generally, socially-isolated older adults could benefit from improved efforts to address ageism and associated root causes of isolation[290]. The WHO's Global Campaign to Combat Ageism offers a toolkit to learn about ageism, organize events to raise awareness, and spread the word through social media[291].
- **Change Readiness**. Innovative models that incorporate changing roles for providers and older adults can encounter practical and psychological barriers. These include concerns about quality referrals, liability and additional demands on practice from clinicians, as was found with social prescribing[292]. Lack of confidence, motivation, and readiness to change were barriers to participation in peer-led community-based physical activity programs[293].

Questions for Reflection and Discussion

1. How might we enable participation in communities beyond the block for older adults who live in areas lacking local events and activities[294]?
2. Research suggests that community-based social interventions may have the potential to impact either directly on improved health (physical and mental) or indirectly through enhanced wellbeing, increased social interaction and greater empowerment. How can these interventions best augment wider health and social system programming for older adults?
3. What strategies are needed to implement social prescribing programs at scale across diverse settings? How do we engage healthcare providers?
4. Based on what we know about the early warning signs and risk factors, how care we better able to prevent and protect older adults against social isolation?
5. There is moderate evidence that tailored self-management programs can help with activities of daily living for older adults living in the community. Who could offer this type of programming and how would it be funded?

Conclusion

It's time for a new era for aging in Canada. It's time for people with big ideas, passion and vision to create a new future that embraces and supports healthy aging—body, mind and spirit.

Our population is aging. Wait lists for care and support are growing and will continue to grow. Our economy cannot keep up with the costs of system reforms and expansion. And our approach is falling critically short, unable to give Canadians what they need as they strive to grow old in their communities with meaning and purpose.

These realities are an urgent call to action—to overcome barriers and engage all sectors to work together with innovation, flexibility and responsiveness. New thinking, priorities, models, programs, and practices are needed to support contemporary ways for older adults to live at home and age in their communities.

The models and practices in this document demonstrate opportunities to shift away from a reliance on institutional care, hospitals and the health system. The innovations featured provide a look at multi-sector approaches that put older adults at the centre—with wrap-around emotional, social, practical and health and wellness supports to promote safety, connection and purpose. These approaches exist but are mostly under-implemented.

Given its complex nature, supporting older adults to live at home in Canada will require a cross-sector, whole-system approach to develop, spread and scale upcoming and proven models. This change needs bold, forward-thinking and a spirit of innovation that embraces discovery, problem-solving, collaboration and prudent risk. Ultimately, a sustainable approach to better aging requires the courage and commitment of many stakeholders working together to set priorities and an action plan for change.

This discussion paper is a starting place. These pages are intended to spark imagination, fuel innovation, reveal possibilities and spur action.

We encourage individuals of every age to take time to reflect on the findings and information—and to have important conversations with family and friends about what's important to them. These chapters provide helpful evidence to inform options for all us working to shape the future for seniors—whether through new products and services, systems design, policy development or practice changes.

Through COUR**AGE**: Action for Better Aging, we're opening discussion and exploration with those who believe in this call to change and are ready to work together to mobilize action around key recommendations to bring about change. You can get involved at **www.actionforbetteraging.com**.

We invite you to join us. Together, we can imagine and build a better future where we can age with courage and grace.

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