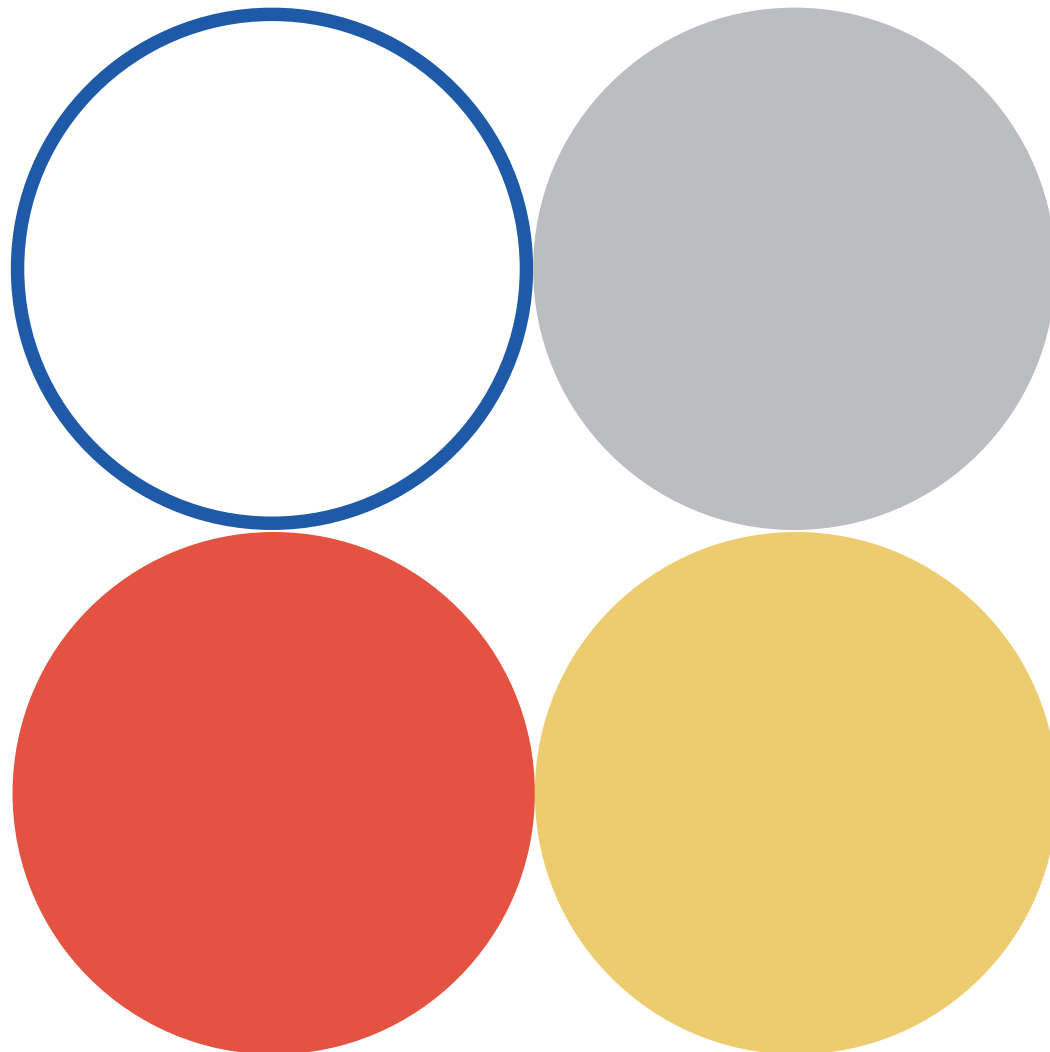


# Aging & Thriving In the 21st Century

A Scan and Selective Systems Analysis of Issues, Trends,  
and Innovations Vital to Older Adults in Canada





The **Institute for Community Prosperity** at Mount Royal University connects students with social impact learning through applied, community-partnered research, creative knowledge mobilization, and systems-focused education. *Community prosperity* refers to the cultural, economic, social and ecological conditions necessary for human potential to flourish, which encompasses well-being, sustainability, quality of life, and civic vitality. The Institute is interested in big questions about how we invest in social purpose and the common good in the 21<sup>st</sup> century.



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**ATCO SpaceLab** is an enterprise-wide framework of support for ATCO employees with the desire and creative energy to pursue sustainable new value for the company. Its mandate is to ensure that ATCO's legacy of success continues for generations to come.

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## Disclaimer

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## Introduction

As Canada's population ages, our collective attention will turn, more and more, toward the role, value, plight, and potential of older Canadians. The COVID-19 pandemic, 95% of its victims in Canada having been over 60, has revealed much about our attitudes toward the eldest members of our community, and the public policy choices that flow from this. Even before the pandemic hit, issues facing older Canadians were surfacing as among the most critical – yet also largely ignored – in Canada. Consider just dementia, which already affects nearly 800,000 Canadians, and which could very well prove to be the health crisis of the century.

The pandemic has also focused many Canadians' minds toward thinking of their own life trajectory; We will all become old (or will die trying). We have awoken to a reality of misplaced priorities, system failures, and vulnerabilities, as well as a window of possibility to reimagine how we approach aging and how we invest in the well-being of the eldest (and, for many cultures, the most respected and revered) members of our society.

Canada's sovereign – Elizabeth II – is still governing at the age of 95, lucid, forceful in her presence, and commanding of respect, even from the most die-hard anti-monarchists. And her royal subjects are catching up; We are an emphatically aging society. But ironically, our cultural ethos is burdened with rampant and systemic ageism, manifest in a collective denial, chronic underinvestment and inability to imagine alternatives, or to connect ageing to the cultural, social and economic fabric and heart of vibrant communities. To date, ageing is largely seen as a cost to society, framed primarily as a concern for the health sector. But aging is about so much more: culture, family, love, language and literature, reconnecting with nature, sharing knowledge and wisdom. We have over-medicalized, over-hospitalized, and over-institutionalized at huge expense and – in too many respects – with dismal outcomes. We have failed to follow through on converting pleasant-sounding 'aging in place' or 'age-friendly community' pledges into policies and practices at anything close to sufficient scale.

What if, instead, we reframed ageing as an *opportunity* for our society, economy, and culture? How might we maximize the choice, dignity, mobility, security, and trust accompanying an aging population transitioning into less autonomous living circumstances? Or, more succinctly, what might need to change in order for people to be less afraid to age? How can we learn from Indigenous and other cultures to think and act intergenerationally, place interdependence over independence, and thriving over surviving?<sup>1</sup> As the National Institute on Ageing at Ryerson University posits, how do we make Canada the best place to grow old? Before we begin to answer these questions, we need to both broadly scan and deeply dive, to reveal, describe and make vivid a picture of the status, undercurrents and trendlines of the systems impacting older Canadians.

This is a scan of issues, trends, system dynamics and innovations related to an ageing population in Canada. It is guided principally by the following question:



**What factors are preventing older Canadians from flourishing, and how might we transform systems to maximize the choice, dignity, mobility, security, and trust accompanying an aging population transitioning into less autonomous living circumstances?**

Initiated and commissioned by the ATCO Transformation Team, this scan will inform the company's purpose-driven R&D and transformation, which might include both commercial and philanthropic interests. But it is also intended to serve as a useful primer for students, practitioners and the general public. The ATCO Transformation Team requested that this scan go beyond a functionalist inventory of policies, players and technologies, looking deeper at the array of challenges, underlying factors and interconnections.

The scan includes an overview of senior citizens' demographic, lifestyle, prosperity, living, housing and care trends. The scan also focuses on system failures and vulnerabilities, as well as the interventions in place, or in various stages of design and experimentation, to address these failures and vulnerabilities. It also peers into some ideas and opportunities on the horizon, or that are being implemented in other countries, with potential for replication, adaptation, or scaling in Canada. A broad terrain of topics is covered, each themselves multifaceted and complex. As such, there is only scope enough for a basic treatment of each trend, issue, and potential innovation. On a few select topics, a deeper analysis of underlying factors and root causes is attempted. But others are covered in a more shallow or introductory way.

Drawing from well-established experience at field-scanning, trend-analysis and systems mapping, this scan combines insights from many different fields, from economics, housing, social policy and tech to gerontology and public health. It combs primary data sources, media stories, academic insights (in particular meta-analyses and systematic reviews), government and think tank reports, and practice-informed webinars, conference proceedings and writings from civil society. It also draws on conversations with a small select group of practitioner-experts with interest and experience in issues facing older Canadians, both locally- and nationally-focused: Academics and service providers, health care experts and non-health thinkers and doers, those embedded in the 'trenches' of practice and those with a future-orientation.

The demographic profile of older Canadians is far more diverse than in previous generations. There are many dimensions to ageing, the complexity of which is reflected in the many policy options, program choices, market opportunities, and even mental models and cultural assumptions that influence why our current array approaches come up short in so many ways, and why the path ahead is both filled with promise and riddled with roadblocks. Many issues experienced by older Canadians are also “inter-sectional” – the systems that seniors interact with include the health care system, systems relating to disability and accessibility (over 10,000 *young* people live in long-term care), and systems addressing poverty alleviation and income supports. As the following illustration indicates, by way of example, dementia is a seniors’ issue but also an issue connected to the broader suite of issues and institutions relating to mental health.

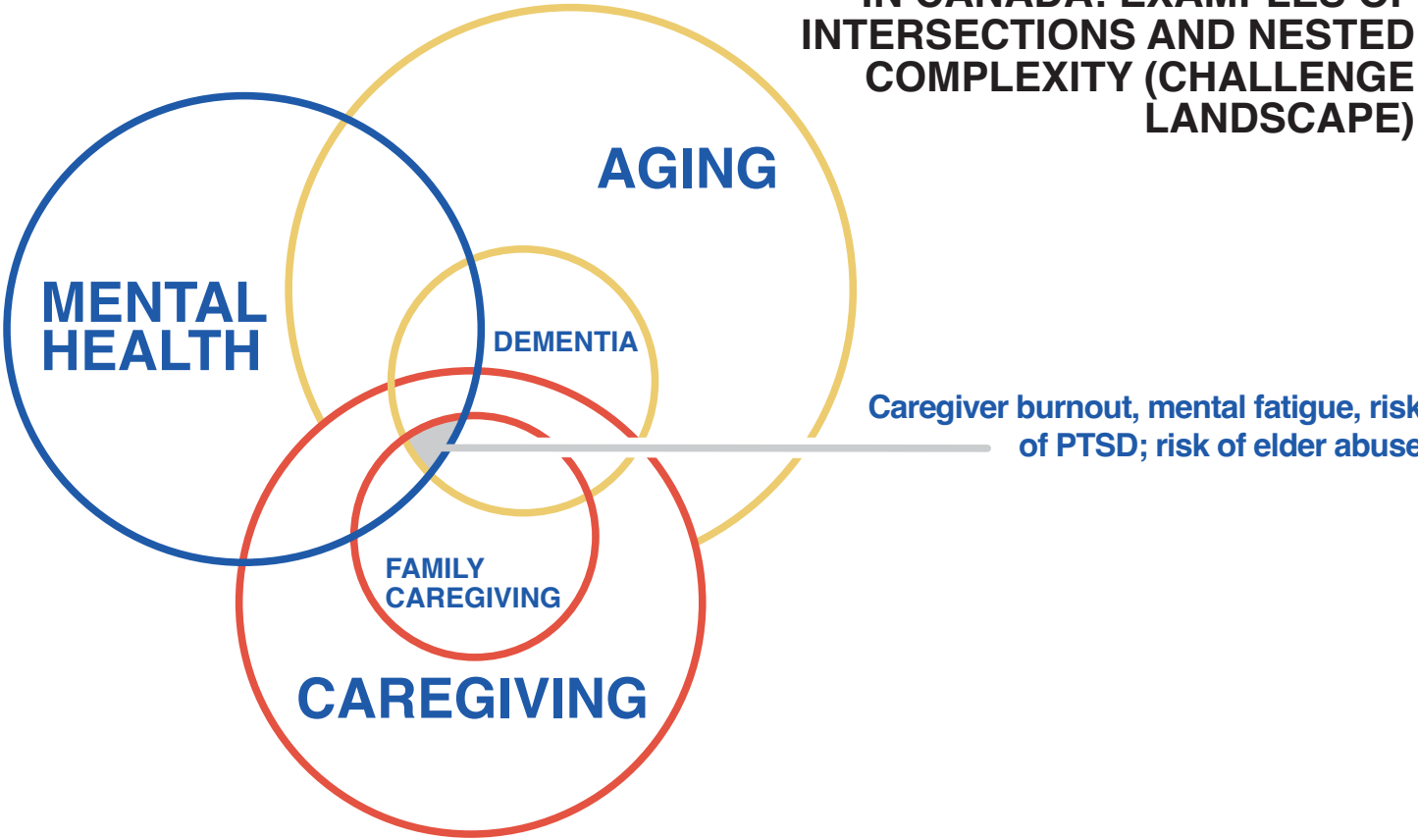
Similarly, elder abuse is a form of family violence, but also connected to the systemic issues of ageism, social isolation, and caregiver stress. As yet another example, there is a connection between low income, social isolation and nutritional risk among older adults, particularly men who were members of a racial minority group.<sup>2</sup> As the racial and ethno-cultural diversity of Canada’s older population increases, alongside greater recognition of the marginalization of non-dominant-culture populations, the issues, preferences and living arrangements of seniors are becoming far more heterogeneous. As such, intersectional and trans-systemic ‘lenses’ are necessary when looking at challenges facing older Canadians.

## What is old age?

Terms and definitions can befuddle conversations about aging and older persons. “Aging” or “ageing” (in Canada, both spellings are perfectly acceptable), is – in part at least – a biological process<sup>3</sup>, also known as senescence. Though the aging process differs between individuals based on many complex factors, it is a relatively universally understood concept.

However, there is no universal definition of “old age”, which is a *social construct* rather than a biological stage.”<sup>4</sup> The Oxford Dictionary defines “old age” as “the final stage in the life course of an individual... the precise onset of old age [varying] culturally and historically.” There are many proxy concepts, each with their own nuanced definitions. The term “senior citizen” in Canada refers to those 65 years of age and older, which mirrors the World Health Organization’s definition of old age.<sup>5</sup> Yet, the majority of people in their 60s and 70s are fit, active, and relatively autonomous (insofar as they can care and provide for themselves). Social science generally uses the term “older adults”, but even the term “old” has come to be seen as stigmatizing in some circles. “Elders”, or “elderly”, is common worldwide, though in Canada Elder also has a specific association with Indigenous Elder, a status conferred by the community based on cultural knowledge and wisdom, correlated with, but not equivalent to, advanced age. This scan, not settling on a preferred nomenclature, will use multiple terms more or less interchangeably.

## SYSTEMS SNAPSHOT – AGING IN CANADA: EXAMPLES OF INTERSECTIONS AND NESTED COMPLEXITY (CHALLENGE LANDSCAPE)



# THE TRENDS

This scan focuses on a range of key trends under the headings of health, housing, socio-economic status, community and lifestyle, and trends related to Indigenous Peoples and aging. In so doing, it covers a lot of terrain, but is not comprehensive. For example, it does not cover palliative care or disability trends (both of which certainly affect but are not exclusive to aging). These trends help set the context for the deeper discussion of issues and innovations in the next sections of the scan. For example, understanding the basics about housing and health care helps with understanding the deep dives into long-term care and dementia in the *Issues* section, or of *aging in place* and *age-friendly communities* in the *Innovations* section.

## Population profile and trends

An aging population is a global ‘megatrend’: There are currently over 700 million people, or 1 in 11 humans, over the age of 65 worldwide, a number that will double by 2050, when 1 in 6 people will be over 65, partly due to improved medicine and nutrition, and partly due to falling fertility rates (the global fertility rate is now less than half of what it was in the mid-20<sup>th</sup> century).<sup>6</sup> An aging global population will affect how we as a species are able to deliver on the UN Sustainable Development Goals (SDGs), with a target date of 2030. As a UN report on aging notes, “Trends in population ageing are particularly relevant for the Goals on eradicating poverty (SDG 1), ensuring healthy lives and well-being at all ages (SDG 3), promoting gender equality (SDG 5) and full and productive employment and decent work for all (SDG 8), reducing inequalities between and within countries (SDG 10), and making cities and human settlements inclusive, safe, resilient and sustainable (SDG 11).”<sup>7</sup>

Over 6.8 million Canadians are currently 65 years of age or older, representing about 17% of the total population. Over 11,000 Canadians are over 100 (“centenarians”). 7.5 million Canadians are grandparents, 21% of whom were born outside of Canada.<sup>8</sup> Like most wealthier countries, the proportion of seniors is growing relative to the overall population; In Canada, the difference between the +65 rate, at 3.5%, and the general population growth rate is about four-fold higher. By 2080, a quarter of all Canadians will be over 65, though the biggest jump in proportion of seniors is happening *this* decade (between 2020 and 2030).<sup>9</sup> Outside of the three northern territories, Alberta has, by far, the lowest number of seniors as a percentage of the total population, at just over 12%.<sup>10</sup> The four Atlantic provinces have the highest proportion of seniors, at just under 20%. However, the northern territories, followed by Alberta and BC, have the *fastest growing* proportion of seniors.<sup>11</sup> There is no notable difference between rural and urban populations, other than to say that seniors in rural areas have challenges accessing services, and are more likely to experience social isolation and a range of health issues.<sup>12</sup>

The population of older Canadians is also becoming more diverse. In 2017, 4.6% of seniors identified as East or Southeast Asian, 3.1% as South Asian, 1.9% as Indigenous, 1.3% as Black, 0.7% as West Asian or Arab, 0.3% as Latin American and 2.3% as from other ethnic or cultural backgrounds.<sup>13</sup> ESL classes are the fastest growing classes in many senior-serving community centres, which are increasingly undertaking joint programming with immigrant-serving and ethno-specific societies.

Currently, for those just reaching 65 years of age, males can expect to live – on average – just over 20 additional years, while females can expect to live just over 22 additional years, both among the highest “life expectancy at 65” rates in the world.<sup>14</sup> This pattern has been pretty consistent through the last two generations to reach old age – the so-called “Greatest Generation” (born 1901-1927) and the “Silent Generation” (born 1928-1945). This life expectancy pattern likely will only incrementally shift through the Baby Boomers (born 1946-1964) and “Generation X” (born 1965-1980). *Where* you are born in Canada matters though. British Columbians and Ontarians can expect to live as long, on average, as the very top global performers – Switzerland, Japan and Italy.<sup>15</sup> But Nunavummiut life expectancy is over 10 years lower. In fact, Nunavut – like much of Indigenous Canada – is just under the global average, roughly in line with Nepal, the Philippines and Iraq.<sup>16</sup> One testament to the growth of life expectancy is that there are more than double the number of grandparents over 85 than there were in 1995.



Life expectancy is expected to increase (worldwide, life expectancy tends to grow by about 3 months every year). Though by how much is a subject of vigorous debate. The prospects for Millennials, Generation Z and beyond may be quite different. Many expect, based on current trends alone, that those born after 2000 can expect to live up to 100 years or more, on average.<sup>17</sup> Dr. Joseph Coughlin of the MIT AgeLab contends that those born in the 1990s or later have a life expectancy of 104 in Canada (107 in Japan), and that half the children born in this century so far will live to be over 100.<sup>18</sup> According to figures from the Canadian Institute of Actuaries, life expectancy increased five years in a period of 25 years (between 1981 and 2006), but the rate of increase has been ticking upwards since then.<sup>19</sup> Professor Steven Austad, a biologist at the University of Alabama at Birmingham, for example, notes that advances in cellular biology and pharmaceuticals “would make living to 100 routine, with a few people reaching the age of 150 years — somewhat like people routinely living to age 80 today with a few people living to 110.”<sup>20</sup> It is worth bearing in mind, however, that a substantial proportion of the entire population would have to live past the current known record-holding human lifespan of 122 for this scenario to bear out. Regardless, life expectancy will be a significant variable in the demographic picture, particularly late in the century.

## Socio-economic Status

About 14% of Canadians over 65 participate in the labour force, just under the OECD and G7 averages.<sup>21</sup> This is a sharp contrast to the cohort immediately below, as just over 62% of Canadians between the ages of 55 and 64 are employed.<sup>22</sup> Counterintuitively, the older adult employment rates of most strong-welfare-state countries (e.g., Scandinavia, Netherlands, New Zealand, etc.) are much higher than in Canada. This may be related to stronger preventative public health measures, but possibly also built-in incentives within public pension programs to stay in the labour force longer in order to achieve substantially higher pension payouts. Even in Canada, retiring at age 70 vs. age 60 on average results in about a 70% higher payout in retirement.<sup>23</sup>

Most wealthier countries have made great progress in recent decades on reducing poverty among the elderly. While most *English*-speaking nations have tended to perform poorer with regard to poverty rates among older adults, Canada’s proportion of seniors in low-income is currently below the OECD average (9% vs. 12.5%), and less than half the senior citizen poverty rate of the US.<sup>24</sup> Within Canada, poverty rates among seniors are the lowest in Alberta and the highest in Atlantic Canada and Quebec.<sup>25</sup> Canada made significant progress in reducing poverty among seniors from the 1960s - with the introduction of Old Age Security and the Canada Pension Plan - through the mid-1990s.<sup>26</sup> The first cohort to receive full public pensions turned 65 in 1976, and the generation that followed benefitted as well from private occupational pensions, introduced and expanded between the 1950s and 70s. Defined benefit pension plans also grew in this era as more of the workforce became unionized or otherwise were subject to collective agreements.

Reducing poverty among older adults is “the major success story of Canadian social policy in the twentieth century”, as Dalhousie University economics professor Lars Osberg has observed.<sup>27</sup> The pillars of Canada’s income support regime for older Canadians are the Old Age Security (OAS) benefit and the Canada Pension Plan (CPP), both federally administered. The Quebec Pension Plan (QPP) replaces the Canada Pension Plan in Quebec, but functions much the same way.<sup>28</sup> The OAS benefit, created in 1952, is a monthly payment that all Canadians 65 and older are eligible to receive, with an additional Guaranteed Income Supplement (GIS), introduced in 1966, for singles earning under \$18,984/year or for couples earning less than \$25,104/year.<sup>29</sup> The CPP, established in 1965 with a fund now valued at over \$350 billion, mandates that all employed Canadians over 18 contribute a portion of their income. The CPP is sustainable for at least another 75 years at its current contribution rate.<sup>30</sup> Last year alone, four million Canadians received \$27 billion in retirement benefits. In addition to the CPP and OAS, there are a variety of tax measures, including a basic \$2,000 age credit, as well as expanded tax relief (since 2013) for home care services.<sup>31</sup>

Responsibility for the welfare of senior citizens is in a constitutional grey zone in Canada (pun not intended), with both federal and provincial governments having legislation and explicit ministerial responsibilities and roles specific to older Canadians. The federal role is mainly restricted to income supports and tied funding transfers to provinces. Provinces and Territories have a range of supports for seniors, ranging from tax credits and deferrals to subsidies for extended health care. For example, Alberta currently has the Alberta Seniors Benefit (ASB), Special Needs Assistance for Seniors (SNA), Dental and Optical Assistance for Seniors, Seniors Property Tax Deferral Program (SPTDP), and the Seniors Home Adaptation and Repair Program (SHARP).<sup>32</sup>

The combined OAS/GIS and CPP function as a *de facto* universal basic income for older Canadians has not only dramatically reduced the senior poverty rate, which was nearly 35% before the introduction of these measures. It has also been shown to dramatically reduce food insecurity as Canadians reach retirement age, revealing downstream food insecurity as a symptom of income deprivation.<sup>33</sup> In fact, whether measuring severe, moderate or marginal food security, seniors are the most food secure population in Canada, even as compared with employed, wage-earning Canadians.<sup>34</sup> Still, 6.8% of seniors experience food insecurity, mainly in the form of nutritional deficiency stemming from a reduced ability to prepare their own healthy meals, a phenomenon typically tied to social isolation.

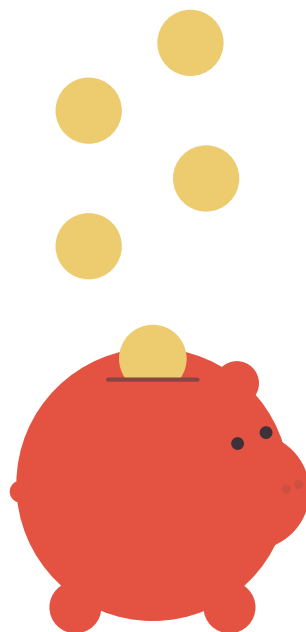


However, over the last decade and a half, the poverty rate has more than tripled from a nearly world-leading mid-1990's low of 2.9%, with the sharpest increase in poverty among widowed single women. The proportion of Canadian seniors in the workforce, in line with the poverty rate trend, dropped continuously until 1995, then has climbed higher ever since.<sup>35</sup> Canada also has a sizeable gender gap: While only 6.7% of men over 65 live in poverty, the rate for older women is nearly double that. However, the best performing countries – Denmark, Netherlands and the Czech and Slovak Republics – have senior poverty rates that are nearly a third of Canada's.<sup>36</sup> Some steps have been made in recent years to reverse these trends. In July of 2022, OAS is set to rise 10% for those over 75, the first significant shift since 1973, providing an estimated \$766 in extra annual benefits to 3.3 million retirees.<sup>37</sup> Combined with a one-time pre-election cash payment of \$500 to those 75 and older, this pledge is a \$12 billion investment. Changes to the CPP being phased in by 2025 include a rise in the benefit to a third of earnings on which contributions were made, while the maximum amount of income covered by the CPP in retirement will rise by 14 percent.<sup>38</sup> While this latter reform will benefit middle and upper-middle income earners, it is unlikely to alter the socio-economic standing of low-income earners.

Similarly, the introduction of Registered Retirement Savings Plans (RRSPs) and later Tax-Free Savings Accounts (TFSA) have expanded earnings options for most middle and upper-income seniors, but have had little impact on low-income seniors. In fact, in a CIBC poll conducted in 2018, 32% of Canadians between the ages of 45 and 64 revealed they are nearing retirement without *any* savings.<sup>39</sup> Many are also overleveraged, for example with mortgage amortization that extends well past normal retirement age. As such, many will continue to work into their seventies. However, this is not all bad news: There are clear fiscal benefits to the public accounts from older adults extending their careers past retirement age, but there are also psychological and socio-economic benefits to seniors themselves. Reducing incentives to take early retirement and encouraging later and flexible retirement will help on the supply side, but equally important is the demand-side: Reducing workplace age discrimination and creating an ecosystem that values older workers.

Seniors in Canada are not generally flush with retirement savings, as net total pension earnings average 9.5 times their annual gross earnings pre-retirement, which is on the low side relative to most other OECD countries.<sup>40</sup> Here again, despite having a range of public and private retirement planning-focused financial instruments, Canada is much closer to the US (at 8.4 times) than exemplars like Luxembourg (at over 21 times). There are also insights to be gleaned from the exemplar countries. The Netherlands, long known for having all but eliminated poverty among its older citizens, relies on two pillars – a CPP-style universal earnings-related pension plan, and a quasi-mandatory occupational pension plan ecosystem that applies to over 90% of Dutch citizens.<sup>41</sup> Unlike Canada, this is not restricted to large employers: Most small and medium enterprises, as well as non-profit employers, enroll in plans under this second pillar. Pooled registered pension plans (or PRPPs) for smaller employers exist in Canada, but they are still relatively uncommon, with only five such plans available nation-wide.<sup>42</sup> Recent Canadian sector-wide pension solutions, notably the Common Good Retirement Plan and OPTrust Select, are potential game-changers with respect to enrollment of small and medium *non-profit* employers.

Despite the successes of the federally-administered pension and benefit schemes, the future of this pension regime in Alberta is surprisingly uncertain: Because the constitutional authority for pensions is jointly federal and provincial, provinces have the opportunity to opt out of the CPP so long as they offer an equivalent program, an option only Quebec has elected to take. The current provincial government, emboldened by the findings of a *Fair Deal Panel*, aims to put such an opt-out question to Albertans by way of referendum in a future election (TBD).<sup>43</sup>



## Aging and Indigenous People

Roughly 2% of older Canadians identify as Indigenous, specifically as First Nations, Métis or Inuit. Although Indigenous people on average are much younger than the Canadian population as a whole, and despite the culturally-embedded esteem for Elders within Indigenous communities, older Indigenous people nonetheless face many barriers to aging well. Indigenous older adults have poorer health status and shorter life expectancy than older adults in Canada generally, and typically have lower socioeconomic status.<sup>44</sup> Indigenous seniors also experience higher levels of unemployment and poverty, substandard housing, higher rates of victimization from crime and abuse, and more limited access to health care, supported housing, and community services.<sup>45</sup> Worldwide, diseases that disproportionately affect older Indigenous people include respiratory diseases, hypertension, and diabetes.<sup>46</sup> Very little is known about the degree to which Indigenous seniors experience loneliness, but they do experience many of the risk factors for social isolation. As a systematic review of aging and Indigenous people in Canada notes, older adults experience the direct impacts of colonialism more acutely than younger Indigenous people, including most older Indigenous people being alumni of the notorious residential school system.<sup>47</sup>

The array and scale of current programming available to Indigenous Peoples generally fails to be driven by a holistic and trauma-informed approach<sup>48</sup>, or to incorporate cultural and social supports connected to their own knowledge and belief systems.<sup>49</sup> As such, too many older Indigenous people are not getting the supports they need. Dianne Roussin of the Winnipeg Boldness project, urges those in elder care to incorporate Indigenous knowledge systems and methodologies. As she frames it, “we have to stop placing ‘independence’ over ‘interdependence’” as well as “thriving over surviving”, noting as well that Indigenous cultures are more likely to value seniors living with extended family for as long as feasible.<sup>50</sup>



## Health

As of the last census data available (2017), almost half of older Canadians self-rated their health as very good or excellent, while over two-thirds rated their mental health as very good or excellent. This, despite most senior citizens in Canada living with at least one chronic illness, and a majority of those having multiple chronic illnesses.<sup>51</sup> Additionally, approximately 45% of seniors report a mild, moderate or severe disability, rising to 75% among those aged 85 and over.<sup>52</sup> This apparent paradox demonstrates that the presence of physical disease or disability is only one factor in overall health and psycho-social well-being. Economic security, social connectedness, life satisfaction, and sense of purpose all play into well-being.<sup>53</sup>

Among the acute, time-sensitive threats to the health of seniors, COVID-19 has of course dominated the landscape over the last two years. It was clear very early in 2020 that the pandemic was ravaging the elderly: For those who contracted the virus, mortality rates were 1.3% at age 65, 4.2% at age 75, and 14% at age 85.<sup>54</sup> Even at age 55, one's chances of dying from the coronavirus in Canada were 50 times greater than dying in a car accident. The vaccines, of course, have dramatically reduced COVID mortality among seniors. Many seniors, having remembered how transformative and life-saving the polio vaccine was, have a much healthier vaccine uptake than the general population. As of the end of August, 2021, COVID-19 vaccination rates were 94% for those over 70, and 88% for those between 60 and 70. In contrast, only 63% of those in the 18-29 cohort had received their vaccine. Beyond COVID, over two thirds of Canadian seniors regularly get their flu shot, nearly half have received a pneumonia shot, and a third are immunized against shingles.

Most prevalent among the chronic health issues plaguing older Canadians is hypertension, which affects two thirds of seniors. Cardiovascular disease, along with diabetes, has become more prevalent over the last two decades. Over half of Canadian seniors experience moderate to severe periodontal disease and over a third (disproportionately women) experience osteo-arthritis.<sup>55</sup> Other health issues experienced by many seniors include chronic back pain (1 in 4), cataracts (1 in 5), incontinence (1 in 10) and sleep apnea (1 in 10).<sup>56</sup> There are also significant gender differences in terms of health risks. Women are over four times as likely to develop osteoporosis, and are more likely to experience dementia, asthma and all forms of arthritis. Older men, on the other hand, experience gout, heart disease, cancer, diabetes and Parkinson's at higher rates.<sup>57</sup>

Encouragingly, over the last two decades, mortality rates have dropped by 30% for most major diseases affecting seniors. However, mortality due to dementia has increased nearly 60%, while mortality rates from Parkinson disease and hypertension have risen by 26% and 12% respectively over the same time period.<sup>58</sup>

An estimated 22% of older Canadian adults are classified as “frail”, which is a heightened state of vulnerability.<sup>59</sup> Each year over 350,000 Canadians (nearly 6 % of seniors) report a fall-related injury, almost two-thirds of whom are women.<sup>60</sup> Falls can rapidly degrade a person’s quality of life and lead to loss of mobility, hospitalization, sudden disruption to permanent living arrangements, and even death.

Former TD Chief Economist Don Drummond led a team of researchers looking into the COVID-19 response, summarized in a 2020 report entitled *Ageing Well*. The report highlights Canada’s dysfunctional binary system between housing and health, and between independence and dependence: Speaking on the report via webinar, Drummond notes that in Canada, “You either stay at home or you go into long-term care. It should be a continuum of options. We need to fill in those steps along the way. In Denmark, if you can’t get into a bathtub, they would send someone by the next day to install a bar. If you can’t make your own meals, someone would bring you meals.”<sup>61</sup> But what happens all too often in Canada is the following archetypal scenario: An older adult finds themselves in hospital (the average acute care stay is 8 days), then on the last day before being discharged, there’s a mad scramble to assess and find a continuing care placement rather than explore (and have readily available) intermediate options. The health care system has a bias toward ‘placement’, completely sidestepping the possibilities afforded through homecare and other community-based age-in-place supports. According to one recent study, 93% of seniors prefer to stay at home if given the choice, and none envision long-term care (LTC) in their future housing plans.<sup>62</sup> Long-term care is thrust upon Canadians, and too many people have paid the ultimate price participating in this broken, mortally hazardous, and financially costly system. An Ontario study by the National Institute on Aging found that, at minimum, 8% of newly admitted long-term care residents could have avoided admission with the right home-based supports.<sup>63</sup> As well, too many seniors then get bounced around from facility to facility, especially if they ‘break the rules’, or are in and out of hospital, factors which accelerate decline.

Part of the problem, of course, is the absence of a national home care program. Shirlee Sharkey, CEO of SE Health, notes that only 10% of health care resources are dedicated to the 90% of seniors living in their homes.<sup>64</sup> Only 6% of Canadians have access to home care, and waitlists are long. Unlike Canada, as one systematic review notes “several European countries aim to stimulate community living and care, including home care, a concept which is not only regarded as just a potentially cost-effective way of maintaining people’s independence, but is also the mode of care preferred by clients.”<sup>65</sup> As the Drummond report notes, the cost of home care, especially when paired with smaller, semi-communal housing settings (examples of which are described later in this scan), can cost as little as \$45 a day in public subsidy, whereas LTC costs about \$142 per person per day and hospital stays upwards of \$1,000 per person per day.<sup>66</sup> Assuming the kneejerk response of government is to simply pour money into LTC, which so far is exactly what is happening, we can expect costs to balloon from today’s 1.3% of GDP to upwards of 4.3% of GDP in 20 years, an astronomical cost, especially given that few people actually want to live in long-term care settings.<sup>67</sup>

## Housing

Over 92% of older Canadians live in private dwellings, whether single home or multi-family buildings, whereas the remaining 8% live in residential care facilities, which includes retirement homes (e.g. seniors’ villas or lodges), assisted living facilities (sometimes called supportive housing), and nursing homes (what is otherwise normally referred to as long-term care facilities).<sup>68</sup> The vast majority of those living independently wish to remain so for as long as possible – it is almost universally the case that people don’t want to live in institutions like care homes, or even in assisted or supportive living facilities.<sup>69</sup>

Nationwide, 2016 was the first year that single person households became the number one household type, partly due to the aging population. Nearly a third of seniors living independently live alone, and nearly a third of all residences have some form of physical adaptation to enhance mobility or autonomy.<sup>70</sup> Quebec and Alberta stand out as having the highest proportion of those over 85 living in collective settings, both at roughly 40%.<sup>71</sup> Nova Scotia, despite having one of the highest proportion of seniors overall, stands out as having the fewest living in collective dwellings (just over 25%). Canada-wide, women are nearly 50% more likely than men to live alone, and also much more likely to be living in institutional settings.<sup>72</sup>

While only 1 in 20 older Canadians live in the same dwelling as their grandchild,<sup>73</sup> there nonetheless appears to be a definite overall trend toward multi-generational living. In particular, there has been a dramatic increase (over 200%) in children over 30 living with at least one parent, relative to 1995.<sup>74</sup> Also, the ethnicity of older Canadians is a strong predictor of whether one will live in a multi-generational setting. The share of seniors aged 75 and older living in a multigenerational household ranges from 2% to 68%, while the share of seniors living in collective dwellings ranges from 3% to 22%, the variation based entirely on mother tongue:<sup>75</sup> Those seniors who speak Punjabi, Tamil, Urdu, Mandarin, Tagalog, Gujarati, Hindi, and Vietnamese are highly likely to be living in multigenerational settings, whereas those who speak European languages are much more likely to be living alone. The situation is almost perfectly flipped with respect to living in congregate settings, with those from South Asian and East Asian communities generally less likely to be living in seniors’ residences, and those who speak French and English as their mother tongue most likely to be in seniors’ residences.<sup>76</sup>

Although Canadians over 65 make up only 4% of the population experiencing homelessness in Canada, seniors and older adults (50+) are the only groups whose shelter usage has *increased* over the past decade.<sup>77</sup> In Montreal, the number of persons aged 50+ has quadrupled in homeless counts, while in Toronto it has doubled.<sup>78</sup> Additionally, because most homeless shelters are not set up for elder residents, homeless seniors are often diverted to hospital at great public expense.

The terminology around elders’ housing can be confusing. The following table provides a rough illustration of how the various terms are typically used, though exceptions abound, as different countries, different sectors, and even different provinces have their own taxonomies. It is also important to note in the table that the latter two categories – assisted living and long-term care – can be either facilities, or enabled through proxy (in most instances) by way of home care.

## HOUSING THE ELDERLY – TYPES AND TERMINOLOGY

HOUSING TYPE	VARIOUSLY OR ALTERNATIVELY KNOWN AS	ABILITY/ MOBILITY/ LIFESTYLE STAGE	SOCIO-ECONOMIC ASSOCIATION AND TENURE
<b>Independent Living</b>	<ul style="list-style-type: none"> <li>• Single family homes (detached or semi-detached)</li> <li>• Row housing or townhouses</li> <li>• Apartments</li> <li>• Manufactured homes (e.g., mobile homes)</li> </ul>	<ul style="list-style-type: none"> <li>• Fully independent and mobile (including, for the most part, the ability to drive)</li> </ul>	<ul style="list-style-type: none"> <li>• All income levels, though low-income seniors may live in subsidized housing, usually operated by either the municipality, a non-profit, or cooperative (in any of the types described in column 2)</li> <li>• Can be either rented or owned</li> </ul>
<b>Congregate Retirement Living</b>	<ul style="list-style-type: none"> <li>• 55+ adult communities</li> <li>• Typically, apartments, but can take other forms (e.g., co-housing, ‘tiny home’ villages)</li> </ul>	<ul style="list-style-type: none"> <li>• Largely independent and mobile</li> <li>• Often fueled by strong desire for community and social contact</li> <li>• Often fueled by desire to ‘downsize’</li> </ul>	<ul style="list-style-type: none"> <li>• All income levels, though low-income seniors may live in subsidized housing, usually operated by either the municipality or a non-profit or cooperative (in any of the types described in column 2).</li> <li>• Can be either rented or owned</li> </ul>
<b>Assisted Living</b>	<ul style="list-style-type: none"> <li>• Seniors’ residences or “lodges”</li> <li>• Supportive living</li> <li>• Part of the spectrum of “continuing care”</li> </ul>	<ul style="list-style-type: none"> <li>• Semi-independent</li> <li>• Residents can access home-care just like independent living, or in some cases in-house care is available</li> </ul>	<ul style="list-style-type: none"> <li>• Can be either commercially run, or run by a non-profit, co-op or municipal entity</li> <li>• Rental, and sometimes subsidized for low-income seniors</li> </ul>
<b>Long-term Care (facility)</b>	<ul style="list-style-type: none"> <li>• A.k.a. Nursing homes or auxiliary hospitals, residential care, or extended care</li> <li>• Part of the spectrum of “continuing care”</li> </ul>	<ul style="list-style-type: none"> <li>• Dependent</li> <li>• Typically begins upon discharge from acute care</li> </ul>	<ul style="list-style-type: none"> <li>• Can be either privately run (for-profit or non-profit), or publicly run</li> <li>• Wealthier families will often sidestep LTC in favour of expensive quality homecare</li> </ul>

The residential context in which elder members of the community are living is an important factor in health, longevity and thriving. But while the final section of this scan looks at “aging in place” and “age friendly communities”, such alluring phrases mask a bewildering, and often contradictory, complexity beneath the surface. Consider, for example, that older people living alone would appear to be at higher risk for experiencing social isolation – the shadow side of independent living. On the other hand, those living in a congregate residence superficially have heightened access to social networks and many kinds of supports, but congregate care settings paradoxically can intensify loneliness, and are frequently associated with higher mortality. For example, a study published in *The Lancet* looking at country-wide data in Sweden, concluded that “living in a care home was associated with an increased risk of COVID-19 mortality compared with living in independent housing.”<sup>79</sup> The same study found that living in close proximity to younger relatives – despite the enormous intergenerational contact benefits that will be explored later in this scan - or in high density situations – despite the sustainability and community benefits - were also associated with higher mortality. This helps explain why designing, locating, and programming housing for seniors is not a simple matter, never mind questions of financing innovative housing.

## Community and Lifestyle

Five broad features dominate lifestyle trends with respect to Canada’s ageing populations: Heterogeneity, purchasing power, a desire for life-long learning, a desire for community, and the ability and desire to keep working. All five of these are underrecognized and underexploited.

With respect to work, more and more Canadians are either forced to work longer, in order to have adequate income into retirement, or prefer to work longer in order keep busy (or both). There is broad agreement, except perhaps among more traditional union leaders and labour activists, that 65 increasingly seems like too young an age to retire. Indeed, most jurisdictions in Canada have abandoned mandatory retirement, and some professions have long spurned the notion of retirement at 65 as an aberration (notably the legal and tenured academic professions). But whether employers take advantage of this opportunity remains to be seen: As the section on ageism later in this scan points out, many employers do not recognize the assets elder employees bring to the table, including wisdom, experience, institutional memory, and mentorship.<sup>80</sup>

A strong desire for community also defines older Canadians. Canadians over 65 currently have the strongest sense of belonging to community of any demographic, aside from teenagers.<sup>81</sup> A study specific to Toronto revealed that seniors also possess the most social capital of any demographic.<sup>82</sup> They are also the most likely to vote, a strong marker of civic engagement. But a few vital trends are important to consider with each passing generation: Each successive generation is finding it more challenging to be tied to more traditional forms of community (e.g., neighbours, clubs, extended family networks), and are also finding more of their community online. According to Statistics Canada’s Canadian Health Survey on Seniors, nearly one in five seniors wish to be more involved in social activities, while nearly 6% crave companionship.<sup>83</sup>

With respect to online engagement, half of Canadians over 55 were already active on a social media platform *before* the pandemic. Participation in social media has skyrocketed since, with mixed consequences. Some now call Facebook the “the social media nursing home.”<sup>84</sup> Older adults tend to be more trusting, a pro-social human trait, yet ironically social media has preyed on this as a vulnerability. Boomers are becoming the most reactionary, conspiracy-loving, civically disruptive generation in nearly a century, and the phenomenon is tied directly to internet-fueled “outrage-ification”. During the 2016 election, for example, users over 65 shared more fake news than any other age group and seven times more than users between 18 and 29.<sup>85</sup> According to Briony Swire-Thompson, a senior research scientist at Northeastern University who specializes in social media networks, “older adults consume more misinformation and are more likely to share misinformation.” The boomer generation, in contrast, grew up with curated, reliable news feeds generated by professional journalists with high standards. They did not need to be as critical in their media digestion habits, and that lack of this skeptical ‘muscle’ largely colours how many consume social media – i.e., with unabating trust. Although older adults have more knowledge about civics - history and politics - they are less able to discern news from sponsored content, to detect altered images (including deep fakes) or to distinguish fact from polemic.<sup>86</sup> Video game use growth is also fastest among 55+. While video gaming has many cognitive, physical, and even social benefits, “WII wrist” is a new health issue cropping up in older adults.<sup>87</sup>



The purchasing power of boomers is unparalleled in history, and yet much of the focus of marketing and media remains on young adults. Young hires in the marketing and social media realms perpetuate the youthful focus on marketing, even as boomers dominate social media. A UK study predicts that by the year 2040, 63% of consumer spending will be by older adults.<sup>88</sup> While it is true that older people tend to gradually purchase fewer goods, they also tend to spend more on *experiences* – travel, hospitality, arts and culture, learning enrichment, and so on. David Cravit, in his 2008 best-seller *The New Old: How Boomers Are Changing Everything...Again*, noted that boomers (who he and his company, co-led with media mogul Moses Znaimer, have relabeled “zoomers” alongside their namesake company Zoomer Media) “grew up determined to experience new things, break new ground, get what they wanted. They see no reason to let their chronological age determine their mental or emotional age.”<sup>89</sup> This trend has only intensified in the decade since.

Canada also has the highest levels of formal education in our history in every demographic, which means that aging Canadians are looking for richer, intellectually and creatively challenging lifelong learning opportunities. As elder mediation expert Judy McCann Beranger notes, citing the ages of such active intellectual powerhouses as David Attenborough (95), and Ruth Bader Ginsberg (87 when she died), “we will be hearing more and more powerful stories of people doing amazing things late in life: painting, writing, learning guitar, and digital learning.”<sup>90</sup> Beranger further highlights that Peter Mark Roget was in his 70s when he first published his *Thesaurus*, and was working on the second edition when he died at 90. Stories are starting to abound about older adults blogging or writing (the Calgary Foundation offers an award for first-time/emerging writers over 45), or leading or joining learning circles, book clubs, public lightning talks, coding meet-ups, and hackathons. Post-retirement careers, degrees and learning challenges will become more ubiquitous (one person consulted for this scan cited their post-retirement goal to start a vineyard and make grappa). Puttering and play is not only important to keep mentally active in aging – it is critical to innovation and could be an important adjunct to inclusive, human-centered age design (discussed later in the scan).

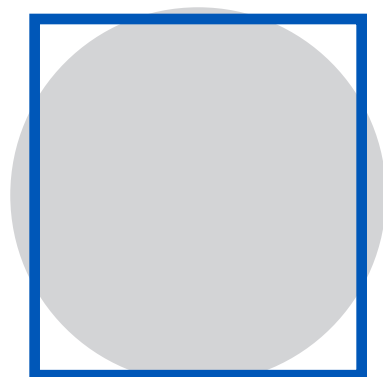
As mentioned in the demographic section of this scan, older Canadians are becoming a more diverse population with respect to race, ethnicity, and country of origin. Social participation in terms of religious activities, the arts, sports and other physical activities, and volunteering is also becoming more varied. Seniors’ participation in yoga at one Calgary-based facility, for example, mushroomed from fewer than 5 to nearly 90 people per session over the past three years. At the same facility, it is impossible to fill a Bridge class, yet Mahjong and ukulele classes are thriving.<sup>91</sup> Another dimension of heterogeneity is a divergence in views on beliefs, cosmologies, ethics, and the meaning of life, death and existence. Joe Biden, the oldest US President in history, is implementing the most progressive public policy reforms in many generations. Some boomers, typified by Silicon Valley futurist and relentless optimist Peter Diamandis, fixate on the possibilities of extending human life, potentially exponentially: “More than ever, we need to *increase our productive and healthy lifespan*”, asserts Diamandis. “Not only will this allow us to spend more time with loved ones and fulfill our bucket list of dreams—it also has the potential for *enormous* economic value.”<sup>92</sup> Others, like philosopher Parker Palmer, focus on the spiritual journey toward the inevitable. As Palmer writes in his book *On the Brink of Everything: Grace, Gravity and Getting Old*:



**“If it’s true... that old is just another word for nothing left to lose, then taking the risk of a deep inward dive should get easier with age. It’s a risk we need to take. Aging and dying well, like everything else worth doing, require practice—practice going over the edge toward “the substrate, the ocean or matrix or ether which buoys the rest.”<sup>93</sup>**

**— Parker Palmer**





# THE ISSUES

## Loneliness and Social Isolation

More than 80% of Canadian seniors report that they “always” or “often” had someone they could depend on to help when they really needed it, a finding correlated to higher levels of life satisfaction.<sup>94</sup> Older adults, overall, also have the strongest and most vibrant mutually-supporting social networks of any demographic in Canada. However, one in four older Canadians still experience social isolation.<sup>95</sup> This may be an underestimate, as socially isolated seniors are, not surprisingly, one of the most challenging groups to study, from a primary research standpoint.

Social isolation can be seen as either a low *quantity* (or frequency) of contact with others, or as a low *quality* of contact. Whereas loneliness is the *feeling* of being alone, regardless of the amount of social contact. Both can be chronic or episodic, and are manifest in many different ways. For example, in Statistics Canada’s *Canadian Community Health Survey*, which looked at a range of social isolation indicators, one in twenty Canadian seniors report having no one to speak with all (or nearly all) of the time.<sup>96</sup>

Over 15% of older Canadians do not have close friends, and one in twenty-five essentially have no loved ones in their life.<sup>97</sup> Social isolation is a negative determinant of health, affecting both physical and mental well-being (notably connected to depression, substance abuse, and cardiovascular disease risk) as well as longevity.<sup>98</sup> Chronic loneliness has recently come to be seen as an even greater mortality risk factor than obesity, with one researcher having suggested it is equivalent to smoking 15 cigarettes a day.<sup>99</sup> While the problem currently affects a minority of Canadians, we can expect the issue of social isolation to become substantially worse over the coming decades, as millennials, the so-called “loneliest generation”, already report unprecedented levels of loneliness.<sup>100</sup>

The COVID-19 pandemic, unsurprisingly, exacerbated social isolation. In a recent online summit on the Future of Aging in Canada, gerontologist Dr. Brad Meisner noted that social isolation became both deeper and more widespread over the last 18+ months, resulting in spikes in substance abuse and a range of mental health issues.<sup>101</sup> The reaction of public health authorities understandably was to lock out families from seniors’ residences and care facilities. But many residents simply withered due to a lack of contact with loved ones, ironically heightening vulnerability to infection. Seniors also now have the second highest rate of anxiety and mood disorders, after young adults. Internet reliance has also led to a rise in incidents of fraud and online victimization.

But the causes of social isolation are complex and multi-varied. Obviously, those without spouses or children are at higher risk of experiencing loneliness, but there are many other risk factors. Female seniors, who tend statistically to outlive men, are nearly twice as likely to live alone.<sup>102</sup> Immigrants, particularly refugees, rural residents, or those living in low-density settings, those without access to transportation, seniors living in poverty or with a disability, and non-heteronormative individuals are among those at heightened risk for social isolation. There is a positive (reinforcing) feedback loop at play here as well: Mental health is an important risk factor for seniors becoming socially isolated, which in turn heightens the risk of mental illness.<sup>103</sup>

Social isolation is alleviated not just by increasing the number of contacts and engagement with other human beings, but also enhancing sense of belonging, quality of individual relationships, and the strength and quality of one’s networks.<sup>104</sup> Later in this report, innovations in housing and living arrangements, inter-generational contact, and age tech offer potential ways to reduce isolation, but society must be prepared for the scale of this problem to reach epidemic proportions with each passing decade, absent radical action.



## Ageism

Ageism is arguably the last form of prejudice and embedded discrimination yet to be considered taboo. The World Health Organization (WHO) even suggests that “ageism may now be even more pervasive than sexism and racism.”<sup>105</sup> This is ironic, since, aside from those who die young, virtually every member of society will experience it eventually. We are literally stigmatizing our future selves.<sup>106</sup> Although the Charter of Rights and Freedoms protects against overt discrimination based on age, ageism nonetheless flourishes, from casual conversation to our deeply held mental models that associate aging principally with disease, ill-health, and burdensomeness.<sup>107</sup> Ageism’s effects underpin so many other issues covered in this scan, from the neglected state of long-term care, to social isolation, to older adults’ hampered participation in the labour force. It also frequently shows up in intersection with ableism. Moreover, systemic racism affects older racialized adults, and homophobia is an all-too common feature of continuing care and congregate living.<sup>108</sup>

While there has been extensive research and study into ageism, there has been little practical application to address the issue. As such, society has little shared knowledge about how to recognize ageist thoughts, images, narratives and even language. Ageism is, in part, fueled by a media and pop culture landscape that implicitly values youth more than age, and paints an aesthetic of aging that is low energy, despondent, and depressing.<sup>109</sup> It manifests in stereotypes like “grumpy old men” (in fact it is a myth that people grow grumpier in old age – the opposite is more often the case). It also shows up in the classroom, as post-secondary students even in the ‘helping’ fields (e.g., nursing, social work) tend to be least attracted to working with elderly people, although there is some evidence that the empathy-challenging and awareness-raising of the BLM and other equity-seeking movements may be helping reverse this aversion.<sup>110</sup> This continues to play out in the systems these students then populate as careers – i.e., within health care and community services.

Ageism can run the gamut from mean-spirited to patronizing to bemusing. It can be explicit, as manifest, for example, through elder abuse, or much more casually through language – “old fogey”, “geezer”, “dinosaur”, “senior moment”, “you can’t teach an old dog new tricks”, “OK boomer”, and so on - or implicit, through, for example, finding something an old person does surprising or adorable, or sometimes in fatalistic or crisis-framed language. Ageism can also be institutionalized, even perpetuated by seniors’ service providers themselves, and systemic across society. Mike Conroy, CEO of Calgary’s Brenda Strafford Foundation points out, for example, the societal indifference toward those in continuing care during the pandemic.<sup>111</sup> In this light, vaccine ‘hesitancy’ is a form of implicit ageism. The Alberta Government, in publishing the average age of COVID deaths (which was well into the 80s during the first wave of the pandemic), was accused of implicit ageism by those who read this as a subtle means to downplay the severity of the disease, as it affected those already closer to the end of their natural lifespan. Implicit ageism has also been shown more intense with respect to seniors experiencing dementia, as it is easier for caregivers and others to subconsciously represent such seniors as “non-persons”.<sup>112</sup>

A meta-analysis of ageing and cultural factors, conducted by researchers at Princeton and NYU, revealed that ageism globally is less a function of Eastern vs. Western cultures, but rather is associated more with highly industrialized societies.<sup>113</sup> However, a 2018 paper in the *Journal Nature* reporting on a multi-year experiment conducted by MIT’s Media Lab involving millions of participants from 233 countries making ethical judgements for autonomous vehicles in fictionalized crash scenarios, revealed that participants in collectivist cultures, “which emphasize the respect that is due to older members of the community” – Taiwan, Japan, China and South Korea in particular - were less likely to make decisions that would harm elders.<sup>114</sup> Participants from Canada were near the opposite end of the spectrum, with participants from France being the least likely to make ethical decisions that favoured saving elders.

Ageism is no longer affecting just the ‘elderly’. A recent report on mid-career human resources trends noted that ageism is also affecting Gen-Xers.<sup>115</sup> The report, which studied sample countries across three continents, underscored how the pandemic accelerated the shift towards automation in many workplaces, and intensified ageism toward those 45 and over. Hiring managers strongly favour younger job candidates above candidates over 45 years of age, and the 45-60 population cohort experience abnormally high long-term bouts of unemployment relative to other age groups.<sup>116</sup> Workers over 50 are also substantially less likely to receive professional development or employer-provided skills upgrading.<sup>117</sup>

## Elder Abuse

Elder abuse and victimization are a particularly pernicious manifestation of ageism. Elder abuse, which can include physical or sexual assault, as well as emotional/psychological abuse, is experienced by an estimated 4% to 10% of older adults in Canada (the variability due to reluctance in reporting). Reported cases of elder abuse had been rising for nearly half a decade before the pandemic began. In 2019, there were 14,156 senior victims of police-reported violence in Canada, a 20% increase in four years.<sup>118</sup> One third were victimized by a family member, and children of elder victims are most frequently the perpetrators of abuse. Like family violence generally, most of the victims of elder abuse are female, and elder abuse is substantially more prevalent in rural areas compared with towns and cities.<sup>119</sup> Non-family violence toward the elderly rose by an astonishing 31% over the decade preceding the pandemic, most commonly by a casual acquaintance.<sup>120</sup> Elder abuse is also high in formal (paid) care-giver settings. In fact, structural violence in long-term care is six times higher in Canada than in Scandinavia), and is directly connected to low-quality working conditions.<sup>121</sup>

In response to the documented increase in (and awareness of) elder abuse during the pandemic<sup>122</sup>, the 2021 federal budget included \$50 million over five years to design and deliver interventions that promote safe relationships, including elder abuse prevention.



## Purpose and Meaning

Earlier in this scan, financial preparedness in aging was briefly touched upon. But even more crucial is psychological preparedness. Jonathan Swift in *Gulliver's Travels* wryly observed that “every man desires to live long, but no man wishes to be old.” In an updated take on this, in a critical look at the technologies that extend longevity, sociologist Lynsay Greene observes that “we’re not living longer, we’re dying longer.”<sup>123</sup> Part of the fear of growing old is the decay of the physical and mental self (in fact, people’s optimism about aging dropped from 56% pre-COVID to 48% post-COVID)<sup>124</sup>, but equally important is the fear of the decay of purpose.

At what point do people stop asking themselves “what do I want to be when I grow up?”, and ought they ever to stop asking this? At what point do they stop loving life? It turns out that having a sense of “purpose” or “meaning” is not just important to health, well-being, and self-identified prosperity at any life stage; it is absolutely critical for older adults.<sup>125</sup> People require something at every stage of life that makes them feel like they are progressing (though later in life this progress takes on a much less ‘material’ quality). In fact, a study of nearly 7,000 older adults in the US found that a sense of meaning was strongly associated with longevity and, conversely, its absence was associated with premature death.<sup>126</sup> The founders of Happipad, a Western Canadian company addressing aging in place, found in their research that the primary reason – by far – that seniors sign up to share their home with another person is not for the money or companionship or security or to get help around the house; It because they have an opportunity to provide *someone else* in need with a place to live – i.e., because of *purpose*.<sup>127</sup>

According to a 2020 Edward Jones/Age Wave study, “one in three new retirees struggles with finding purpose after leaving their job.”<sup>128</sup> Purpose comes when you link what one loves to do – what gets a person out of bed every morning – with a legacy – a difference you were able to make in somebody else’s life. This is how author Richard Leider who has been immersed in thinking about aging and purpose for four decades, frames the amorphous but vital idea of ‘purpose’.<sup>129</sup> Leider concludes “The data is clear... Purpose is fundamental. It is critical to your health, healing, happiness and ultimately, your longevity.” As Chip Conley, founder of the Modern Elder Academy, adds “If we’re lucky, we grow old. If we’re wise, we grow whole.”<sup>130</sup>

A 2018 Statistics Canada-led study of life satisfaction among seniors noted that older adults had higher average levels of life satisfaction than any other adult cohort (especially women), and that satisfaction tended to rise with age.<sup>131</sup> Although income per se had no significant bearing on seniors’ life satisfaction, the self-identified *perception* of adequacy of income *relative to others* was a strong predictor of life satisfaction.<sup>132</sup> But at the same time, so many older adults feel like their gifts are not valued, or that they may have been useful for another time; that the world has passed them by. It even speaks volumes about our society that seniors feel the must even take steps to demonstrate value – that it is not enough to be intrinsically valued.

In a blog post by Leider and philosopher co-author David Shapiro, three steps are critical to unlocking one’s personal purpose as one ages: With a passing resemblance to Ikigai, the Japanese tool for determining purpose, the first two of these steps are connected to helping other people: 1) Find out how you want to help; 2) Find out who you want to help; and 3) Find out what energizes you (and what drains you).<sup>133</sup> One interviewee spoke of a friend’s 80 year old father, who walks 5 km every day, is actively dating, and as a hobbies solders microchips and programs in Python. But while physical activity and hobbies are important, he remarked that “if I didn’t have human interaction (and laughter), I would just die.”<sup>134</sup>

## Long-term Care<sup>135</sup>

Just over 55% of healthcare costs by 2030 will be seniors' care, mostly in the form of long-term care. But the pandemic has shone an unflattering light on the state of long-term care (LTC) in Canada. In fact, the story of LTC in Canada is a spectacular public policy failure: Through the first two waves of the pandemic, over 80% of all COVID deaths in Canada were in long-term care institutions (i.e. "nursing homes"), the highest rate of any country in the OECD.<sup>136</sup> That number has since declined to the current rate of 56% as long-term care residents got vaccinated and mortality gradually shifted to the unvaccinated (and generally younger) cohorts in the third and fourth waves. Still, the statistics are breathtaking: As of early September, 2021, 63% of long-term care facilities nationwide had experienced COVID outbreaks, and over 15,000 residents have died.<sup>137</sup> As health writer Andre Picard notes, "those living in these group settings were 77 times more likely to die than their counterparts still living in homes and apartments." This follows decades of reports from coast to coast to coast on the state of long-term care – over 150 in fact – that were largely ignored by all governments of all political stripes.<sup>138</sup>

Starting in late March, news stories abounded at the numbers of dead emerging in single facilities where outbreaks had occurred. This repeated a pattern already witnessed in Italy and Spain. People in the know noted how seniors were "sitting ducks" in facilities that were epidemiologically as hazardous as cruise ships – tailor-made to spread disease – and recommended that if Canadians have loved ones in long-term care, to get them out.<sup>139</sup> Full stop. Early on, following the Langley, BC and Bobcaygeon, Ontario outbreaks, Quebec had the most frequent number of facilities experiencing dozens of deaths.<sup>140</sup> It was Western Canada's turn in the second wave, again learning virtually nothing from the many case examples that came before. While Alberta has not had mortality counts as high in individual facilities, it has spread through a greater *number* of facilities, with over 120 continuing care facilities experiencing active fourth wave outbreaks in mid-September alone, a scale even eclipsing December, 2020. Alberta also has the highest percentage of seniors living in long-term care of any province other than Quebec.<sup>141</sup>

Among the many shocking revelations that have accompanied this crisis is a failure of governments to track (or make public) COVID-19 cases in care facilities: What we know of the numbers is largely the work of activists, researchers, clinical workers and other citizens connected to the system.<sup>142</sup> Perhaps less shocking, but no less pernicious, is our collective conscious choice to permit community circulation in the interest of keeping the economy running, which means that we have tacitly made the choice to jeopardize seniors' health, as community circulation inevitably spreads into care settings.

The impact of COVID-19's spread through seniors' residences in Canada has been nothing short of horrific, and has revealed what Picard describes as "shocking systemic neglect towards our elders."<sup>143</sup> When the military were called in to provide emergency care in Ontario and Quebec, they reported on appalling conditions – overmedication, abuse, unattended hygiene, undernourishment – and yet these have been reported on in previous investigations going back many years.<sup>144</sup> The ripple effects on the 425,000 Canadians living in continuing care are vast (loneliness and isolation at the top of the list), not to mention their families or the backlog of seniors waiting to get into these residences. Wait times for admission to Alberta's 355 long-term care and supportive living facilities, for example, is up 61% from 2019.<sup>145</sup>

So why is this almost uniquely Canadian epidemic-within-a-pandemic happening? And what are the prospects for change? Certainly, there have been differences in preparedness, with well-staffed facilities with plenty of personal protective equipment (PPE), able to nimbly implement protocols and isolation measures to avoid serious outbreaks.<sup>146</sup> PPE was also prioritized for hospitals, often at the expense of care facilities.<sup>147</sup> But there are financial and public policy factors at play too: While \$4 billion in emergency funding pledged from the federal government (\$1 billion in 2020, plus another \$3 billion announced in 2021) will help in the short term, Canada spends less than 30% of the OECD average for long-term care, resulting in little capacity or resilience in the system for responding effectively to outbreaks. The system is a mix of private for-profit, non-profit and public providers, a patchwork of provincial regulatory regimes, with lax oversight and spotty inspection, and chronic issues with overcrowded rooms, understaffed facilities, and over-worked, poorly-paid employees.<sup>148</sup> As Picard damningly concludes, “Eldercare in this country is so disorganized, and so poorly regulated, the staffing so inadequate, the infrastructure so outdated, the accountability so non-existent and ageism so rampant, there seems to be no limit to what care homes can get away with.”<sup>149</sup> Dr. Dosani added that LTC facilities are a petri dish of intersectional issues - racism, sexism, ablism, death-phobia – in an industrial model adapted from a time when the sick and indigent were placed out of sight and mind – adding up to the modern equivalent of leper colonies.<sup>150</sup>

But the answer is not in expanding the number and capacity of LTC homes, nor is there a magic bullet to be found in banning private care in favour of public care. Instead, as the Drummond report notes, the real problem is the lack of alternatives to LTC and the chronic underfunding of alternatives such as homecare and community services.<sup>151</sup>

# HIGHLIGHTS

## The Danish Model

Denmark is often cited for setting the platinum standard in the treatment of the elderly (though Japan, Holland and Sweden are also notable). At the heart of the Danish system is the objective for people to remain in their homes for as long as possible, even as frailty and loss of function sets in. Denmark spends more on home care, where it is considered part of universal health care (when prescribed by a physician), than on institutional care. Remarkably, Denmark passed legislation in the 1980s forbidding the development of new institutional LTC spaces. Older spaces have been phased out over time, such that there has been a 30% decline in institutional residences over the four decades since. Even when congregate living and care are the only viable option, dignity, autonomy and connection with friends, family and community are paramount. Denmark, for the past two decades, has also placed priority on investing in age tech and a robust data-sharing ecosystem as an adjunct to home care. And, in the end, the overall cost of providing care and services to seniors is less in Denmark, per capita, than in Canada.<sup>152</sup>

The diagram that follows uses an ‘iceberg model’ a commonly used tool in systems mapping, to explore the deeper underlying – and less visible – dynamics that are below surface level discoveries and patterns in long-term care in Canada. The leverage points to shift the ethos and political will required to achieve success akin to Denmark, where culture ingrains and enables a more enlightened approach, lie in the murky depths at or near the bottom of the iceberg. Such a shift would be powerful, but the dive will be painful.



An iceberg graphic with a yellow circle representing the sun in the top left. The visible tip of the iceberg is composed of several blue triangles of varying sizes. The submerged part of the iceberg is a large, light blue area that contains the main title and the five category headers. Blue lines connect the category headers to their respective text blocks on the right side of the page.

## SYSTEM SNAPSHOT – AN ‘ICEBERG’ VIEW OF LONG-TERM CARE

### EVENT

Canadian Forces dispatched to long-term care facilities during COVID-19 first wave report that residents are dying in alarming numbers and that many of those still living are dwelling in deplorable conditions (unattended, dehydrated, disoriented, lying in their own urine/feces, etc.)

### PATTERN

- Over 80% of first wave COVID-19 deaths were in long-term care facilities, by far the highest rate among OECD countries
- 27% of infected residents in LTC have died of COVID-19 (over 15,000 residence to date)
- Intensified social isolation, a major determinant of health

### PRACTISES

- Overcrowded facilities (as many as four to a room)
- Overworked, underpaid and undertrained staff (often working multiple shifts at different facilities, spreading the virus in the process)
- Lack of PPE (prioritized for hospitals) and poor infection control
- Lax regulatory oversight and spotty inspection
- Inconsistent procedures and preparedness across facilities

### POLICIES

- Patchwork of provincial regulatory regimes
- Low public expenditure (1.3% of GDP in Canada compared with OECD average of 1.7%)
- Lack of public home care alternatives (Canada spends only 0.2% of GDP on home care, the second lowest allocation in the OECD)
- Voluntary accreditation of LTC facilities
- Lack of certified training or rigorous standards for paid caregivers

### INSTITUTIONAL BEHAVIOUR & STRUCTURES

- Accountability gap (governments failed to act on over 150 commissioned reports and studies)
- Profit motivation of commercial LTC can lead to corner-cutting
- Non-profit LTC lacking financial flexibility to respond nimbly to emergencies
- Constitutional division of powers creates jurisdictional confusion

### MENTAL MODELS & CULTURAL ASSUMPTIONS

- Systemic ageism
- Institutionalizing the ‘indigent’ (alms-based and ‘out of sight, out of mind’)
- ‘Social contract’ that preferences personal responsibility over societal responsibility



Each of these layers also corresponds with different potential leverage points. The deeper the layer, the more powerful – but also more difficult – the leverage point. For example, if our mental models and shared attitudes toward ageing, charity, institutionalization of the elderly, and the broader social contract shifted, the structures, policies, and organizational behaviours that flow from that would shift more easily and more profoundly. As it is, we’ve been pursuing shallower leverage points, such as the plethora of commissions and studies that have suggested regulatory and funding shifts, but change has so far remained largely incremental, and in some cases retrograde (witness, for example, the steps taken by some provinces to protect commercial LTC providers from lawsuits).

## Commercial v. Non-profit v. Government-Run

In responding rapidly and effectively to COVID-19, there are clear differences attached to the legal and operating status of long-term care facilities. Nation-wide, 54% of care facilities are privately owned and operated, while 46% are publicly run.<sup>153</sup> There are huge regional variations, however, with provinces like the western provinces being closer to the national mean, while Quebec, Newfoundland and the Territories are overwhelmingly public, and Ontario and the Maritimes are overwhelmingly private. The privately-run facilities, in turn, are a mix of for-profit and non-profit.

Anecdotally, there have been many reports of understaffed privately-run care facilities where employees are expected to work gruelling, overly-long shifts - conditions which have intensified under the COVID-19 pandemic.<sup>154</sup> Some private facilities in Ontario lost up to 80% of their staff, relying on emergency redeployment from the military and the public health care system. Even as this emergency deployment was happening, a number of private providers paid out large dividends to shareholders.<sup>155</sup> Alberta and Ontario, responding to pressure from the commercial care industry, have taken steps to protect long-term care operators from lawsuits stemming from COVID-19 outbreaks.

But what do we actually know about private vs. public care? In a recently published paper looking at the Ontario experience, researchers found that government-run long-term care homes did a better job than both for-profits and non-profits at preventing COVID-19 deaths.<sup>156</sup> This echoes the findings of an earlier study in the *Canadian Medical Association Journal*.<sup>157</sup> The authors observed that “the association between for-profit provision and lower care quality is obvious and well-understood: there is also a large body of long-term care research demonstrating that for-profits under-perform government providers on a range of quality indicators.”<sup>158</sup> In modelling various scenarios, the researchers concluded the following:



**...if all long-term care homes had been government-run, 1,348 residents would have died during the pandemic — less than half of the 3,790 long-term care deaths actually experienced. That same modelling predicts 4,977 deaths if all long-term care was for-profit, and 2,822 if all homes were non-profit.”<sup>159</sup>**

While the profit motive, and the concomitant drive to keep costs low, may help explain the poorer overall quality of commercial care, the mediocre performance of *non-profit* providers (overall) in preventing COVID deaths – which comprise nearly a third of Canada’s long-term care providers is trickier to explain. It may be a function of a more limited ability to make long-term investments (borrowing for capital upgrades, for example), or other factors that limit nimbleness and adaptability in the face of crises like outbreaks and pandemics.<sup>160</sup> As a side point, non-profits may also lack expertise in development and redevelopment, though with some notable exceptions across the country.<sup>161</sup>

While more research needs to be done on private vs. public vs. non-profit facilities, there is an emerging pattern of the public sector stepping in to support the safe operation of private facilities. But this is not to say that public providers are where quality of life thrives in non-pandemic contexts. Nor would few seriously believe that a public sector monopoly on LTC would lead to innovation.

When one looks at providers that integrate research insights, engender a strong R&D culture, have a future-focus, and are more likely to innovate (or adapt models from exemplar countries), it is much more frequently non-profits that stand out: Elizabeth House, Baycrest, and the Brenda Strafford Foundation, to name a few. P4 models (public, private, philanthropic partnerships) have been catalytic to building residents in BC especially.<sup>162</sup> Also, both public and non-profit-run organizations also appear to be more attuned to the increasingly diverse needs of an aging population. Take, for example the issue of accommodating and creating a safe living environment for LGBTQ+ seniors. Many older Canadians have reported being forced “back into the closet” through a combination of caregiver ignorance or insensitivity, and the prejudices of other residents.<sup>163</sup>

This is not to say that there is no role for commercial entities in long-term care. One study found that seniors in public long-term care facilities were more likely to experience social isolation than those in private facilities, where residents tended to have greater economic and family resources to draw from.<sup>164</sup> The Final Report of Ontario's Long-Term Care COVID-19 Commission did note that commercial contractors should continue to play a significant role in construction of new facilities, and that commercial entities might still be able to play a role in operations if they were sufficiently "mission-driven" (this is not defined in the report, but presumably refers to social enterprises, B-Corp certified entities, cooperatives or other purpose-driven private entities not driven principally by enriching shareholder value).<sup>165</sup> Ontario-based Schlegel Villages is one such LTC provider with a reputation for community integration and innovation, including their signature "Town Square" and "Main Street" design.

## Caregivers

Caregiving is both formal, as in a clinical setting (hospital, long-term care facility, homecare, etc.) and informal, as in the case of family members or other loved ones providing care. There is also a connection between formal and informal care. For example, in rural or remote settings, where formal care is more difficult to access, a higher proportion of the duty or burden of care falls on informal caregivers. A lack of formal care services (or the inability to financially access such services) are by far the strongest predictors of negative consequences of caregiving.<sup>166</sup>

Caregiving is typically thought of as helping with medical treatment, managing behaviour, and providing personal care such as bathing, feeding and toileting. But there are many other aspects of caregiving, especially with respect to informal (typically family-based) caregiving: Transportation, meal preparation, home cleaning and maintenance, appointment scheduling, advocacy, providing emotional support, and help in managing finances.

### Formal Caregivers

Formal caregivers, who provide care in a paid, professional setting, include nurses, homecare workers, personal support workers, therapists, and clinical social workers. The past two years for caregivers working on the frontline of the pandemic has been legendarily brutal, for which they are owed the kind of respect and remembrance that we normally show for veterans of armed conflict. For this scan, we will focus on the sub-category of personal support workers (PSWs), sometimes called orderlies or care aids. PSWs, who work either in mobile home-care settings, long-term care facilities, or hospitals, are responsible for feeding, bathing, toileting and other non-medical supports.

In most countries, including Canada, the growth of the aging population is outpacing the growth of PSWs.<sup>167</sup> A recent OECD report, noting the rapidly aging population worldwide, suggested that "keeping the current ratio of five LTC workers for every 100 people aged 65 and older across OECD countries would imply that the number of workers in the sector will need to increase by 13.5 million by 2040."<sup>168</sup>

Some issues facing formal caregivers in long-term care (LTC) settings are fairly universal; Informal care work across the OECD is marked by precarity (part-time and temporary positions are a huge proportion of the workforce), lower pay than equivalent work in hospital settings, and high turnover due to anxiety, burnout and depression. PSWs develop a relationship and rapport with residents, who of course die with a high frequency in LTC, yet there are few workplace supports available for PSWs to process, grieve and seek respite. There are also virtually no universal vocational standards or regulatory benchmarks for PSWs. As Andre Picard observes, literally anyone can call themselves a PSW, or for that matter create and market training programs for PSW, yet they are in positions of extremely high trust.

Other issues are unique to Canada, where, on balance, PSWs are treated terribly. For example, the majority of PSWs are women of colour<sup>169</sup>, and many in homecare are migrant workers with few of the rights that other Canadians take for granted. Gerontologist Dr. Samir Sinha adds that there is intersectionality at play between marginalized seniors and racialized, immigrant workers: "If we don't really value the old, we aren't going to fund their care adequately, and won't pay the people who care for them properly. The entire long-term care system exists in the shadows, largely built on the backs of racialized immigrant women."<sup>170</sup>

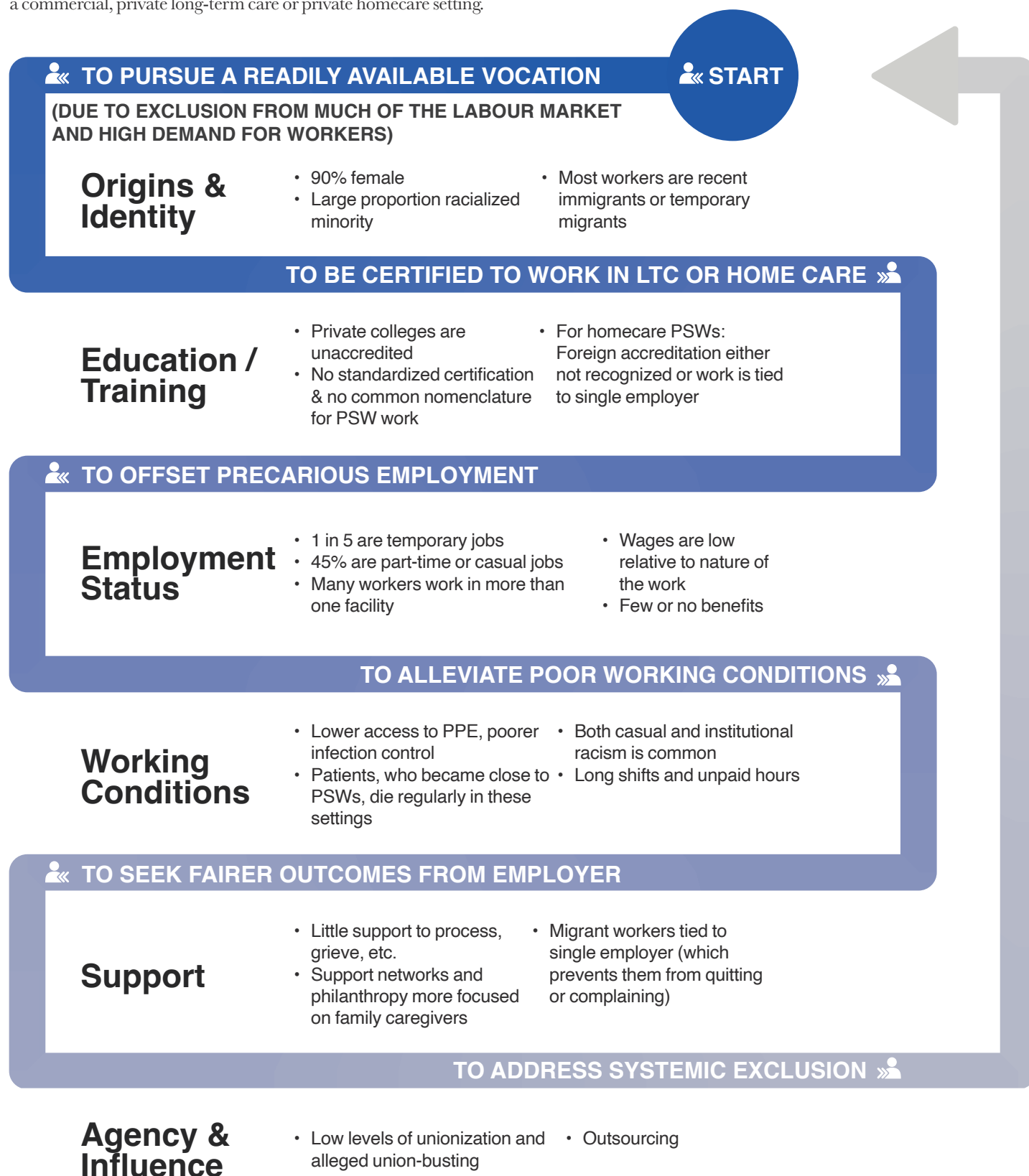
Conditions of work in LTC are a strong predictor of the conditions of care. PSWs in Canada make as little as \$13/hour in home care settings (slightly more in LTC settings). PSWs were on the front lines of COVID-19, with at least 30 such professionals having lost their lives to the pandemic to date. As palliative care specialist Dr. Naheed Dosani noted, not only do we know that some PSWs live in homeless shelters, but we know that some cases of transmission were brought by PSW workers from homeless shelters into long-term care residences.<sup>171</sup> Unionized settings, which tend to have better standards and outcomes, are less common than non-unionized settings, ranging from 8% to 100% of care settings, depending on the province.<sup>172</sup> But as PSWs become unionized (and more expensive), a new category of lower-status caregiver inevitably takes their place.<sup>173</sup> There are also reported incidents and allegations of union-busting and out-sourcing (though sometimes outsourcing was required due to mass quarantining resulting from LTC outbreaks).

Although migrant caregiving has been typically associated with live-in nannies, an increasing number of migrant caregivers are brought in through the federal homecare program. More than a third of Canada's 25,000 migrant care workers lost their job, either temporarily or permanently, because of COVID-19. Most migrant workers come to Canada via closed work permits tied to a single employer, for whom they are essentially in servitude lest they fall off the track to permanent residency.<sup>174</sup> The Caregivers Action Centre and Migrant Workers Alliance for Change are also drawing attention to these and many other issues, including unpaid back-pay and not being permitted to physically leave residences.<sup>175</sup>

The following diagram follows a typical journey of a paid caregiver, illustrating how what ought to be a path with increasing stability, dignity, and agency instead ends up being a path deeper into systemic disempowerment.

# SYSTEMS SNAPSHOT – CAREER (DIS)EMPOWERMENT JOURNEY MAP OF A PERSONAL SUPPORT WORKER

Note: This snapshot typifies the experience of a worker in either a commercial, private long-term care or private homecare setting.



## Informal Caregivers

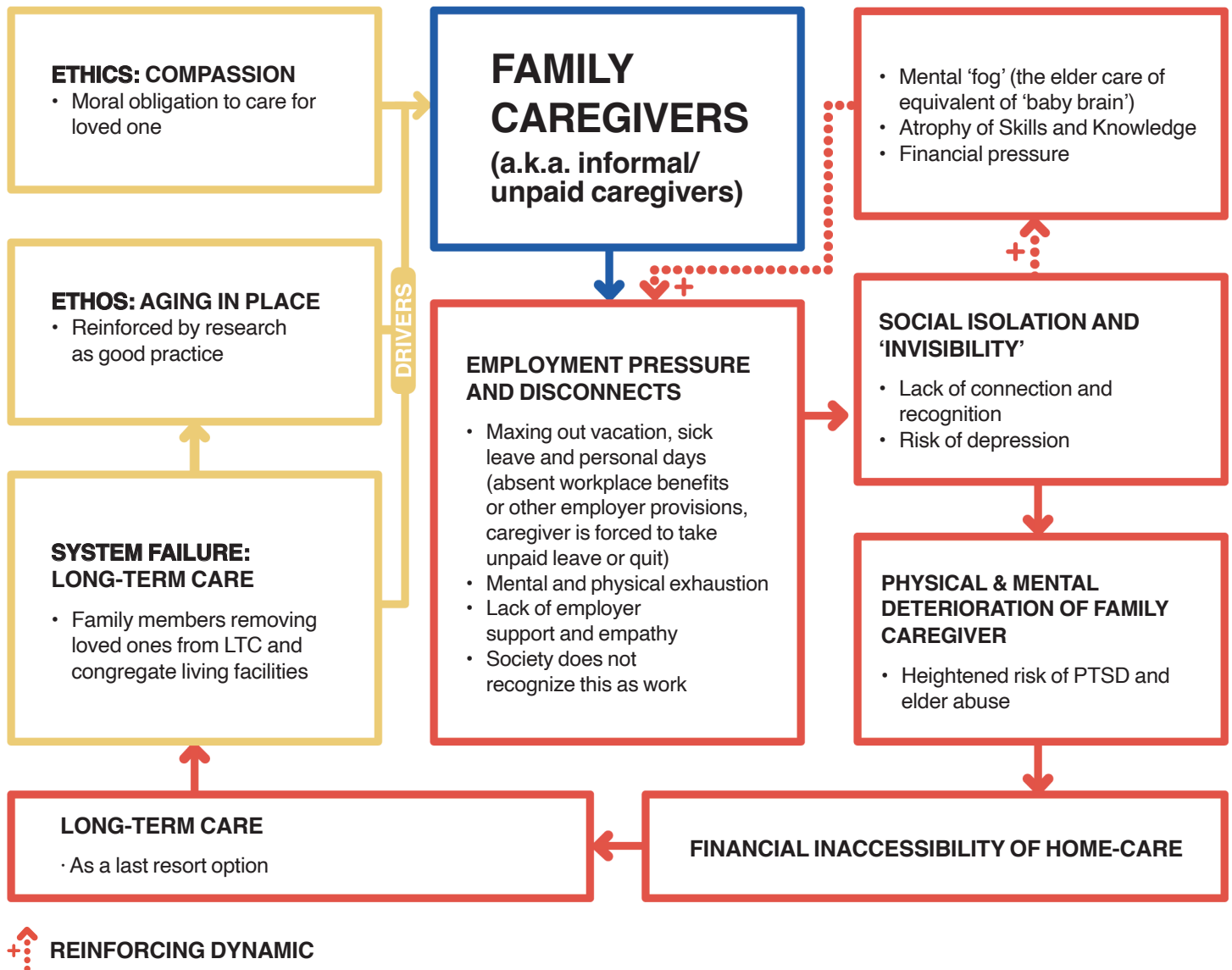
Nearly everyone is going to be a caregiver, and it is a role that is often thrust suddenly on someone, with little obvious support, no universal training, and a bewildering system to navigate. Nearly a third of Canadians provide care to friends or family, most of whom were seniors living with long-term health condition, disability or other challenges associated with aging.<sup>176</sup> The provision of informal care, also sometimes called family care, is a strong predictor for better health and well-being outcomes of older Canadians, yet it is far too often unnoticed, unappreciated and under-profiled. Nearly 8 million Canadians are actively caregiving, most of whom are women, most of whom are employed in other jobs and in their peak earning years, 28% of whom also have children under 18 living at home (the so-called ‘sandwich generation’), and 10% of whom are doing caregiving on a full-time basis.<sup>177</sup> Also, 1.5 million family caregivers are seniors themselves.<sup>178</sup>

Informal caregiving is not only voluntary (non-remunerated), but according to the Vanier Institute for the Family, “it is estimated that every year, Canada loses the equivalent of nearly 558,000 full-time employees from the labour force due to an inability to manage the conflicting demands of paid work and care.”<sup>179</sup> The accumulating toll on family caregivers – and by inference on the broader economy – is immense, from stress, fatigue, debt, and lost productivity to debilitating PTSD-like symptoms, particularly for those caring with parents living with dementia.<sup>180</sup> Another challenge facing informal caregiving is simple demographics: The average family half a century ago had 5 children, but Boomers averaged 2 kids, while GenX and Millennials are having even fewer kids, and later in life. As a result, even while the population grows, we can anticipate two-thirds fewer family caregivers over time.<sup>181</sup>

Part of the challenge researchers face in understanding unpaid caregiving is that family caregivers typically don’t think of themselves as caregivers. A highly gendered vocation, unpaid caregivers tend not to describe their work as ‘work’ in the commodified sense, but rather as more like an ethical obligation.<sup>182</sup> This blind spot with regard to attaching economic value to informal caregiving is mirrored in society at large. Encouragingly though, recognition and accommodation among employers of the time, travel, and potential relocation required by caregivers, and also as a human rights issue, is growing.<sup>183</sup> Canada also offers some public benefits, including compassionate care and family caregiver benefits and family medical leave. But for most people, these benefits do not come close to recovering lost income for caregiving.

We will also require better ways of valuing family and kinship care in Canada (especially important for Indigenous people), which we tend to underappreciate, both culturally and through Canada’s tax and benefit regimes. And caregiving remains underrecognized and underappreciated with respect to the burden and stress experienced by caregivers, which can manifest in depression, financial problems, poor health, loneliness, and social isolation of the caregivers themselves. In turn, heightened risk for elder abuse (active or passive) can result. This is what, in systems parlance, is described as a positive or self-reinforcing feedback loop (albeit with negative consequences). Another such feedback loop results from the embrace of “aging in place” as a policy and practice goal: As the hazards and limitations of congregate living and care are recognized, and absent a robust (and affordable) home care system, the mantra of aging in place puts additional pressure on informal caregiving.<sup>184</sup>

## SYSTEMS SNAPSHOT – INFLUENCE DYNAMICS IN FAMILY CAREGIVING CHOICES



Public attention is slowly turning toward the issues both formal and informal caregivers face: The Liberal government has promised to raise PSW wages to \$25 an hour. Caregivers have found growing support in philanthropy, most notably through the new Petro-Canada CareMakers Foundation. Support networks like Caregivers Alberta are trying to re-frame the status of caregiver from victim to hero, and promote informal caregiver well-being by providing resources, mental health support, and education.

Other attempts and suggested solutions to address shortcomings in Canada's system of caregiving include investments in homecare (including the notion of a national homecare program, financial recognition through a cash-for-care program, and/or tax relief to recognize caregiving (Sweden, for example, provides a Family Caregiving Wage, and the UK and Australia provide caregiver allowances<sup>185</sup>), respite care (programs to temporarily alleviate the burden of informal caregivers), other community-based services (e.g. mobile foot clinics, Meals on Wheels), and enhancing training, accreditation and compensation for formal caregivers (including living wage commitments). Internationally, the UK and Australia appear to have the most advanced rights-based approach to caregiving.<sup>186</sup>

## Dementia<sup>187</sup>

Dementia, which affects nearly 800,000 Canadians, 15% of whom are under 65 years of age, could very well be the health crisis of the century because of its rapid growth in the population and its profound social impacts.<sup>188</sup> 227,500 Canadians aged 45 and over have reported a diagnosis of Alzheimer's disease, while 65,700 Canadians aged 45 and over have reported a diagnosis of Parkinson's disease, the equivalent populations of the cities of Regina and Fort McMurray respectively. The number of people experiencing dementia is expected to double by 2030, and reach 3 million by 2050, costing upwards of \$153 billion in direct health care costs as well as indirect costs associated with unpaid care.<sup>189</sup> Prevalence of both Alzheimer's and Parkinson's among each unit of population has also been rising. More worrying, a recent study found that the boomer generation was displaying signs of cognitive decline earlier than previous generations.<sup>190</sup>

Despite this, seniors' mental health services remain chronically under-resourced. One area of under-investment is in accurate and thorough diagnostics: Normal age-related confusion is often misdiagnosed as early-onset dementia, resulting in too many seniors tracked too soon into an institutional setting.<sup>191</sup>

Then, as one gerontologist noted, as older adults develop dementia, the move to a new facility generally makes their dementia worse, as they are now in an unfamiliar setting.<sup>192</sup> Dementia villages are an innovation from the Netherlands that offer a 'third way': They are designed to allow the resident to safely navigate a 'normal' environment (grocery shopping, for example) that doesn't feel institutional.

In terms of treatment and management, there are many insights and innovations that can help. There is growing recognition of the benefits of meditation and mindfulness on mental well-being, cognition, addictions treatment, and delaying the effects of aging on the brain.<sup>193</sup> Relatedly, we need to do a better job of "connecting the dots" between mental health, access to nature, participation in the arts, and to Indigenous methods of achieving balance and healing.



# THE INNOVATIONS

There are a host of ideas and opportunities related to aging, either being tried and tested within Canada, though often at a boutique or small scale, or are innovations that have been proven to be scalable elsewhere. This scan is principally about identifying key trends and issues, looking also at some instances of how these interact, underscore, reinforce, or amplify dynamics, using a variety of systems mapping tools. Just as there are many systems that overlap and are nested within the ‘challenge landscape’, there are multiple systems that intersect in the ‘solutions landscape’, as depicted in the diagram following with respect to just the realm of “age friendly environments” as an example.

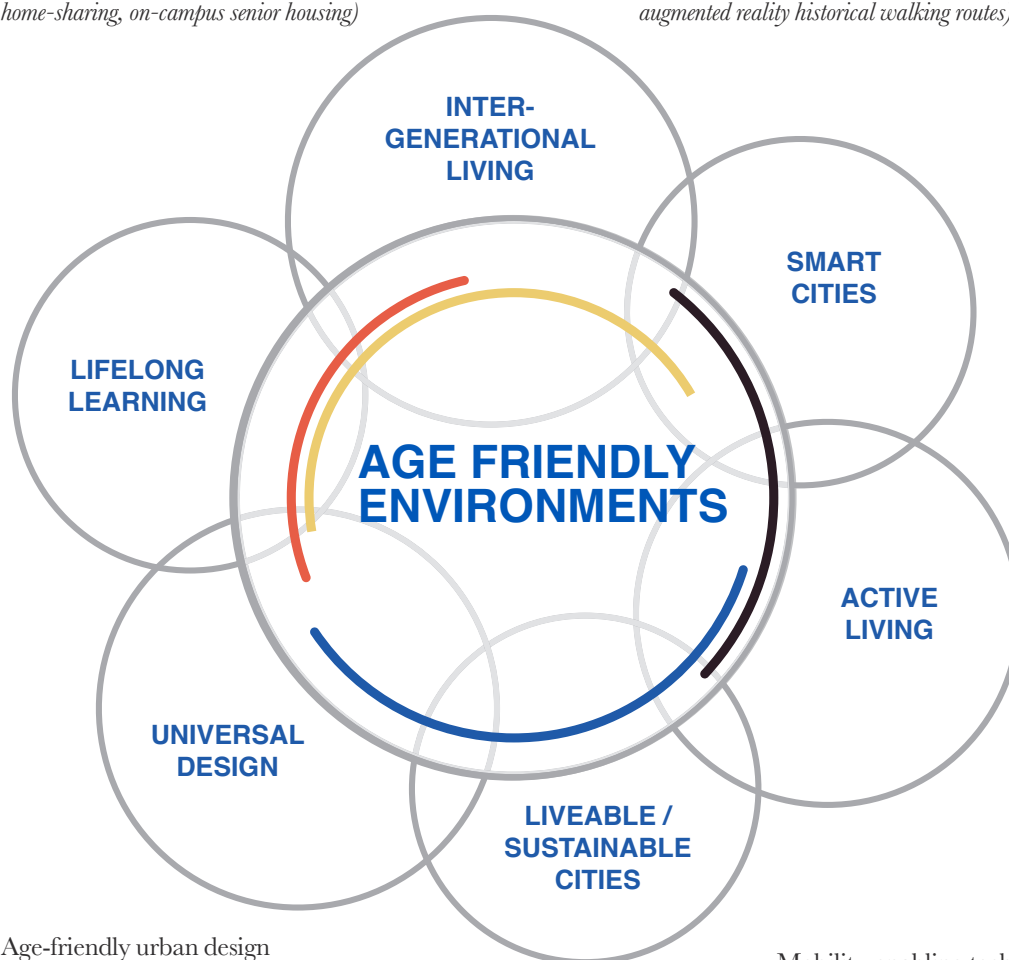
## SYSTEMS SNAPSHOT – AGING IN CANADA: EXAMPLES OF INTERSECTIONS AND NESTED COMPLEXITY (SOLUTIONS LANDSCAPE)

Age-friendly campuses

*(e.g. free or discounted courses, student-senior home-sharing, on-campus senior housing)*

Intergenerational participatory design

*(e.g. life writing, map biographies, georeferenced augmented reality historical walking routes)*



Age-friendly urban design  
*(e.g. curb cuts, numbered benches, sound-assisted pedestrian signals)*

Mobility-enabling tech  
*(e.g. georeferenced fall sensors)*

In general, systems analyses precede any serious exploration of ‘solutions’, so that potential innovations can be properly contextualized and evaluated based on their potential for transformation. Still, many readers of this scan will crave at least some hint or sense of possibility that there are leverage points that can be used as points of intervention or positive systems change. These levers range from policy levers, to an ecosystem of players either already testing interventions and/or connecting insights to action, to viable and potentially scalable innovations (technological and otherwise). Ironically, COVID-19 accelerated innovation as much (or more) than it set it back. Consider, for example, the opening of policy windows, the push for organizations to question assumptions, the accelerated tech literacy of older people, and the lower carbon footprints we have all become more accustomed to.

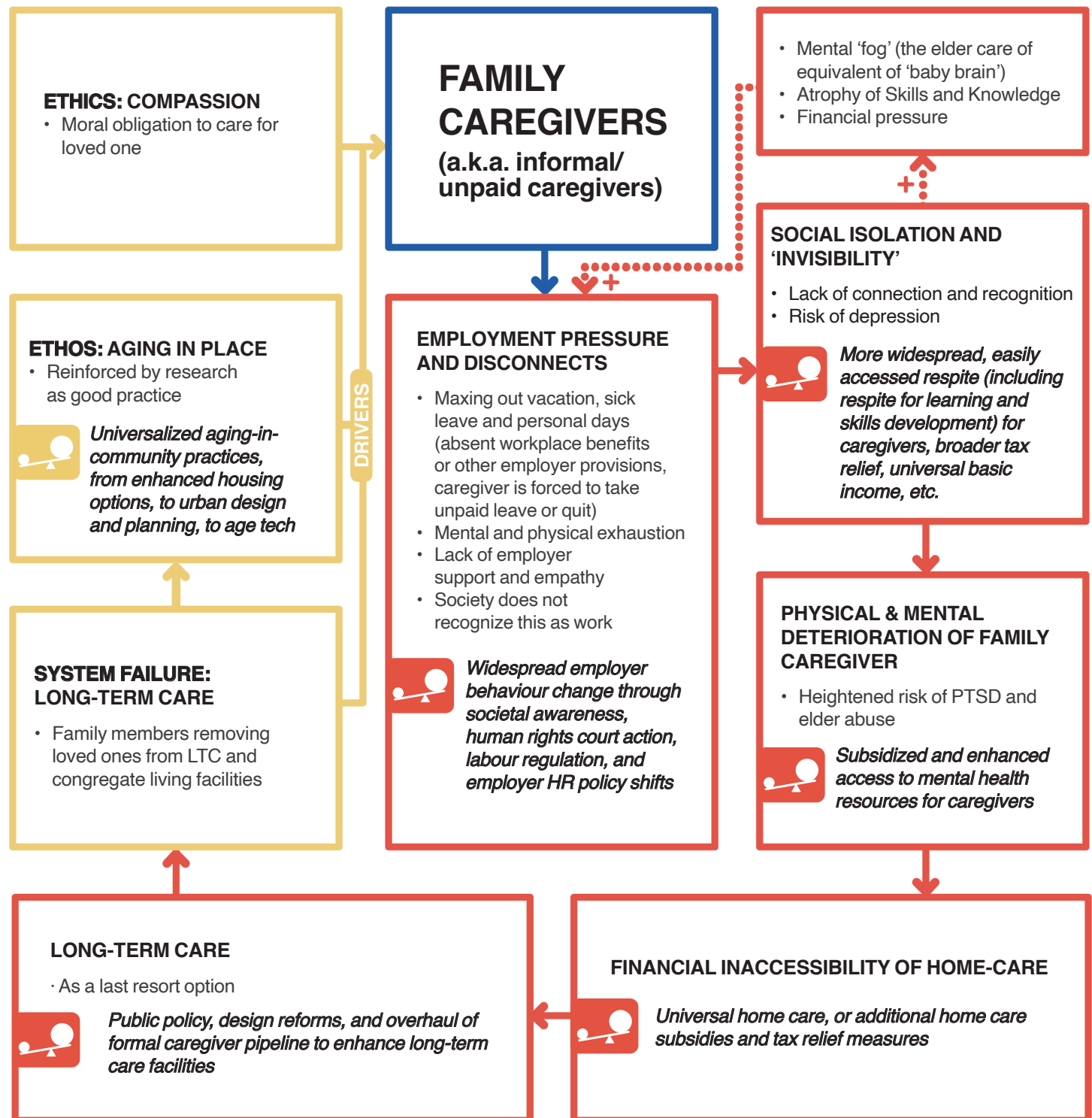
## Key Players and Leverage Points

In systems language, the term ‘leverage points’ refers to the places on an imaginary fulcrum where a system could be shifted. The further along the lever, the deeper the change required, but the more powerful the potential shift. Some leverage points lay in the realm of technology, some in public policy or institutional reform, others in franchising or replicating service or program models, and still others in mindset or culture shifts. Earlier in this scan, a small number of different kinds of systems maps outline aspects of the challenges associated with caregiving and aging: An iceberg model of long-term care, a user journey map of professional caregiving, and an influence map of family caregiver choices. Each of those maps can be used to identify leverage points, as shown, for example on the latter of these maps in the diagram on the next page.



Some leverage points are as simple as subtle practice shifts, such as efforts to enhance respite for caregivers, but may have only modest social impact. Others are about policy or institutional shifts, which might have higher costs or organizational change implications, or might experience political or fiscal push-back, but have greater potential for social impact. Still others are about battling ageism or changing the nature of our social contract between elders and the broader society, with a fainter hope of success, but where a transformative payoff would result if achieved. Following is a systems map introduced earlier in this scan - *Influence Dynamics in Family Caregiving Choices* – but this time with potential leverage points indicated, mapped onto where in the system those opportunities emerge.

## SYSTEMS SNAPSHOT – INFLUENCE DYNAMICS IN FAMILY CAREGIVING CHOICES (WITH LEVERAGE POINTS IDENTIFIED)



In order to identify and understand leverage points, one must first understand the terrain of 'actors' with interest, influence, or ideally both.

## Government and Public Policy

The most obvious player is government. The United Nation's summaries of research on World Population Aging notes that governments have a critical role to play in maximizing the benefits and minimizing the risks (such as macro-economic decline) associated with an aging population. In particular, governments have the power to "support continuing and lifelong education and health care for all; encourage savings behaviour and healthy lifestyles throughout the life course; promote employment among women, older persons and others traditionally excluded from the labour force, including through a gradual increase in the official retirement age; and support family-friendly policies to facilitate work-life balance and increased gender equality in both public and private life."<sup>194</sup>

In Canada, as described previous, the welfare of senior citizens straddles the constitutional divide between federal and provincial powers, with Indigenous governments and municipalities also playing significant roles. The federal government is responsible for income security, pensions, and veteran's affairs. The Harper Conservative government, beginning in 2011 was the first government to carve out a discreet cabinet portfolio in the form of a (junior) Minister of State for Seniors. The Trudeau Liberal government subsequently elevated this to a bona fide full cabinet member position - Minister of Seniors – beginning in 2018. The 2019 Ministerial Mandate letter from the Prime Minister stressed Pension and OAS reform, work on national standards, better data collection and Criminal Code reforms relating to elder abuse, and working with various other ministries on issues like consumer protection, health promotion and integration of seniors within the broader National Housing Strategy. The most ambitious new federal initiative *was* arguably progress toward national pharmacare strategy, but this has quietly disappeared from the Federal agenda<sup>195</sup>, and thus far a national homecare strategy is not under consideration. Under the new reconstituted parliament, the 2021 Supplementary Mandate Letter reiterates the 2019 priorities, while also stressing mental health support, national standards for long-term care, and steps to enable aging in place (though still no mention of homecare).

The province have the most important role to play with regard to health and housing in particular. At a provincial level, in Alberta for example, the Ministry of Seniors and Housing consists of the Department of Seniors and Housing and the Alberta Social Housing Corporation, and administers a variety of provincial support programs, recounted earlier in this scan. Like many government agencies these days, Alberta Health Services operates a Design Lab that prototypes prospective innovations.

Looking at the municipal level - at Calgary, for example, where both ATCO and MRU are based - the City of Calgary as a declared Age-Friendly City is deeply involved in issues affecting the elderly, such as through social supports via Family and Community Supports Services (FCSS). Just to the east of the city, Siksika Health is one of the regional Indigenous authorities providing seniors-targeted housing and health services.

## Civil Society

Older Canadians, more civically engaged as a whole vis-à-vis other Canadians, form the backbone of a strong civil society sector – non-profits and charities, community networks, advocacy groups, clubs and other associations. "Relief of the Aged" is one of the (relatively short) list of recognized charitable objectives according to the Canada Revenue Agency, with nearly 450 such organizations having this express aim.<sup>196</sup> The database of charities, however, reveals nearly 700 registered charities with "senior" in the title, 65 with "elder" or "older", 49 with "retire", 36 with either "Alzheimer's", "Parkinson's" or "dementia", 30 with "golden age", 28 with "aging" or "ageing", and 3 with "gerontology" in the title. A search for the French versions of these yields over 150 additional results. In all there are likely closer to 1200 registered charities exclusively serving older Canadians, plus countless others serving seniors as one of a number of target clientele.

Despite the structural and cultural marginalization of civil society groups in the public policy domain, organizations representing senior citizens generally punch above their weight. The Canadian Association of Retired Persons (CARP) is a well-known lobby group with 60 chapters across the country. CARP is modeled after (and began as a branch of) one of the largest and most influential civil society lobby groups on the planet – the American Association of Retired Persons (AARP). Politicians ignore CARP at their peril. Other key national advocacy and awareness-raising groups include the Canadian Seniors Association, CanAge, the Canadian Coalition for Seniors' Mental Health, and the Canadian Network for the Prevention of Elder Abuse. Many NGOs with specific disease interests also play a role, such as the Alzheimer's Society of Canada and Osteoporosis Canada. There are many advocacy networks and coalitions operating at provincial and territorial levels, as well as at local levels throughout the country.

In addition to external policy advocacy, there are many initiatives that connect government with civil society in the form of policy roundtables, platforms or research consortia. Healthy Aging CORE (short for Collaborative Online Resources and Education) began in British Columbia as "a platform to connect local, regional, provincial and national non-profit, government, and academic organizations and coalitions that focus on programs, services, policies, practices, and research aimed at supporting older Canadians to age in place in their homes and communities."<sup>197</sup> The platform began as a collective impact initiative with the United Way as a backbone organization, and has been replicated in Alberta (in its early stages). Along similar lines, the Canada AFC Reference Group consists of members from provincial/territorial and municipal governments, seniors, non-governmental organizations, municipal and planning associations, and academics. Supported by the Public Health Agency of Canada as secretariat, the Group advances policies promoting "age friendly communities" nationally and internationally through guidelines, community resources, and knowledge exchange.

Civil society groups also play a pivotal role in social research and development. The Saint Elizabeth Health Centre (a.k.a. SE Health), with locations throughout Canada is perhaps the largest of a growing number of civil society organizations with an embedded and strategic research and development (or “R&D”) culture. The Canadian Frailty Network similarly connects insights to practice innovation. AGE-WELL, Aging 2.0, and Baycrest focus more on catalyzing technological innovation. AGE-WELL, which has helped seed nearly 130 initiatives so far, and operates an annual National Impact Challenge across eight age-tech topic areas, involves 45 member universities and 400 industry, NGO and government partners.<sup>198</sup> It is not a commercialization hub, but rather an ecosystem-builder. The Centre for Aging + Brain Health Innovation, based at Baycrest, a global leader in geriatric residential living, healthcare, brain research, innovation and education, serves (in part) as a commercial accelerator. Canada does not yet have an equivalent organization to the UK’s Centre for Aging Better, which is part of a network of publicly funded university-partnered “What Works Centres” bringing research insights to public decision making.

## Academia

The Canadian Health Research Institute (CIHR) lists 41 Research Centres on Aging nationwide, 27 of which are in either Ontario or Quebec. CIHR also operates the Canadian Institute of Aging at the Robarts Research Institute at Western University. The National Institute on Ageing (NIA) at Ryerson University, founded by Dr. Samir Sinha, is Canada’s premier source of intelligence on such topics as long-term care and retirement income. Another excellent university-based resource is McMaster University’s Optimal Aging Portal, an engaging public-facing tool for seniors and practitioners, underpinned by their more research-focused McMaster Institute for Research on Aging (MIRA). The Health Aging Research Team at UBC also has an ambitious program of community-engaged research.

One of the most exciting developments to watch with respect to aging research in Canada is the Canadian Longitudinal Study on Aging, a large national long-term study that began in 2012 following approximately 50,000 individuals for at least 20 years. The project, sited at Simon Fraser University, University of Manitoba, Université de Sherbrooke and Dalhousie University, with coordination from McMaster University, will collect information on the changing biological, medical, psychological, social, lifestyle and economic aspects of aging Canadians. Outside of Canada, the MIT AgeLab stands out as a catalyst to turn research insights into practical solutions, through both social innovation and commercial innovation.

## Private Sector

There are many private sector players in the aging space, from age tech start-ups to multinational housing and care providers. Among the more notable new companies in the health care space in Canada, with technologies that could have an impact on older Canadians, are AlayaCare, developing homecare technology IT solutions, and Blue Rock Technologies, pioneering cell therapies that replace dead, damaged, or dysfunctional cells.<sup>199</sup> Mississauga-based PointClickCARE is a \$400 million company with over 1800 employees providing cloud-based solutions for managing and porting patient data between acute and long-term care. A Canadian success story, 93% of PointClickCARE’s revenues come from the US.<sup>200</sup>

The Canada Health Act does not apply to extended healthcare services such as long-term residential care (LTC) and homecare services. As such, there are approximately 600 privately-run for-profit long-term care facilities in Canada. Some of the biggest names (i.e., largest chains) include Chartwells Retirement Residencies REIT (a real estate investment trust), Extendicare Inc., Revera Inc., and Sienna Living Inc. All but Revera are publicly-traded companies.<sup>201</sup> The Canadian Association for Long-Term Care represents both for-profit and not-for-profit LTC facilities across the country. There are also over 4,600 private home care providers. The value of the commercial home care industry in Canada is expected to reach \$4.8 billion by 2023.<sup>202</sup>

## Proactive and Preventative Health Supports

In general, our public policies and practices preference reactive medicine, when preventative approaches would often be less resource-intensive in the long-run. Most of our signature health and social programs were developed in the 60s and 70s under a post-war “welfare state 1.0” set of assumptions. But we are loathe to make many fundamental reforms. Witness how ossified universal health care has become (preventative eyecare and dental care still excluded – completely arbitrarily – from universal coverage, over five decades on). Part of this stems from fear – in some cases legitimate fear – that private providers will exploit any crack in opening up the Canada Health Act. But our chronic incapacity to do much more than tinker on the edges means that we are pouring more and more public resources to achieve incremental (and even negative) outcomes, as the LTC-home care example earlier in this scan illustrates. As part of this, it is challenging to introduce user-centric perspectives and reforms when provider-centric interests dominate.

Addressing social determinants of health like housing and food security (principally by way of income support) will help save governments from the albatross of ever-burgeoning health care costs.<sup>203</sup> Calgary’s Clifton Village is being developed as a new dementia-friendly community designed on a social determinants model, and borrowing from the principles of dementia villages in Northern Europe, ultimately replacing a decades-old LTC manor with affordable housing for independent seniors, a vibrant age-friendly community centre, children’s day care and high school dedicated to intergenerational programming.<sup>204</sup>



As noted earlier in this scan, over half of seniors suffer from moderate-to-severe periodontal disease, not due to difficulty maintaining daily oral hygiene<sup>205</sup>, but rather mainly due the fact that they lose dental coverage upon retirement (though some public assistance is provided for low-income seniors).<sup>206</sup> Given the known connection between dental health and cardiovascular health, universal basic dental coverage for those over 65, not to mention municipal fluoridation, would dramatically improve quality of life and likely save public coffers in the long run.

## Aging in Place & Age-Friendly Communities

It cannot be stressed enough that keeping people living in their homes as long as possible must be a primary goal of policy and practice. According to the National Seniors Council, 85% of Canadian seniors report that they want to age in place. People associate place with where they built a life, where their networks and social supports reside, and where they experience both comforting familiarity and agency (a sense of influence or control over one's circumstances – including physical and financial health - and surroundings). Home is a place where they have become accustomed to 'breaking the rules' and to living by their own schedules, tastes and quirks. As Dr. Donald Shiner, the founder of the Atlantic Seniors Housing Research Alliance, observes, "everyone wants to be in control of their own life as you age. Every little piece that gets chipped away diminishes you as a human being."<sup>207</sup> And make no mistake, nearly every Canadian faced with an option of either assisted congregate living or an LTC residence will resist it: As one interviewee framed it, "most of the places – in reality – that you'd move to are heaven's waiting rooms. And far too many are like hell's waiting rooms."<sup>208</sup>

The key to aging in place, in addition to robust, universally accessible and affordable home care, is non-medical supports. Services from walk shoveling and lawn cutting, to simple home maintenance like eavestrough cleaning and changing lightbulbs, are all things we take for granted. But the inability to undertake these tasks can tip the scales from independent to highly-dependent living. Widely available and easily accessible and affordable assistive transportation, meals, house-keeping and personal care are also integral to aging in place. But it is also important to understand that aging in place is less tied to the nostalgia and memories of the physical structure than it is to maintaining social and community connection, as well as to maintaining a sense of autonomy and self-reliance. But while aging-in-place is an important principle, it also has to be recognized that many seniors (especially those living in single family homes) are 'over-housed': The square footage they occupy (and heat, resulting in a high per-capita carbon footprint) is quite often excessive for their needs. There are an estimated 12 million empty unoccupied bedrooms in Canada. Home-sharing incentives and programs in this light will be an important part of the solutions mix.

## SPOTLIGHT

### Happipad

A Canadian proactive innovation that incorporates aging in place, intergenerational living, and age tech, is Kelowna-based *Happipad*, a platform developed by a group of students under the supervision of Dr. Kenneth Chau. *Happipad*, currently a finalist in the nation-wide *Housing Supply Challenge*, works a bit like *AirB&B*, matching two compatible people – a host and a guest – into a mutually beneficial living arrangement. The host earns some spare cash and the guest saves money. A safer shared living arrangement results in improved housing affordability, social inclusion, and the ability to age in place longer. Partly because it was incubated at a university - in this case, UBC Okanagan - *Happipad* was one-part start-up and one-part applied longitudinal, interdisciplinary research, integrating human psychology, technology, gerontology, housing innovation, and entrepreneurship. In the time since *Happipad* has rolled out, researchers have observed many insights into the art of connecting strangers, the power of *meaningful* connection (not just proximity to others), and a 're-awakening' that emerges in clients with successful matches.<sup>209</sup> *Happipad* has partnered with several senior-serving organizations across British Columbia and Alberta to offer a "companion housing program", where partner organizations provide hands-on support to participants (short of home care or assisted living).

This abrupt shift where seniors transfer from independent living (often in a single-family home) to a congregate assisted living facility is particularly stark in Canada. The Danish approach, in contrast, is based on the principal that one should not have to move to a completely different facility as one's autonomy lessens and their needs change. There are many interventions that can extend the length of time older Canadians remain aging in place, from low-cost easily-accessed solutions, such as lawn-cutting, snow-shovelling and *Meals on Wheels* programs, to higher-cost interventions like home care and support for family caregivers. But even these higher cost interventions can be money well spent: In an analysis for the Institute for Research on Public Policy, looking outside of Canada for inspiration on how to fix our troubled system of care, the authors emphasized that successful nations provide well-funded formal home care programs, in addition to supports for informal caregivers.<sup>210</sup> In combination, these measures can "avoid unnecessary or unwanted admissions" to long-term-care facilities. There are also innovations that help remove seniors from LTC: Open Doors is a New York State initiative that helps transition people who want to leave LTC to qualifying community settings including houses, apartments and group homes.<sup>211</sup>



## Better at Home

*Better at Home* is a program offered across the province of British Columbia that helps seniors with simple non-medical, day-to-day tasks in order to live independently in their own homes and remain connected to their communities for as long as possible. It matches local organizations to local needs, connecting seniors to such assistance as light yard work, minor home repairs, housekeeping, grocery shopping, snow removal or even just visiting (for those who may not have family or friends who visit). A program run by the United Way of British Columbia's Healthy Aging initiative, in partnership with about 80 non-profit organizations, *Better at Home* is funded by the BC Government.

One of the principal weaknesses in the Canadian system that challenges the ability to age in place is automobile dependence, something only the US and perhaps Australia are similarly challenge by. While it is laudable that over 80% of Canadian seniors have a driver's licence<sup>212</sup>, the reality is that 'aging in place' for millions of Canadians means being stranded in an auto-oriented low density suburb, often with no sidewalks (or sidewalks on only one side of the road), poor transit access, trapped in food deserts (especially in winter). They are further hemmed in by layers of meandering tertiary and secondary roads that lack nodal identity and that keep people far away from access to daily amenities like groceries, cafes, libraries and medical services, under a strict separation of uses that defined post-war urban planning. Conversely, living in inner cities rather than suburbs or exurbs can have positive impacts on active living, mental health and reducing social isolation.<sup>213</sup> While we have had many decades of knowledge about how to build liveable cities that meet people's needs in all stages of life – neighbourhoods that reduce auto-dependence, integrate universal design and sustainability principles (new urbanism, for example) - most cities continue to stubbornly and negligently plan and approve "new communities" tacitly assuming that seniors will either be magically able to otherwise adapt, or, far more likely, that they will be abruptly institutionalized when they simply cannot drive anymore. In addition to abysmal planning practice, this is also a form of systemic (and endemic) ageism.

## Housing Innovations (From Aging in Place to Aging in Community)

An important insight from the aging in place literature is that it is not attachment to a physical dwelling *per se* that is crucial (though there are certainly memories and nostalgia attached to a home if one has lived there for decades). Rather, it is attachment to community, to social networks, and to the amenities (public and private) that support the patterns, routines, and active sociability of aging people. It is not all that different from what child psychologists describe as home being wherever the family is. As mentioned in the "Community and Lifestyle" trends section of this scan, older Canadians have the strongest sense of community belonging, social capital, trust in institutions, and propensity to participate in the democratic system. Therefore, it may be more helpful to think of "aging in community" solutions rather than an orthodox focus on "aging in place". But this then requires creative, adaptable, and flexible policy, planning and design approaches.

Most provincial and territorial governments in Canada provide grant support and/or support for tapping into home equity for seniors who wish to remain in their home. Such programs help cover the cost of repairs, adaptations, and/or renovations to their primary residence in order to enhance accessibility, safety, energy efficiency, and/or independence. Many municipalities also encourage the development of ground-level secondary suites or laneway housing, either in more mature inner-city neighbourhoods or in newer communities built upon 'new urbanist' or age-friendly principles. Some municipalities also have inclusionary zoning policies that require seniors housing to be provided in all new communities.

A decade ago, the UK undertook a process looking at adopting and adapting housing innovations from across continental Europe. This "Housing our Ageing Population Panel for Innovation", or "Happy" uncovered many innovations to challenge the moribund status quo. One approach that has shown promise elsewhere is the adoption of mixed-use, semi-public locations for seniors housing: Centrally, highly accessible locations containing flexible social spaces, ground floor business like cafes, pubs, hair salons, and professional services that are open not just to residents, but to the general public. Great residences also provide a wider berth for seniors to engage in their interests and quirks, or even indulge in their vices. As one architect specializing in age-friendly housing notes, "people like to mix and feel connected. As many of the residents are living with advanced dementia, getting out is difficult – inviting the public in is a logical and positive response."<sup>214</sup>

## Lillevang

*Plejecentret Lillevang*<sup>218</sup>, a seniors housing complex outside of Copenhagen, Denmark, was designed in the late 1990s as the ‘nursing home of the future’, emphasizing choice, agency, flexibility, access to the outdoors, and family-involved activity. It incorporates assisted living and long-term care on the same site in accessible one-story apartments grouped around four 24-unit clusters, each with three 8-unit buildings with a communal kitchen and permanent paid caregiver shared between the 8 units. Outdoor access and proximity to nature and cultivated spaces is prioritized (circulation is external to the buildings via covered walkways, not internal, and all units have direct outdoor access, as well as a community garden). *Lillevang* strikes a balance between privacy and interaction. Family participation is encouraged and facilitated through events and activities, giving *Lillevang* an active, community-connected vibe. Residents have a say in not only programming, but also meals and menus, and the governing board is composed of equal numbers of residents, relatives of residents, and staff. Unique at the time it was built, the *Lillevang* model has been replicated or adapted in many other countries.

## Age-friendly Communities Movement

The World-Health Organization defines an “age-friendly world” as a world in which you would want to grow older.<sup>219</sup> Age-friendly communities (or AFC) is an upstream approach to addressing quality of life and overall well-being, with the aim of reducing social isolation, and ultimately delaying morbidity and mortality.<sup>220</sup> An AFC is an aspirational concept that tries to not only meet the age-related security, mobility, and other instrumental needs of seniors, as well as the protection of vulnerable seniors, but an AFC also affords seniors a range of opportunities to match their skills, abilities, lifestyle choices, and interests. Age-friendly communities are also tied to the broader concept of asset-based community development, recognizing that seniors have much to offer the community, and their inclusion in community life benefits everyone. AFC’s also include universal design specifications such as wide, well-lit sidewalks, curb-cuts, automatic door openers and elevators wherever there are multi-story services. Implicit to investing in Age-friendly communities is an intentional effort to train and upgrade the knowledge and skills base of urban planners. John Feather, CEO of Grantmakers in Aging, notes that “practically none of the people who do zoning have training in aspects of aging.”<sup>221</sup>

In most mature, inner city Canadian neighbourhoods, precisely the places that many people wish to age in place, we tend to develop tall and skinny infills which is actually the least appropriate type of housing. NIMBY’ism in such communities, often under the dubious guise of ‘preserving community character’, can exclude the kind of medium-density, accessible, quasi-communal, mixed-use facilities that could keep older Canadians living in (and contributing to) their beloved communities longer. Naturally Occurring Retirement Communities, or NORCs, exist wherever there are population pockets of elderly people, often in affordable apartment buildings near conveniences such as grocery stores. In this light, there are many untapped opportunities nationwide to augment shopping centres, retail plazas, and strip malls with attached or adjacent seniors housing.

Co-housing is another model highlighted by Happi that is well established in Denmark, Germany and the Netherlands, with at least 14 examples across Canada.<sup>215</sup> Co-housing allows for semi-independent living, free of the institutional stigma attached to larger congregate facilities, with the option to cook meals in one’s unit or collectively in a shared hub.<sup>216</sup> While co-housing is a form of design, cooperative housing is a form of housing tenure that lies somewhere between rental and owner-occupied, but which gives residents full control over the governance and management of their housing. Along similar lines, the “Green House model” developed by geriatrician Dr. William Thomas is based on clusters of homes with eight to ten residents in each. The money follows the person: Instead of funding being assigned to a bed, funding is assigned to an individual, who has the choice of how to use the money within certain parameters.<sup>217</sup>

Although medium density housing is generally the goal for sustainable urban communities, seniors housing is one area where lower density makes sense, based on access and mobility considerations (or at least ground floor dwellings as part of a mixed-use or multi-residential setting). Large seniors’ apartment complexes, despite obvious economic advantages, are less desirable from an epidemiological or accessibility standpoint.

## Arnsberg Department of Future Aging

Following a city-wide survey of its aging population, this German city of 74,000 discovered that its 17,000 residents over 65 wanted to participate in social life, actively contribute to society, continue learning, and – above all else – not live alone. In response, they created the (albeit small) new “Department of Future Aging”, or *Fachstelle Zukunft Alter*. The department works closely with city planners and neighbourhood engagement specialists to ensure that the needs and desires of the elderly are woven into both the social fabric and physical design of the city. Among the over 200 innovations the Department has rolled out are the *Café Zeitlos* (“Timeless Cafe”), which brings people with dementia, their caregivers, and community residents of all ages to create art together, and a *Dementia Learning Lab*, a social innovation think tank comprised partly of those living with dementia.

AFC initiatives have the potential to address multiple risk factors related to older adults’ health and wellbeing, including economic insecurity and social isolation.<sup>222</sup> A global movement, all ten Canadian provinces have formally adopted an AFC approach, which provides guidelines to adapt physical structures and public infrastructure, as well as policies, programs and services to better respond to the needs of an aging population.<sup>223</sup> Four Canadian communities were part of the initial roll-out of AFC globally in 2006, the largest being Halifax. Since then, major Canadian cities that have adopted some form of AFC approach include Calgary, Edmonton, Winnipeg and Ottawa. AFC measures in Canada are designed to nurture both a physical and social environment to help seniors “age actively”, which aims to not only encourage affordability, accessibility and mobility, but also to nurture and recognize the intellectual, civic, creative, and cultural assets of seniors.<sup>224</sup> Seniors’ discounts or free admission to museums, other cultural facilities, library-based programming and programs to encourage and facilitate volunteering are all aspects of age-friendly communities in Canada. Indeed, there is a well-established positive association between older adults volunteering and both longevity and mental health.<sup>225</sup>

## Age-friendly campuses

The AFC concept has also been extended to other public places, such as university campuses. The University of Calgary is one of six Canadian post-secondaries to have joined the Age Friendly University Global Network. Supported by the Brenda Strafford Centre on Aging at the O’Brien Institute of Public Health, the University’s age-friendly policies include the waiving of tuition fees for students over 65 for direct-entry undergraduate courses. Other post-secondary innovations across Canada include on-campus senior housing (such as *The Village* at Canadore College in North Bay, Ontario<sup>226</sup> or campus-adjacent housing like Cambridge Manor in Calgary’s “West University District”<sup>227</sup>). Trent University in Peterborough announced that it was collaborating with PeopleCare Communities, a family-owned LTC chain, to build a new 224-bed home that will be the anchor for an “integrated seniors village” on campus. PeopleCare also has a partnership with Western University on a program that sees graduate students in music act as student musicians-in-residence at its Oakcrossing retirement home in London. Other age-friendly campus innovations include student-senior co-habiting incentives, community service learning integrated with senior-serving organizations, student-in-residence programs within off-campus seniors housing facilities, and programs to embed seniors “in residence” within learning institutions (such as the “Silvera Scholar” program currently being developed by Silvera for Seniors).

## Intergenerational Living and Empathy-Bridging

As described earlier in this scan, ageism is a global problem, but one that appears to be particularly acute in Canada. Part of this ageism is increasingly tied to blaming older generations for failing to discharge their responsibility to steward the planet. But, as philosopher, educator and social change guru Parker Palmer notes in his book *On the Brink of Everything: Grace, Gravity, and Getting Old* (2019), the future is not simply a matter for the younger generation to fix or clean-up:

**“It’s unfair to lay all responsibility for the future on the younger generation. After all, the problems they face are partly due to the fact that we, their elders, screwed up. Worse still, it’s not true that the young alone are in charge of what comes next. We—young and old together—hold the future in our hands. If our common life is to become more compassionate, creative, and just, it will take an intergenerational effort.”<sup>228</sup>**

There are many experiments in trying to create empathy across generational divides. Some of these initiatives are gamified, such as the Empathy Toy, produced by the Toronto-based social enterprise Twenty-One Toys. A number of companies have created wearable empathy suits that restrict mobility and/or vision and hearing. Others use tech, such as Texas A&M's Age Simulation, and still others focus on badged learning, such as the Macklin Intergenerational Institute's "Xtreme Aging Workshops".

Intergenerational living is a much deeper form of empathy bridging. There are many house-sharing approaches that match older residents to younger residents. In the Netherlands, students who live with someone over 80 have their rent 100% reimbursed by the state. In Quebec, Radical Rest Homes, an adaptation of the Israeli Kibbutz, creates an intergenerational living environment based on common interests or ethnicity.<sup>229</sup> Färdknäppen is a Swedish co-housing style development that is not seniors housing *per se*, but rather designed for people who have reached the "second part of life", with residents aged 43 to 97 (the only criteria being that children have left home).<sup>230</sup>

## SPOTLIGHT

### Garrison Green Life-Writing

Initiated by residents of Garrison Green, a seniors assisted living facility in Calgary owned and managed by United Active Living, *This is What I Want to Tell You* is a compendium of life stories, recipes, poetry and other memoirs of residents. The life stories are written and compiled by students in their capstone senior English Bachelor of Arts program at nearby Mount Royal University, each of whom live for a month onsite at the residence while they interview residents and chronicled their life stories.<sup>231</sup> Life writing can incorporate everything from biographies and autobiographies to blogs and multimedia. The program, which ran from 2015 until the onset of COVID-19 (and expected to resume in the future), enhances intergenerational empathy, builds new relationships, and both honours and creates a legacy artifact for senior citizens. It has also generated additional understanding of seniors among caregivers in the facility, as the life stories of residences deepens their appreciation of their journey, and the barriers each resident has encountered or overcome.

### Age Tech

As Canadians age, they want to maintain the patterns of activities and lifestyle preferences they have become accustomed to, which ranges from maintaining social participation to good health and safety. This quest to maintain quality of life is sometimes referred to as "active aging". But the reality is our bodies deteriorate. Our vision, hearing, mobility, mental acuity, and general health all become challenged as we age, a process that accelerates rapidly over the age of about 75. Well-designed technological innovations can help offset this process and extend peoples' ability to live independently. "Age Tech" is simply any technology that improves the lives of the elderly and their caregivers. Age-friendly communities, a movement now over two decades old, have generally not included digital innovations, which is a missed opportunity so far.<sup>232</sup>

The pandemic accelerated the need for seniors to engage with tech, particularly in staying in touch with their loved ones remotely, using tablets, phones and other internet-connected devices. Even before COVID-19 hit, 70% of Canadian seniors reported accessing the internet on a regular basis. The percentage of those aged 65-74 who use the internet grew from 65% in to over 90% today.<sup>233</sup> With each passing year, the level of connectivity and tech literacy/comfort will rise. As Alex Mihailidis, CEO of AGE-WELL notes, 67% of seniors are willing to pay out of pocket for tech that will help them stay in their home, a figure that is way up from pre-pandemic polls.<sup>234</sup> Even science-fiction-esque tech like socially assistive robots no longer provoke a fearful or Luddite response. At the same time, with the aging demographic shift, we will continue to see a long-term rise in the pool of people needing care alongside a drop in the pool of people able to provide care. As such, reliance on tech-based solutions will be a defining feature of 21<sup>st</sup> century living and care.

Given the demographic trends underway, innovative use of new technologies may well be the only way to provide care affordably and at the scale that is required in future. The Fourth Industrial Revolution convergence of tech will play out in interesting and transformative ways with respect to older adults. For example, potential breakthroughs in understanding protein folding at a granular scale, enabled through artificial intelligence (AI) in combination with quantum computing, could profoundly enhance our ability to treat neuro-degenerative diseases like Parkinson's, Huntington's and Alzheimer's. The ability of healthcare to be tailored to the individual needs of patients will enable not only precise diagnostics and bespoke treatment. It will also remove a measure of anonymity. The irony is that advanced tech will be less impersonal and more responsive than the status quo currently permits.

While there are myriad technologies and applications – gene editing, 3D printing and nanotech as just a few examples - this scan focuses a smaller sampling of tech opportunities attached to the issues and trends covered in earlier arts of this scan. Similarly, the scan does not begin to cover the vast array of tech solutions underway in health care or health service delivery.

There are many opportunities for integration between the health system and life at home, for example through better collection, digitization, sharing and use of data for analytics, AI, value-based care, and interoperability across systems. Unobtrusive Ambient Assisted Living (AAL) applications also hold potential, in combination with machine learning (extracting and mapping behavioral patterns to clinical assessment, providing enhanced real-time assessment of physical, mental, and emotional health). Age tech is bound to serve aging Canadians more holistically and potentially at a much lower cost, though there are big issues with respect to inclusivity of design, ownership and privacy. From smart toilets<sup>235</sup> to smart cities, age tech will not only be in the realm of health care, but also in enabling people to stay connected, age in place, and in promoting overall wellness. Although technology is unlikely to replace in-person interaction or a 'human touch' anytime soon, there is nonetheless a huge role to play in helping older people live lives with dignity, independence (or, more accurately, interdependence) and choice.

Following are a set of broad categories covering either design considerations or realms of tech intervention:

## Universal Design

As a general maxim, if you build a community around the needs of older people, it is bound to help everyone. According to the Centre for Excellence in Universal Design, "Universal Design is the design and composition of an environment so that it can be accessed, understood and used to the greatest extent possible by all people regardless of their age, size, ability or disability."<sup>236</sup> Universal design (UD) can apply to fine scale design, such as tools and computerized applications, through industrial design and architecture, all the way up to the scale of urban design. UD removes the stigma attached to one particular group – in this case, older adults - by adhering to principles like equity, flexibility, low physical effort and simple and intuitive use. It also recognizes that all people have 'situational disabilities' (such as our hands full of grocery bags as we exit a store). For example, the use of electric toothbrushes, dark screen mode, push buttons, curb cuts, wide entrances, elevators, and ramps that were originally designed to enhance functionality or accessibility for people with disabilities, are features that everyone uses and prefers. The concept of "8 to 80" aims at creating products, buildings and cities that work for everyone from age 8 to 80. The iPad is an example of an "8 to 80" design. Voice command internet searches, voice-to-text applications, and voice-controlled personal assistants, for example, while designed for the general consumer marketplace, have obvious appeal to a generation who may have visual difficulties or arthritis (or otherwise find it challenging to type commands). And what is important to understand is that these technologies are not designed and marketed to seniors only – they are not seen as "seniors' products".

## SPOTLIGHT

### Livio AI

Livio AI, developed by Minnesota-based Starkey Hearing Technologies, is an interesting example of universal design insofar as it is a hearing aid, which can have a strong stigma attached to it as a classic marker of ageing, but its additional features make it an enhancement that non-hearing-impaired individuals find desirable.<sup>237</sup> Embedded with sensors and artificial intelligence, Livio AI is also a personal voice assistant that streams music, searches and reads the internet, and translates languages in real-time conversation. It also helps address social isolation by tracking how often you speak with people throughout the day (like a social FitBit). Additionally, it detects falls (and alerts loved ones) and measures physical activity.



## Inclusive, Human-Centered Design

Shifting the power base from providers to clients is another major transformation that is both necessary and inevitable: As many have pointed out, as the elderly population shifts from depression-era and war-era seniors (often characterized and pigeon-holed by stereotypes of neediness and dependency) to baby boomers, demand for such a shift will be inescapable.<sup>238</sup> There is much to be learned from the disability community with respect to self-directed care.

Age-friendly environments and technology design “considers the full range of human diversity with respect to ability, language, culture, gender, age and other forms of human difference”<sup>239</sup> Elder-centered or elder-inclusive design has been employed in the development of many types of age-friendly environments, including housing, hospitals, and public spaces like intergenerational playgrounds, therapeutic gardens, and bocce and lawn bowling pitches. Incidentally, many of these are also examples of universal design. For age tech, social enterprises like GRIT (Toronto) and the new IncluCity (Calgary) are set up to include seniors in user testing of new technology. Nonprofits with strong in-house learning cultures and inclusive practices, such as Calgary’s Silvera for Seniors and the Brenda Strafford Foundation, regularly engage residents in design decisions.

## SPOTLIGHT

### Winnipeg Richardson Airport

The Winnipeg Richardson International Airport has received acclaim for its inclusive design features such as large washroom stalls, widened entryways, and illuminated handrails, walking surfaces, as well as their training, standard-setting and awareness-raising among staff, volunteers and vendors.<sup>240</sup> The City of Winnipeg has had an inclusive design policy in place since 2001 for all new projects and retrofits to publicly funded spaces.

## AI and Machine Learning<sup>241</sup>

AI applications in medicine are predicted to – at minimum - replace half of the administrative burden of medical professionals. But AI is also predicted to assist greatly in extending longevity.<sup>242</sup> New tools for gathering information from patients, processing and analyzing results, diagnosing and treatment matching, monitoring, and aftercare are facilitated increasingly by machine systems. Online resources, apps, bots, and specialized software have improved the medical field and have resulted in a better patient experience.<sup>243</sup> This can ultimately support older patients to have access to better medical help and treatment in more accessible and affordable ways.

‘Weak AI’ impacts on health care have long been transformative in fields such as anesthesiology, cardiovascular management, and procedure simulations, while more recent advanced machine learning systems have enabled systems that use enormous amounts of data gathered from patients in relation to chronic illness symptoms, which in turn enable diagnoses and treatment suggestions.<sup>244</sup> Fields such as radiology, pathology, ophthalmology, and cardiology have benefited from deep learning algorithms that have been able to diagnose diseases with a 96% accuracy rate, which has bested that of humans (Hsieh, 2017).<sup>245</sup> Dermatology is nearly there as well, with advances in skin cancer detection.

There are some notable examples of AI applications in health care related to aging: Researchers from Lithuania’s Kaunas University, for example, were able to predict the possible onset of Alzheimer’s disease from deep learning analysis of brain images, with over 99% accuracy.<sup>246</sup> Another study using machine learning showed tremendous promise in detecting signatures in the blood that could indicate the presence of an Alzheimer’s Disease marker otherwise only detectable in cerebrospinal fluid, at great cost and invasiveness.<sup>247</sup> This could enable early treatment and dramatically improve the prognosis of those facing a future with Alzheimer’s. The algorithms employed in this study to identify proteins in the blood could be repurposed for treating other diseases in the same way. Alphabet’s DeepMind, which has employed its neural networks technology in the service of medical diagnostics, has now matched the accuracy of medical specialists in analyzing 3D retinal scans and correctly diagnosing over 50 eye disorders. The technology is now in use at the Aravind Eye Hospital in Madurai, India, detecting diabetic retinopathy and diabetic macular edema, two major causes of blindness and much more prevalent in aging people.<sup>248</sup>



## Ellie-Q

Ellie-Q is a proactive cognitive artificial intelligence device developed by Israeli company Intuition Robotics to simplify how elderly people living alone communicate with their loved ones. Retailing for about \$1,500 Ellie-Q is a hybrid robot, Alexa-esque voice assistant, and tablet/monitor rolled into one device roughly the size of a small table lamp.<sup>249</sup>

## Sensors

As we enter the era of the Internet of Things, with a logarithmic explosion of internet-connected small devices, the use of sensors, particularly in preventative or diagnostic health care settings, or in smart city applications, has significant potential to promote active aging, timely and more bespoke medical attention, and other benefits. Sensors can help gauge patterns from mood and motor function to cognition and social interaction. However, the key word here is ‘potential’. In a systematic review of the literature on the nexus of aging, tech and smart cities, one (albeit 2-year-old) study found only 13 articles covering the topic of sensors, concluding that most of the innovations were either conceptual in nature, or in an early stage of development.<sup>250</sup>

Still, the healthcare IT market is currently valued at about \$400 billion worldwide, and within this, research and market activity related to sensor technology for healthcare has been growing the most exponentially in recent years. In particular, wireless body area networks (WBAN), also called wireless sensor networks, will almost certainly be a fixture of 21<sup>st</sup> century aging. WBAN devices are either embedded inside the body as implants, surface-mounted or carried by humans (e.g. as part of a smartwatch). WBAN sensors track movement and location data, body position and activity level, and physiological data such as blood glucose or blood pressure levels, uploading this data to cloud-based servers where it is either monitored by health professionals, shared with family members, or – increasingly – pooled with data from thousands of other users for research use or smart city applications.<sup>251</sup> One of the biggest opportunities in age tech is in the prevention and timely intervention of falls. As mentioned earlier, falls effect over 350,000 seniors annually can profoundly alter overall health and quality of life. Sensors that can detect a sudden change in bodily position and, coupled with geo-location technology, can help shorten the time lag in a fall victim receiving aid.

The following table illustrates the kind of behavioural markers that can be extracted from Sensor Data. This is taken from a session called “Sensors in Support of Aging-in-Place: The Good, the Bad, and the Opportunities” held by the National Academies of Sciences, Engineering, and Medicine in 2020.

## BEHAVIORAL MARKERS THAT ARE EXTRACTED FROM SENSOR DATA<sup>252</sup>

Category	Features
<b>Mobility</b>	Step count, walking speed, step length, daily distance covered, number and duration of times in one spot, number walking bouts, activity level
<b>Exercise</b>	Number, duration, movement types, intensity, location
<b>Sleep</b>	Number and duration of daily sleep bouts, sleep times, sleep locations, sleep fitfulness, sleep interruptions, sleep apnea
<b>Activity</b>	Number, duration, and location of basic and instrumental activities of daily living
<b>Environment</b>	Frequented locations with type, outdoor walkability score, indoor and outdoor air quality, temperature, light levels, sound levels, number of residents, environment clutter
<b>Devices</b>	Types of device interactions, medication frequency, use of compensatory devices
<b>Socialization</b>	Number and duration of incoming/outgoing phone calls, text messages, missed calls, address book, calendar, time out of home, number installation of visitors, activity before and after calls
<b>Circadian diurnal rhythm</b>	Complexity of daily routine, number of daily activities, minimum and maximum in activity times, daily variance in activity and mobility parameters, periodogram-derived circadian rhythm

There are also significant privacy concerns that attend the ubiquitous use of sensors and monitoring devices. Some technologies in pilot testing phases today (designed, for example to monitor the time they spend outdoors) are so accurate at monitoring the physical location of an older person, that one's precise whereabouts will always be known (no more sneaking out for a cigarette!). The level of access that health insurers would have to such applications is another concern.

# SPOTLIGHT

## Birmingham City4Age

Birmingham, UK has a population roughly equivalent to that of Ottawa, Edmonton or Calgary, though with a higher proportion of citizens over 65 (1 in 4). City4Age is a city-wide pilot project operated by the municipality that used an inclusive design process to create a pilot project with a sample group of 90 seniors with mild cognitive impairment (MCI) and/or moderate frailty, to track their mobility, sleep and community service patterns.<sup>253</sup> Vast amounts of real-time data is collected via wearable devices, other sensors, and smartphones in order to build a more comprehensive and predictive picture of elderly people's health and wellbeing, which ultimately can deliver early interventions and help with planning (both health care planning and city planning).

## Robotics

As Japan's workforce shrinks relative to its aging retired population, it has turned to technology to aid in elder care. Many more countries over the coming decades, including Canada (short of a massive increase to immigration), will have population pyramids that mirror Japan's. About 15% of Japan's nursing homes now use robots.<sup>254</sup> But more than stand-alone robots that fit our mental image of a cartoon robot (yes, Japan has those in abundance as well), robotic *augmentation* to reduce strain and stress on health care workers is more likely to make waves on this side of the Pacific. Robotic exoskeletons that fit around the waist and lower back, for example, ease the severe body strain as they help elderly residents get in and out of bed.<sup>255</sup> Responsive robotic pets, such as "Paro" a soft, furry seal pup, or "Tombot Puppy", a simulated 12-week old Labrador designed by the Jim Henson Creature Shop, are also likely to make an impact in reducing a sense of social isolation. Last spring, for example, over a thousand seniors received robotic pets through the Association on Aging in New York, an elder's advocacy organization, one of many nonprofit care providers experimenting with robotics.<sup>256</sup>

South Korea and Germany have now surpassed Japan in terms of industrial robotics use, and China and the US not far behind<sup>257</sup>, so it is only a matter of time – and cultural acceptance – before robotics become a feature of elder care worldwide.

# SPOTLIGHT

## Robot-Era

Robot-Era is a multi-year research initiative based in Italy and Sweden, supported by the European Union, testing the development of advanced robotic services, integrated in intelligent environments, to assist older adults in living independently. Ambitious in scope, Robot-Era attempts to incorporate inclusive user-centred design, social and technological convergent innovation, inter-generational collaboration, and smart city principles to test the application of robotics to settings ranging from pedestrian navigation of the urban realm to physiotherapy. One outcome of the initiative is the Municipality and citizenry of Peccioli, Tuscany adopting service robots for active aging.<sup>258</sup>

# FINAL THOUGHTS

This scan has surveyed a vast terrain of trends, issues, ideas and opportunities. It has provided some layered insight into select systems, both from a challenge perspective and – albeit much more shallowly – from a potential solutions perspective.

It is clear that aging in Canada, already complex, will become vastly more so. The older adult population is far more diverse than in past eras, and this diversity has many faces, from culture, race, and gender to lifestyle preferences. It is also clear that many systems overlap, intersect, and sometimes appear as paradoxes (or present vexing choices). There is also jurisdictional and sectoral complexity with regard to policy, protocols and practice.

As the influential baby boom generation reaches the age at which long-term care may be necessary, the political prioritization of this and other issues covered in this scan will change dramatically. Will we continue to embrace mass institutionalization? Can we learn from de-institutionalization in other settings, such as mental health? How can these frozen-in-time systems be fundamentally reformed, even revolutionized? What role is there for a universal home care program, for aging-in-community, or for housing and supported living innovations from elsewhere. How can we build for unprecedented plurality and diversity of cultures, identities, preferences and lifestyles? How can we offset a diminishing caregiving population with age tech and other innovations? And most of all, how can older Canadians themselves be in the driver's seat of this change?

One of the easiest things to recommend, but hardest to implement, is “integration”: Integrated care<sup>259</sup>, harmonized public policies, cross-sectoral coordination and cooperation, and many other guises. But if the system(s) place the person first – the experience and perspective of each and every unique older Canadian – we find that the ‘solution’ is a sort of dance between streamlining or harmonizing and particularity or customization. As one international body frames it, it is a quest for “person-centered integration”.<sup>260</sup>

It is hoped that this scan can contribute to the conversation, and perhaps even help set the context for future innovation, around aging in Canada in the 21<sup>st</sup> century. Canada can and must be a better place to grow old. We should not diminish or turn away from the scope and scale of challenges that lie ahead – the picture of *our own* future should not be as grim as some of the phenomena profiled in this scan. But on the other hand, an aging nation ought not be feared. Rather, it is an opportunity waiting to be embraced.

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