Helping Older Adults Age in Place

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LocateMotion (SenSights.AI)

Authored by: Mariam Javed

SenSights.AI

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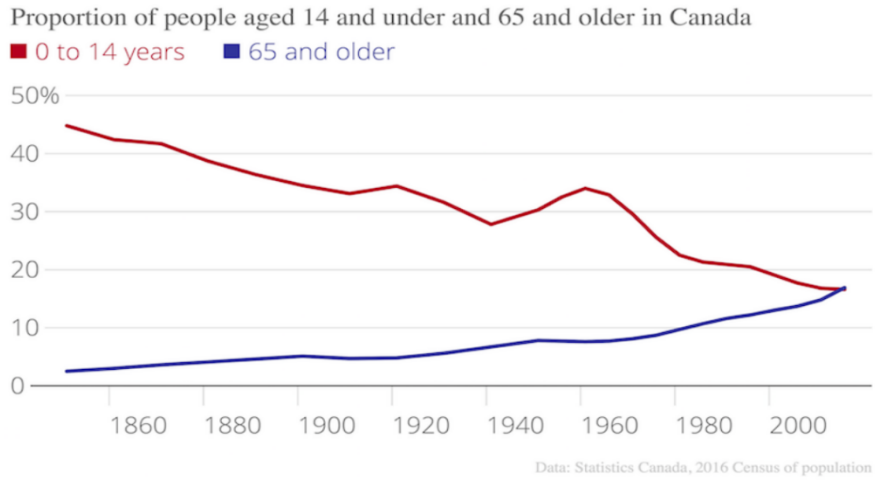
What is 'Age in Place"?

Aging in place implies having the healthcare and social supports, along with services in place for older adults to live safely and independently in their home or community for as long as they wish and are able[i]. Canada and the US, like most high-income countries are grappling with an aging population. In the USA 10,000 people are turning 65 each day[ii]. Similarly, in 2016 the number of Canadian seniors (65 and older) for the first time equated the number of children (14 and under) at 16.9% and 16.6% respectively. Statistics Canada projects that this trend will only accelerate and by 2031, nearly one in four Canadians will be over 65[iii]. The graph below elicits this demographic shift in Canada.



Source: Statistics Canada, 2016 Census Population

Why 'Age in Place'?

This growing proportion of older adults in industrialized countries is, however, quite keen to stay at home as they age, rather than move to skilled nursing or assisted living facility. According to 'Generational Real Estate Trends Report: Aging in Place' report[iv] published in 2020, there is a strong preference amongst elderly individuals to remain at home as they age.

"86% of baby boomers/older adult homeowners in Canada prefer to live in their current home for as long as possible."

This preference is however, driven a multitude of factors. First and foremost, alternatives to aging at home are quite costly and might not appeal to older adults who have already paid off their home mortgages. Findings from the 2019 Canadian Financial Capability Survey[v] suggest that only 17% of Canadian seniors aged 65 or above have a mortgage on their home compared to 88% of homeowners aged 25 to 44.

Furthermore, across Canada, monthly fees for retirement communities can range from $1,475 to $6,000, depending on the size and location of the accommodations, the type of community, care required and the quality and number of amenities[vi]. Besides the cost consideration, staying at home is comfortable and less isolating, given that older adults can stay in touch with their current social network.

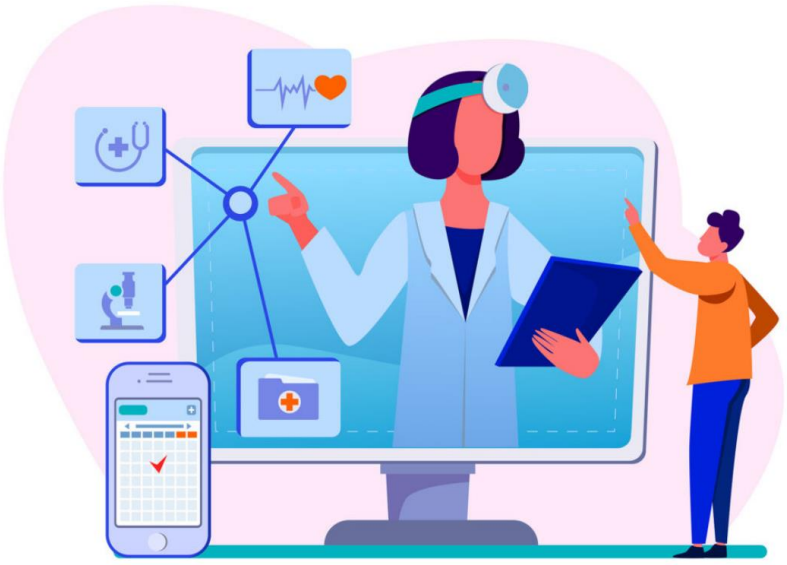
Beyond the cost saving and comfort factors empowering older adults' aging in place, it is pertinent to note this living arrangement can potentially allow significant savings for the government health agencies. The Ministry of Health estimated significant cost differences between Long-Term Care (LTC) homes and homecare clients[vii].

The associated cost to support 124,500 home-care clients was $921M vs. $4.0B for 100,000 Ontarians in Ontario's LTC homes in 2016-17

Likewise, home-based elder care can forestall the need for more expensive care in hospitals and other institutional settings, especially for frail and vulnerable older adults. This is emphasized by a study from **Independence at Home** where a five-year Medicare demonstration tested the effectiveness of home-based primary care. It showed that all participating programs reduced emergency department visits, hospitalizations, and 30-day readmissions for homebound patients, saving an average of $2,700 per beneficiary per year and increasing patient and home caregiver satisfaction[viii].

Thus, 'aging in place' is a cost-effective, yet convenient option available to policy makers, older adults and home caregivers, forbearing the need to ensure that this is undertaken, safely and efficiently.

Remote Patient Monitoring (RPM) as a Supplementary Tool



To encourage and support our growing proportion of older adults to safely age in place, Remote Patient Monitoring (RPM) has emerged as an essential digital health tool employed by healthcare professionals, to enhance the accessibility of senior care. RPM is a telehealth technology solution that utilizes vitals monitoring, daily notes, GPS tracking and real-time alerts to mitigate negative health events and helps manage senior care through multiple points of contact with healthcare providers. This 'automated hovering'[ix] is part of an early intervention and prevention healthcare model in which older adults are not only 'watched over' by occasional doctor's visits but rather daily as out-patients through mobile devices, real-time wireless data transmission and analysis technologies.

Review of biometric data, vitals and care plans while evaluating noncompliance alerts can serve as an entry points for adept physicians and healthcare providers to achieve multiple positive outcomes[x].

- Collaborate on improving two-way communication.
- Educate older adults and caretakers on how to effectively navigate the healthcare system.
- Use clinical data to closely collaborate with elderly patients and their home care-providers to manage symptoms and disease progression.
- Assist patient to engage in their health, demonstrating the importance of self-management.

RPM senior care solutions are, therefore, significantly attractive in the context of high-risk patients with pre-existing medical conditions such as progressive cognitive decline, diabetes, and heart ailments. However, their use cannot be restricted only to the frail and the vulnerable. Rather they provide a unique prospect to all older adults who would like to meaningfully improve their overall health and wellness.

Making Remote Patient Monitoring (RPM) Effective

Not all RPM senior health solution models are created equal. In today's data driven world, and more so in the healthcare industry, it is essential to employ an intelligent platform that goes beyond basic biometric and vitals monitoring. In essence, it is the ability to effectively use Artificial Intelligence (AI) techniques to detect and potentially predict health episodes, which sets apart a great home care service provider from the rest.

As a first step, data needs to be monitored across multiple whole person health parameters. These include heart rate, heart rate variability, respiration rates, sleep, falls, location/tracing, body temperature, blood pressure, blood sugar, steps/gait, motion/presence, and ambient sensing. Next, this plethora of monitored information needs to be corroborated in a way that allows older adults and home caregivers to address key health issues and provide mitigation strategies. Features of such a smart, data-centric approach, as provided by SenSights.AI, a remote well-being intelligence platform, would include:

- Smart alerts and health dashboard
- 24/7 medical opinion online chat
- Infection risk prevention and control
- Secure biometric, demographic & behavioral tracking
- Connect to Nurse/Physician for prescriptions and consultations
- Fall detection, location tracking, SOS and geo-fencing
- Securely share data with family and caregivers in compliance with HIPAA
- Unique, real-time vital scans with smartphones

Beyond the features, firstly it is pertinent that the digital health technology itself is easy to use**.** This is critical, especially in the context of older adults and seniors with little to no prior technological proficiency. Ideally the elderly monitoring system should be able to assist patients to participate in their own health from home using trouble-free devices. Secondly, device agnostic telehealth platforms offer a unique edge, whereby offering flexibility to choose from a wide range of FDA compliant devices to effectively monitor data. These can include smartphones, oximeters, smart watches, smart (i.e. Bluetooth-enabled) scales, blood pressure monitors, fall detection monitoring devices, glucometers and

thermometers. Lastly, data privacy and security need to be an utmost priority, whereby RPM solution providers should ensure patient privacy by providing a safe and secure data-sharing environment.

Unique Opportunity for Older Adults with Early Cognitive Decline

For older adults seeking to age in place, early cognitive decline is a foremost concern for their physicians, home caregivers, and even themselves. Early signs of dementia include inability of remember events, acquaintances, and conversations as well as loss of words and inability to complete routine tasks. According to recent statistics, approximately 40% of people over the age of 65 experience some form of memory loss[xi]. Furthermore, in Canada alone it is predicted that there will be 135.5 million people suffering from dementia by 2050[xii]. These numbers foretell a major social challenge with substantial implications for the healthcare sector.

Smart personal tracking for the elderly can, therefore, equip patients and their caregivers with the digital health tools to detect early cognitive decline as well as provide access to medical interventions to help mitigate associated risks. Especially tailored for these at-risk aging individuals, intelligent remote monitoring platforms, such as SenSights.Ai, offer the following:

- Track heart rate and set smart alerts based on unusual BPM readings
- Detect activity & track falls with ambient room sensors to auto-alert caregivers.
- Compatible with a range of other devices & wearables to monitor health
- Track step count and get medication reminders as watch notifications
- Track weight over time to maintain a healthy amount of food intake
- Configure Geofence with location-based alerts and trace location history
- Reliable senior location (GPS) tracking with cellular coverage across North America
- Add family members and home caregivers to share real-time in-app data
- Better data for doctors to reference to give more informed advice

Therefore, given a diverse set of biometric and vitals monitoring tools paired with smart AI techniques, older adults and their caregivers can efficiently manage their well-being and decelerate the rate of cognitive decline through appropriate mitigation strategies.

Impact for Healthcare Stakeholders

Physicians, Nurses, Hospital Administrators, and Insurance Companies are among the key stakeholders in the healthcare sector. Aging in Place, when supplemented by smart remote care management, presents these stakeholders with a rather remarkable opportunity to improve healthcare access to older adults while reducing associated costs.

- **Primary Care Clinicians:** According to a recent study, only 37%[xiii] of Canadians reported seeing their regular healthcare practitioner the very same day, demonstrating an undeniable lag in access. Therefore, these smart patient monitoring solutions improve capacity of practice for physicians providing primary care, and therefore increase potential for revenue. It further allows proactive patient monitoring along with access to longitudinal data to better inform treatment plan and disease progression. Clinicians can, moreover, prioritize patients based on risk of patient of concern.

Source: Freepick.com

- **Home Health Providers and Skilled Nurses:** Using intelligent patient monitoring platforms increases capacity of this healthcare provider group as well. Furthermore, by providing history of vitals, rather than 'point in time' readings, the remote elderly care solution improves quality of care for older adults choosing to age at home. Likewise, it enhances productivity by remotely monitoring data feed and assessing if a home visit is required. Studies have also shown that when a nurse-led RPM solution was used for chronic conditions, the number of ER admissions and hospitalizations was significantly reduced[xiv].

- **Hospitals:** Remote care management of older adults can provide hospital administrators with a unique opportunity to trim costs. Since primary care can be delivered remotely via these telemedicine platforms, hospitals can experience a reduction in hospital readmission rates. A recent study found that RPM platforms could reduce hospitalizations in the US by as much as 40 percent for some chronic diseases and realize annual savings of $6,500 per patient[xv].

Source: Freepick.com

Moreover, with proactive monitoring, readmission probability can be reduced. For instance, SenSights.AI has a proven record of reducing hospital readmission by over 60%. Likewise, using RPM to monitor vitals at home and setting alerts and alarms can facilitate early discharge. Lastly, these senior care solutions can be integrated with EMR/EHR systems, further enhancing the continuum of care.

Source: Freepik.com

• **Insurance Companies/Payers:** Aging populations coincide with a rise in "chronic conditions like COPD, heart disease, diabetes and dementia," — which "account for nearly 90 percent of U.S. healthcare costs[xvi]. Therefore, with smart patient monitoring solutions reducing physical primary healthcare visits, ER visits, hospital admissions and readmissions, insurance companies can see a dramatic reduction in their payouts.

Conclusion: Age in Place Safely with a Wellness Intelligence Platform

With the proportion of older adults accelerating, it is our cumulative responsibility as a conscientious society to build a secure environment for our elders to safely age in place. Augmenting such a set-up with smart patient monitoring solutions ensues a wide array of benefits to aging adults and their respective caregivers. Firstly, it allows the primary care recipients to be a key driver in the care delivery process and their daily self-management. Secondly, this virtual monitoring can detect and potentially predict health episodes, making it much more than a mere, biometrics-monitoring tool. Most

importantly, it aids in building a sustained relationship of trust with the healthcare providers, yielding positive health outcomes.

Furthermore, with a proven track record of improving healthcare accessibility and shaving off costs, smart health monitoring has been hailed as the need of the hour, promising favorable impacts for all stakeholders within the healthcare sector.

As an example, LocateMotion Inc. has developed SenSights.AI, an easy-to-use mental health & well-being intelligence platform for older adults & home caregivers. It aims to track the progress of early cognitive decline by capturing vitals, daily, notes, medication effects, feelings, behavior, and finally assessing virtual medical interventions based on risk-levels. Offering 24/7 remote patient monitoring, personal emergency interventions, access to physicians and data collection, increases elder patient and caregiver engagement and knowledge about mental health (especially during the decline stage) and related modifiable factors, improving healthy living behaviors and potentially delaying dementia progression in high-risk populations. Additionally, SenSights.AI offers telehealth solutions that help at-risk providers, home health, skilled nursing, long term entities increase their capacity by complimenting virtual care with a physical visit, reduce re-admission rates and avoid wandering and fall episodes by offering proactive monitoring and risk profiles along with smart alerts.

For the first time, the potential of servicing aging adults through AI interventions is being fully recognized. It is, therefore, exciting to see how the pioneers of these digital solutions will pave the way for a more inclusive technology framework. However, what is certain is that intelligent wellness platforms are here to stay. By delivering quality health services and enhancing the continuum of care, these smart monitoring solutions allow our older adults to safely age in place.

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