Aligning Virtual Care in Canada with the Needs of Older Adults

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Résumé

Les mesures de santé publique associées à la COVID-19 ont accéléré l'adoption des soins de santé virtuels au Canada. Nous explorons les possibilités offertes par la virtualisation des soins pour l'atteinte de quatre objectifs, ainsi que les défis qui se posent dans le cadre des soins aux personnes âgées. En particulier, nous recommandons que les politiques relatives aux soins virtuels pour les personnes âgées tiennent compte i) de leur adoption limitée chez les individus défavorisés sur le plan socioéconomique, ii) de la conception centrée sur l'utilisateur de technologies de soins virtuels et iii) de l'intégration d'évaluations itératives pour une atteinte des résultats souhaités qui soit équitable et efficient. À mesure que les soins virtuels progressent, nous devons nous assurer de ne pas laisser de côté les Canadiens plus âgés.

Abstract

Public health measures associated with coronavirus disease (COVID-19) have accelerated the adoption of virtual health care across Canada. We explore the opportunities that virtual care presents in achieving the Quadruple Aim and challenges to navigate, through the lens of care for older adults. In particular, we recommend virtual care-related policies related to older adults that address (a) limited uptake among the socio-economically disadvantaged, (b) user-centered design of virtual care technologies, and (c) integration of iterative evaluations to ensure equitable and efficient achievement of desired outcomes. As virtual care accelerates forward, we must not leave older Canadians behind.

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Introduction

Public health measures associated with the disease (COVID-19) caused by the coronavirus SARS-CoV-2 have accelerated the adoption of virtual health care interactions across Canada. As nationwide uptake of virtual care grows, implementation must thoughtfully incorporate the unique needs of older adults (Colwill, Cultice, & Kruse, 2008; Ivers, Brown, & Detsky, 2018; Petterson, Liaw, Tran, & Bazemore, 2015) – a group that is expected to grow by 68 per cent over the next 20 years (Canadian Institute of Health Information, 2019). Currently, policy documents that inform the development of health services for older adults, such as the 2016 Canadian National Seniors Strategy, do not mention virtual care (nor the use of technology to enable such care) in this population (Sinha et al., 2016).

We have seen during the COVID-19 pandemic how quickly virtual care services can be implemented. For example, self-screening tools have been launched at the institutional, provincial, and federal levels to reduce in-person visits to assessment centres (Government of Canada, 2020; Government of Ontario, 2020; Women's College Hospital, 2020). In a further example, Renfrew County, ON set up a 24/7 virtual care service to deliver accessible primary care across its expansive rural region (Arnprior Regional Health, 2020). Additionally, telecritical care in hospitals has allowed providers to monitor patients remotely, thus reducing the need for patient transfers, preserving personal protective equipment, and reducing the risk of exposure (Hollander & Carr, 2020; Scott et al., 2020). Ultimately, the key driver of increased virtual care is that selected virtual care services are now covered under various provincial health insurance plans (Doctors of BC, 2020; Moore, 2020).

We discuss the opportunities and challenges of virtual care as it relates to care for older adults in Canada. As most of the work on implementing virtual care has been done in the absence of a national framework, there exists a meaningful opportunity for policy makers to address this gap

by developing a national digital health framework that is inclusive of older adults (Virtual Care Task Force, 2020).

The Promise of Virtual Care

Over the last decade, the increasing availability of digital health tools has empowered older adults to participate in their own health care and provided an opportunity to achieve the Quadruple Aim: improved patient and caregiver experiences, reduced costs, and better outcomes (Bashshur et al., 2016; Bodenheimer & Sinsky, 2014; Canadian Medical Association, 2020; Virtual Care Task Force, 2020).

For select patient populations and clinical scenarios, several studies have demonstrated that virtual care is at least as effective as in-person care for older adults with the added benefit of convenience and cost-savings (Bashshur et al., 2016; Leveille et al., 2009; Liddy et al., 2008; Marcolino & Alkmim, 2015; Piette, Mendoza-Avelares, Milton, Lange, & Fajardo, 2010; Shah et al., 2015; Teunissen et al., 2007). For example, telehome care monitoring services were particularly beneficial for housebound patients and for end-of-life care (Liddy et al., 2008; Teunissen et al., 2007). Virtual care can reduce the need for in-person visits for patients with chronic illnesses who require outpatient monitoring, while improving patient and physician satisfaction (Dixon & Stahl, 2009; Liddy et al., 2008). Technology that facilitates asynchronous access to health professionals and to personal health records can enable self-management, simplify administrative tasks (i.e., booking appointments), and potentially improve health outcomes (Greene & Hibbard, 2011). Virtual care can cost-effectively improve access to care (Pinnock, McKenzie, Price, & Sheikh, 2005). Virtual care also has the potential to facilitate population-wide screening for issues arising in older adults who are amenable to early intervention (Agarwal et al., 2020; Giansanti & Aprile, 2020). A large retrospective cohort study in the U.K. found that a telephone-based case management program for patients with chronic conditions led to a 22 per cent reduction in cost of care compared with eligible patients who did not enrol in the program (Nymark, Davies, Shabestari, & McNeil, 2013).

Although virtual care has the potential to reduce costs, with respect to fewer hospitalizations and reduced hospital stays, there is the possibility of cost-escalation if improved access leads to new services provided to those who were previously under-served (Ashwood, Mehrotra, Cowling, & Uscher-Pines, 2017; Hernandez et al., 2015). In addition, it is possible that virtual care may lead to additional costs from increased ordering of investigations, prescription medications, and software licensing fees (Ray et al., 2019; University of British Columbia Digital Emergency Medicine Evaluation Team, 2018). Still, the opportunity for cost-savings associated with reduced travel, for improved patient experience, along with the potential for better outcomes demonstrate clear value propositions, especially during the COVID-19 pandemic.

Challenges of Implementing Virtual Care for Older Adults

Equitable Access for All Older Adults

Older adults from ethnic minorities, lower-income neighbourhoods, lower educational backgrounds, and rural communities are disproportionately less likely to use digital health tools (Anderson, Perrin, Jiang, & Kumar, 2019; Choi & Dinitto, 2013; Yoon, Jang, Vaughan, & Garcia, 2020; Zibrik et al., 2015). Despite a

narrowing "digital divide" for other populations, digital uptake among certain older adults continue to lag, limiting their ability to fully reap the benefits of virtual care. The Senior Technology Acceptance Model has shown that lower rates of adoption may be due to a combination of inexperience, perception of complexity, ease of trialling the technology, and socio-economic status (Berkowsky, Sharit, & Czaja, 2018; Harte et al., 2014; Kim, 2012; Renaud & van Biljon, 2008). As assessments moved virtually during the COVID-19 pandemic, 38 per cent of older adults reported feeling unready to attend video-based visits, mostly due to inexperience with technology as well as physical disability (Lam, Lu, Shi, & Covinsky, 2020).

Designing digital services that consider the needs and expectations of older adults is essential to reducing systemic barriers that exclude their active participation in the digital world. Community-centred programs that allow older adults to share learning and do it on their own terms can effectively increase technology use (Chiu et al., 2016). The COVID-19 pandemic has highlighted challenges faced by older adults in equitably accessing virtual care. Outpatient providers have reported increased numbers of no-shows after shifting appointments to a virtual format due to older patients struggling with accessing and using telemedicine technology (Triana, Gusdork, Shah, & Horst, 2020). Older adults, including those who do not use a computer, frail, or lack a caregiver, are less likely to choose a video visit than a phone visit (Joy et al., 2020; Liu et al., 2021). Phone visits may improve access to older adults unfamiliar with the technology or with visual impairments, but it is inadequate for care requiring visual assessment, such as for musculoskeletal, dermatological, and neurological physical exams.

For older adults from low socio-economic backgrounds, removing financial barriers by implementing waivers to purchase essential devices and Internet access as well as outreach educational programs serve a vital role in extending the reach of telemedicine (Zhai, 2020). Building educational infrastructure is important as well. A medical student-led volunteer initiative was able to address digital literacy barriers by guiding patients over the phone on how to download the telemedicine software in preparation for their appointments (Triana et al., 2020). In addition, Canada's Minister of Innovation, Science, and Economic Development recently announced a Digital Literacy Exchange Program to teach fundamental digital literacy skills free-of-charge (Innovation, Science, and Economic Development Canada, 2019). Although few details have been disclosed regarding this program, this is one step forward towards further narrowing the digital divide and ensuring equitable access to virtual care amongst older Canadians.

Maintaining Patient-Centred Care

Almost 80 per cent of Canadians are reasonably concerned with the diminishment of human connection with virtual platforms (Canadian Medical Association & Ipsos, 2019). Although virtual care is not a replacement for in-person encounters, as virtual care expands, strategies need to be in place to maintain patient-centred care in a virtual setting. Further, as some patients may struggle to find a private space to discuss confidential issues, systems should be constructed to allow patients to choose the type of interaction they prefer at any given time, regardless of their access or abilities. For older adults who may experience a lack of social connectedness, adopting explicit humanistic practices in virtual care is especially important. Existing communication frameworks can be reconceptualized into a virtual setting to foster meaningful interactions

between patient and provider (Frankel & Stein, 2001; Shankar et al., 2020). For example, the Four Habits Model emphasizes the importance of creating rapport early in the encounter. This can be manifested by asking patients whether they are comfortable with discussing their health concerns via the virtual modality in order to reinforce a protected and safe space, as well as orient the visits so that they put patient priorities first (Frankel & Stein, 2001; Shankar et al., 2020).

For patients who do not use digital technology, patient portals should have a "proxy" portal that allow selected caregivers to access patient health information using the caregivers' own credentials. Allowing patients to choose who may interact with the health system on their behalf – known as *granular role-based access control* – and what specific privileges they are granted can facilitate beneficial information access, compensate for deficiencies in functional performance, enhance self-management, and improve communication between providers and supports (Wolff, Darer, & Larsen, 2016). Caregivers, who may reside in other jurisdictions, could then coordinate patient care remotely and help address barriers related to digital literacy. This could be particularly important in end-of-life care, where having knowledge of patient–provider discussions can better prepare family members to act as surrogate decision makers.

Need for User-Centred Design

Virtual care interfaces must consider the physical, functional, and psychological effects of aging. For example, older adults may face difficulty using touchscreen technology, as aging may be correlated with a decline in psychomotor functionality, cognitive performance, and sensory impairment (Harte et al., 2014). Some older adults may have trouble pinching and swiping or have difficulty reaching with the thumb across an interface while holding the device in one hand. Many digital health tools focus on single-disease populations, but most older adults have multiple interacting causes of chronic disease and disability (Becker et al., 2014; Steele Gray, Mercer, Palen, McKinstry, & Hendry, 2016). Virtual care for older Canadians represents an (as yet unfilled) opportunity to integrate oft-siloed health services. However, effective design and implementation of this sort of virtual care would require a culture change, collective compromise, and continual adaptation to achieve the Quadruple Aim (Affleck, 2019).

User-centred design starts with empathy and understanding; to this end, older Canadians and their caregivers should be involved in the design and implementation process for virtual care. For example, the Community Care Coordination Service of the U.S. Department of Veterans Affairs showed that matching patients to technology that was compatible with their level of digital literacy, vision, manual dexterity, willingness to use technology, and adherence to medical regime improved clinical outcomes in older adults with chronic illnesses (Ryan, Kobb, & Hilsen, 2003). By seeking the active participation of a diverse group of older adults, designers will have a better understanding of the diverse capabilities and needs for this population.

In addition, caregivers are fundamental in the care of older adults (Gosse, Kassardjian, Masellis, & Mitchell, 2021; Lindauer et al., 2017). However, several studies have shown that caregivers experience impairments in their own psychological and physical health (Marzorati, Renzi, Russell-Edu, & Pravettoni, 2018; Schulz et al., 2003). A telemedicine-based psychosocial intervention for caregivers of advanced heart failure showed little to no improvement in caregiver quality of life, suggesting that virtual care

interventions should address practical challenges, including knowledge, instrumental, and decisional difficulties, and be flexibly delivered around caregivers' schedules (Dionne-Odom et al., 2020). Empowering caregivers using virtual care can take various forms, including training them on using the technology, enabling participation during care conversations even if they are in a different locale (such as through a three-way call), providing clinical educational tools targeted for caregivers, and including remote-monitoring features that make room for caregiver observations. When designing a virtual care tool, designers may ask themselves whether the value, design, and implementation process not only addresses the older adults' attitudinal, functional, and physical demands but also their caregivers' needs.

Iterative Evaluation of Virtual Care Is Needed

To adapt to the evolving needs of the patient and health system, rigorous evaluation frameworks must be implemented at the outset. Validated frameworks have been widely used to assess digital excellence in international health systems, such as the Healthcare Information and Management Systems Society (HIMSS). An alternative "Evolve in Context" model has been recently proposed which, unlike the HIMSS, allows for an iterative process for defining digital excellence that tailors to the needs of local populations and builds upon existing infrastructures (Cresswell et al., 2019). Given that many digital health innovations fail, the ability to learn and adapt quickly is vital. Implementation approaches such as the nonadoption, abandonment, scale-up, spread, and sustainability framework can be used to explain failures, identify contextual challenges, and systematically inform innovations that have the potential to achieve scale (Greenhalgh et al., 2017).

What Can Canada Learn from International Health Systems?

Denmark is recognized as the international leader in eHealth (Lluch & Abadie, 2013; Zamora Talaya, 2012). Like Canada, Denmark has a universal and publicly financed health care system with a similar proportion of the population who are older adults (Statistics Canada, 2019; Vrangbaek, 2020; The World Bank, 2019). However, health system administration and governance in Denmark primarily takes place at the national level, unlike Canada's decentralized provincial and territorial model (Vrangbaek, 2020). Nevertheless, each of Canada's provinces and territories could learn from Denmark's ability to invest in interoperable systems to create a collaborative digital ecosystem (Danish Ministry of Health, 2012).

Most significantly, Denmark has realized that end-user involvement in virtual care deployment is a key factor for success (Høstgaard, Bertelsen, & Nøhr, 2017). For example, the success of TeleCare Nord – a regional telerehabilitation program for older patients – was credited to the active partnership with patients, their caregivers, and health providers who contributed to the design workflow and program implementation (WHO Regional Office for Europe, 2016). This project resulted in reduced hospital readmission rates by 50 per cent, improved patient empowerment and quality of life, and increased cost-effectiveness. Patients with both high and low digital literacy experienced similar patient-related outcomes (Lilholt et al., 2017). It has now been scaled up to enable older adults to live as independently as possible in their own homes (WHO Regional Office for Europe, 2016).

How Can Canada Ensure that Virtual Care Is Inclusive to Older Canadians?

Organizations have come together to address the current dearth of a national digital health strategy. Innovation, Science and Economic Development Canada (ISEDC) has stressed the need for a national digital health strategy that is inclusive to older adults, with an emphasis on interoperability (Innovation Science Economic Development Canada, 2018). Canada Health Infoway, the national body for digital health innovations, can utilize existing systematic frameworks to evaluate the reach, relevance, and quality of available virtual care tools and services (Canada Health Infoway, 2019; Cresswell et al., 2019; Greenhalgh et al., 2017). Thoughtful strategic implementation must also consider the wide diversity of technological uptake among older Canadians, where some may be highly proficient in using virtual care tools while others may not be or choose to not use videoconferencing platforms, despite being independent with using computers (Liu et al., 2021). The Canadian Medical Association Virtual Care Task Force specifically recommended the development of a pan-Canadian Charter of Patient Health Information Rights and Responsibilities, which can be based off of existing efforts from Canada Health Infoway's work on ACCESS 2022 (Virtual Care Task Force, 2020).

Objectives for these new policies should also integrate virtual care policies that address inequities of limited virtual care uptake among socio-economically disadvantaged older adults, implement virtual care that upholds user-centred design as a core principle, and integrate iterative evaluative mechanisms so that innovations will match the changing technological, political, and social landscape. This requires interdisciplinary collaboration between the technology and health sectors, federal ISEDC ministers, provincial and territorial health ministers, health care providers, and community and patient partners.

Conclusion

Increased uptake of virtual care will undoubtedly be a health system legacy of COVID-19. Canada must expedite its efforts to tackle equitable virtual care policies for older adults and learn from leading jurisdictions in the virtual care arena. Through purposeful engagement with end-users and additional stakeholders, we can develop virtual care frameworks that embrace the needs of older adults, empower their engagement, and ultimately achieve the Quadruple Aim to optimize health care outcomes, patient and provider experience, and costs. As virtual care accelerates forward, we must not leave our older Canadians behind.

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