Lessons learned from the rapid rollout of telehealth for physician care during the COVID-19 pandemic in British Columbia, Canada – Exploring the perspectives of long-term care providers and recipients

by

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Declaration of Committee

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Abstract

During the COVID-19 pandemic, long-term care homes in Canada enacted lockdown protocols to safeguard the health of their residents. Consequently, physicians had to connect virtually with residents through telehealth methods such as video and phone calling to reduce the transmission risk of the virus and to maintain continuity of care. While this rapid rollout of telehealth was essential, uncertainties surrounding the quick implementation without sufficient consultation of decision-makers were experienced by care providers and recipients. This thesis provides two qualitative analyses that used interviews and focus groups to explore the experiences of each group and provide recommendations for telehealth use for long-term care homes in British Columbia's, Fraser Health Authority. One analysis focuses on the challenges participants faced implementing the rapid rollout of telehealth to support physician visits, while the second analysis explores which facets of physician care are not appropriate to be delivered through telehealth in long-term care settings.

Keywords: Long-term care; rapid rollout; telehealth; challenges; COVID-19; pandemic

Dedication

To my family, Mom, Dad, Talia, and Tanner. Your examples of hard work, dedication, and support have inspired me to make this happen.

To my Nanna and Grandpa. Although you are not here today, your influence on my life will not be forgotten.

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And finally, to my partner, Kjeryn, thank you for being there every step of the way with me. I couldn't have done it without you.

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List of Acronyms

BC	British Columbia
EMR	Electronic Medical Record
LTC	Long-Term Care

Chapter 1. Introduction

At the outset of the COVID-19 pandemic in 2020, long-term care (LTC) homes across Canada opted to swiftly close their doors to external visitors to safeguard residents' health (Betini et al., 2021; Chu et al., 2020). LTC homes are residential settings for people who have physical and/or cognitive impairments and are unable to live without assistance (National Institute of Aging, 2023). To ensure that these residents could still maintain access to physician care during times in the pandemic when on-site visitation was discouraged, a rapid rollout of virtual care services, or telehealth, was needed (Rocard et al., 2021). Telehealth can be described as the use of virtual methods, such as video and phone calling, emailing, and texting, to deliver medical care (Mechanic et al., 2017). Because of how rapidly telehealth had to be rolled out across the LTC sector, it was not possible to use evidence-based planning in most instances. As such, uncertainties emerged regarding the best practices and approaches to use, nor was it possible to integrate an evaluation of the rollout that considered users' experiences. My thesis works to retrospectively address this knowledge gap by qualitatively exploring the experiences of the rapid rollout within LTC homes in British Columbia (BC), Canada, with an emphasis on identifying what can be learned to inform future decision-making regarding telehealth implementation in the Fraser Health region.

Research regarding telehealth use in LTC during the COVID-19 pandemic has been growing (e.g., Johnson et al., 2022; Robič & Pavlič, 2021; Chu et al., 2021; Doraiswamy et al., 2021), with most studies focusing on how telehealth was used increasingly during the pandemic in comparison to pre-pandemic levels. As such, gaps remain regarding how certain stakeholder groups and end-users actually experienced the rapid implementation of telehealth services in LTC settings. In those studies where experiential perspectives have been gathered, they have mostly dealt with the views of care providers only (e.g. Tan et al. 2024) or are reviews that do not fully explore the lived experience of the rapid rollout for care recipients and providers alike (e.g. Dai et al., 2023). I thus believe that it is very meaningful to explore the experiences of all groups who were involved in the process of the rapid rollout, from care staff who were tasked with charging mobile devices to family members who virtually participated in care conferences, to inform best practices going forward for future decision-making regarding continued telehealth in LTC.

The research presented in my thesis is the outcome of a collaboration led by researchers at Simon Fraser University and the Fraser Health Authority. It is organized around two analyses I have led using data gathered for an evaluation study funded by a Catalyst Grant awarded by the Canadian Institutes of Health Research. Both analyses draw from interviews and focus groups with care recipients and providers who had experienced the rapid rollout of telehealth in LTC during COVID-19 in the Fraser Health region of BC. In one analysis, I explore the challenges that arose during the rapid rollout related to the physical infrastructure of LTC homes to support telehealth and what needs to be considered going forward to ensure telehealth can be effectively used (Chapter 2). In the other analysis, I identify three instances when participants indicated that telehealth would not be appropriate to be used going forward (Chapter 3). In the remainder of this chapter, I provide an overview of contributing research domains, the research objectives, and my two analyses.

1.1. Background

In the following subsections, I give a detailed background about what LTC is and highlight the literature around the rapid rollout of telehealth during the COVID-19 pandemic within LTC. I start by introducing health geography and the geographies of care as a key disciplinary perspective that has informed my research.

1.1.1. Health Geography and Geographies of Care

Health geography is a sub-discipline of human geography that focuses on ways that space, place, and society can affect one's overall health. Evolving from medical geography in the 1990s, health geography shifted the focus away from a biomedical model of health focused on the effects of disease to one that incorporated more humanistic and cultural facets (Kearns & Moon, 2002). This resulted in a sub-disciplinary shift towards a focus on health as it relates to physical, mental, and social well-being and how each person may be affected differently by the social and physical environments they occupy depending on their identity or contexts (Elliot, 2018; Kearns & Moon, 2002). Because one's overall health and well-being can be shaped by spatial and place-based factors, these social and experiential differences can sometimes lead to the creation or exacerbation of health inequities. While health geography is broad, geographers in this

sub-discipline often look at health inequities through a public health or health systems lens and how they may be driven by social and spatial marginalization (Dummer, 2008; Smith & Easterlow, 2005; Kearns & Collins, 2010).

Geographies of care is an area of study in health geography that highlights how care is distributed based on factors of difference (Conradson, 2003; Schwiter & Steiner, 2020). For example, a geographies of care perspective may be applied to explore how a localized physical space, such as a home or hospital, can intertwine with psycho-social dimensions to shape how care is topologically perceived and constructed (Conradson, 2003; Hanrahan & Smith, 2020). Geographers using a geographies of care lens have argued that care exists outside of a local proximal context as it can overcome the complications of distance (Schwiter & Steiner, 2020; McEwan & Goodman, 2010; Lawson, 2007). As an example, care technologies can assist with erasing the boundaries of geographical distance between provider and recipient with services such as telecare stretching access to care from local to globalized settings (Milligan, 2014). During the COVID-19 pandemic, the heavy reliance on digital technologies to administer care increased spatial access, though there may have been negative implications for care quality (Schwiter & Steiner, 2020). A geographies of care lens assists with understanding how care is navigated in LTC, especially as it continues to transform from an in-person to a virtual geography.

1.1.2. Long Term Care

According to the Canadian Institutes for Health Information (n.d.), LTC can be described as a hospital-based or residential continuing care service that provides personal and medical support for those who have lost the ability to care for themselves due to mental and/or physical illness. Those who live in LTC are often 65 or older, with the average age of LTC residents in BC being 83 (Office of the Seniors Advocate British Columbia, 2023a). Many LTC residents have dementia and/or Alzheimer's diagnoses, which can require constant care and monitoring to ensure their safety and well-being (Banerjee, 2007). As of 2023 in BC, 28% of all LTC residents across the province were found to have some sort of cognitive impairment while 32% were found to fully depend on staff to perform everyday activities (Office of the Seniors Advocate British Columbia, 2023b). As part of the care process, LTC homes have on-site care staff that typically include either full-time or visiting nurses, physiotherapists, occupational therapists, social

workers, and dietitians (Government of British Columbia, n.d.; Fraser Health, 2023). Each home also has one or more associated family physicians who oversee residents' medical care (The College of Family Physicians of Canada, 2021). Aside from medical care, LTC homes provide meals, social and recreational activities such as exercise and games, laundry, and many other services that fit residents' needs (Government of British Columbia, n.d.).

LTC homes in Canada are either public or privately owned, and more granularly they are private for-profit, government not-for-profit, or non-government not-for-profit (Statistics Canada, 2021). In Canada, the split is approximately 46% publicly owned and 54% privately owned, with BC specifically housing 35% public, 37% private for-profit, and 28% private not-for-profit LTC homes (Canadian Institutes for Health Information, 2021a). Within BC, not-for-profit homes are connected to or part of regional health authorities and may be attached to acute care hospitals while for-profit homes are smaller standalone facilities that are private businesses (McGregor et al., 2005; McGregor et al., 2006; Berta et al., 2006). BC has five distinct regional health authorities, with the Fraser Health Authority – which is the geographic focus of my thesis research – housing the largest number of LTC residents (Fraser Health, n.d.). Understanding the ownership and oversight of LTC homes is essential as they determine the characteristics of the home, what its overall priorities are, and its behaviour such as spending allocation (Berta et al., 2006). As an example, for-profit homes often have fewer staff working in them compared to not-for-profit because there is an attempt to minimize expenditures and create more opportunities for cost-saving and higher profit margins (McGrail, 2007; McGregor et al., 2005; Comondore et al., 2009).

LTC homes are often designed in a congregate way whereby residents use communal spaces such as lounges and eating areas while also having a designated bedroom area (Dee & Rysanek, 2023). However, not every bedroom is private as some homes have semi-private (2 residents) or multi-person (3 or 4 residents) rooms (Dee & Rysanek, 2023). In BC, around 24% of LTC home residents share their room with at least one other person (Liu et al., 2020). LTC homes may also break up the larger space into neighbourhoods, which are smaller units within the home (Boscart et al., 2019; Fraser Health, 2023). Having neighbourhoods allows homes to group residents who require similar complex needs, such as having a dedicated dementia neighbourhood, which can improve person-centered care (Boscart et al., 2019). In short, person-

centered care involves individualizing care so that it is best suited to meeting a specific resident's needs as opposed to taking a one-size-fits-all approach (Godfrey et al., 2018). The physical environment of LTC has many implications for well-being and the enactment of person-centered care. This is because a well-designed home can promote wayfinding for those with dementia, increase autonomy, reduce anxiety, prevent falls, and produce many other positive benefits for those who may have cognitive or physical impairments (Chaudhury et al., 2018).

1.1.3. Telehealth

Developed in the 1970s, telehealth is a method of administrating care services remotely as an efficient and easily accessible option (Bhatia et al., 2021; Harleem et al., 2021). Some of the most common mediums for administrating telehealth are video calling (such as a platform like Zoom), phone calling, emailing, and texting (Mahoney, 2020; Chu et al., 2021). Telemedicine is a form of telehealth that focuses predominantly on virtual clinical diagnoses and treatment between physicians and patients (Federal Communications Commission, n.d.). Telehealth involves more than just telemedicine. It can involve care delivery from physicians, nurses, social workers, and others and can include supporting physical and mental care, medication management, and performing routine check-ups (Federal Communications Commission, n.d.).

Telehealth use has increased substantially in the last few years, driven initially by the COVID-19 pandemic, and since then some providers have identified it as a preferred format for care delivery. A longitudinal study conducted by Bhatia et al. (2022), found that in 2019 telehealth comprised 1.9% of ambulatory visits while in the second quarter of 2020, it made up 70.2%. Such a large increase can be attributed to the fact that telehealth was highly beneficial for reducing the spread of the COVID-19 virus while still allowing access to a physician (Harleem et al., 2021). This trend of increased use is expected to continue in the future as 22% of Canadian physicians indicate they plan to increase telehealth use and 42% would maintain the rates initiated during the pandemic (Canada Health Infoway & Canadian Medical Association, 2021).

Telehealth was initially designed to connect rural and underserved areas to care providers elsewhere. It has been argued that one of its greatest strengths is the ability to provide basic care to people living or working in areas with limited healthcare services

(Gajarawala & Pelkowski, 2021). An example of this is BC's Real-Time Virtual Support service (a service that allows physicians and patients to access online medical advice through Zoom or the phone) that has been set up in many remote communities to increase health equity across the province (Canadian Institutes for Health Information, 2023). Telehealth is also seen as cost-effective and efficient as it reduces travel costs and wait times for patients and providers alike (Gajarawala & Pelkowski, 2021; Madigan et al., 2021). Further, having increased care access and improved continuity of care via telehealth has been found to reduce unnecessary hospitalization (Gillespie et al., 2019; Groom et al., 2021).

One of the most common challenges that has been identified when it comes to implementing telehealth is the availability of technology and supporting Wi-Fi/cellular connection as both are needed reliably (Zhang et al., 2021; Alami et al., 2021). This challenge is especially pronounced in rural areas with underdeveloped infrastructure to support virtual connectivity (Hawe et al., 2023; Jong et al., 2019). Even if there is a way to use telehealth, a patient's understanding of how to use technology can be a significant barrier to access, especially among older demographics who struggle with digital literacy (Zhang et al., 2021). Care providers may also be uncomfortable with assisting with supporting telehealth (Koivunen & Saranto, 2018). One of the biggest deterrents to using telehealth is concern relating to care quality. The lack of physical contact or visual information can make it difficult to thoroughly assess a patient and can lead to misdiagnosis (Breton et al., 2021). Overall, while telehealth has been highlighted as a serviceable and convenient supplement to in-person care, there is still much room for improvement.

1.1.4. Rapid Rollout of Telehealth during COVID-19 in LTC

In early 2020, LTC homes across Canada were overwhelmed by the rapid spread of COVID-19 and quickly acted to enact safety protocols such as universal mask-wearing to ensure the safety of the residents and staff (Liu et al., 2020). While these swift protective actions supported lessening transmission, the LTC still experienced high rates of infection and death. The Canadian Institutes for Health Information (2021b), for example, found that between March 2020 and February 2021, residents of LTC homes made up more than two-thirds of COVID-19 deaths reported in Canada. During the first wave of the pandemic (March 2020- August 2020), 31% of LTC homes reported at least

26 or more cases among residents (Canadian Institutes for Health Information, 2021b). In BC, the Fraser Health Authority reported the greatest number of COVID-related deaths in LTC communities in the province.

The structure and layout of LTC homes enhanced residents' vulnerability to contracting COVID-19. Small LTC homes, for example, were not able to physically distance residents, which created issues for controlling viral spread (Kirkham et al., 2022; Webster, 2021). Similarly, residents who shared rooms were at high risk of being in constant contact with others (Liu et al., 2020). On the other hand, homes that were able to isolate residents often did not have mechanisms for overcoming loneliness and social isolation (Ferdous, 2021). Residents in these homes were typically secluded in their private rooms, with their only interactions being with staff (Hung et al., 2022). Social isolation for long periods can be detrimental for older adults as it can worsen cognitive functioning and increase the risk of cardiovascular disease (Read et al., 2020; Hawthorne 2008; Xia & Li, 2018). Staffing in LTC sectors across Canada was also pressed, with approximately 86% of homes reporting at least one instance of staffing shortage in the early periods of the pandemic (Clarke, 2021).

The quick widespread change of social isolation and physical distancing at the outset of the pandemic increased the use of telehealth immensely as virtual ambulatory visits by Canadians increased from 1.6% in 2019 to 70% in 2020 (C. Chu et al., 2022). In LTC specifically, it was noted that phone consultations with care providers initially increased by 122% and video consultations by 113% compared to pre-pandemic rates (Johnson et al., 2021). Due to this fast transition to extensive telehealth use, staff in LTC homes needed to be creative to ensure that the residents were still able to access care from physicians. For example, Warmoth et al. (2022) found in many cases that video consultation options such as Zoom, Microsoft Teams, and FaceTime were adopted by homes as they were identified as effective ways to enable physician decision-making. In some cases, technology such as Bluetooth enabled-vital sign monitoring was also used to allow physicians access to live updates of a resident's status when visitation was not possible (Harris et al., 2021).

Prior to the pandemic, Edirippulige et al., (2013) found that telehealth use in LTC was mostly viewed positively, but this was because it was often supplemented with in-person care. Research done at the outset of the pandemic echoed the positive

perception, linking telehealth use to reducing the spread of the virus (Thompson et al., 2020). Regarding access to care, using virtual methods has been noted to be a convenient way for residents to obtain timely medical advice from physicians and specialists, which is especially helpful for those managing complex diagnoses (Doraiswamy et al., 2021). A survey of clinicians who provided telehealth during the pandemic found that using telehealth 'often' (41%) or 'sometimes always' (23%) supported the continuity of care for older adults, including those in LTC (Wardlow et al., 2022).

Safety protocols in the LTC sector drove telehealth to become the primary medium for physician visitation with residents, rather than being used for supplementary purposes. This has driven some to question how effective and equitable it was for residents to receive care this way. One of the main concerns that has been identified is that LTC homes do not have sufficient access to technology, such as tablets or cellular devices, to rely primarily on telehealth (Chu et al., 2022; Khowaja et al., 2023). Many care homes did not have the infrastructure needed to fully support the integration of telehealth, such as Wi-Fi connectivity throughout (Chu et al., 2021; Chu et al., 2022; Khowaja et al., 2023). It has also been documented that some residents are unable to use telehealth effectively without help from staff members due to cognitive impairments and low digital literacy (Seifert et al., 2020; Hantke & Gould, 2020; Khowaja et al., 2023). The availability of staff to set up and support telehealth appointments was not assured, which was concerning given the large number of residents wanting to access telehealth or virtually meet with family when on-site visitation was restricted (Khowaja et al., 2023).

Our understanding of the use of telehealth for those in LTC during the pandemic has two problematic knowledge gaps. First, there is still a severe lack of perspectives from all parties (i.e., resident, care partner, LTC staff & physician) involved in the care process. In many cases, existing research has focused on those who administered care to LTC homes (Warmoth et al., 2022; Khowaja et al., 2023; Johnson et al., 2021). Second, while 70% of Canadian physicians have identified that they were satisfied with video/phone consultations during the pandemic, with perceived or experienced benefits for both provider and patient (Canada Health Infoway, 2021; Canada Health Infoway & Canadian Medical Association, 2021), drivers and obstacles to such satisfaction within LTC specifically have not been deeply explored.

1.2. Thesis Rationale

My thesis research contributes to developing an understanding of the lived experiences of care providers and recipients' use of telehealth in the context of Fraser Health's LTC sector during the COVID-19 pandemic, and how these experiences can inform continued use of telehealth within these care homes. There is still very little existing literature that covers this topic to generate evaluation-based evidence that can be used and implemented by knowledge users. Due to the likely continued use of telehealth post-pandemic by Canadian physicians, the shortage of family doctors, and the technology sector rapidly improving, now more than ever is a time to identify how telehealth can best be implemented. Doing so can assist with providing equitable continuing, person-centered care for the often-vulnerable LTC demographic (Canada Health Infoway & Canadian Medical Association, 2021; Kichloo et al., 2020). As such, my research utilizes exploratory qualitative methods that bring forth diverse perspectives that contribute to future understandings of how best to support telehealth in LTC.

1.3. Methodology

The larger funded study to which my research contributes has been designed based on Patton's (2008) utilization-focused evaluation, which is an evaluative process that promotes collaboration between researchers and end-users to ensure that findings are best tailored toward benefiting those in decision-making capacities. To be able to explore the perspectives of care providers and recipients, both semi-structured interviews and focus groups were employed (See Appendix A for demographic questions and Appendix B for interview and focus group questions). Qualitative methods are useful for capturing holistic and person-centered approaches that can inform decision-makers on how to improve care environments based on participant perspectives (Malagon-Maldonado, 2014). Further, when considering that many residents in LTC have cognitive impairments such as dementia or other forms of neurodegenerative decline, qualitative designs facilitate research engagement (Samsi & Manthorpe, 2020; Nygaard, 2022). A thematic approach analysis was used, which allows for conceptual similarities and patterns to be extracted from qualitative data (Braun and Clark, 2012). In related health services literature, using thematic analysis has proven to be an effective method for finding common themes (Saunders et al.,

2023). Detailed descriptions of the methods and analytic techniques used in this study are integrated into Chapters 2 and 3, while all data collection instruments are in the Appendix.

1.4. Research Objectives

The overall goal of my thesis research is to explore the complexities of the shifting landscape of care provision in Fraser Health's LTC sector during the rapid rollout of telehealth, specifically for physician visits, during the COVID-19 pandemic. I have three main objectives, which are to: 1) explore residents' and family caregivers' experiences of receiving telehealth during the rapid rollout and their preferences going forward; 2) understand physicians' and healthcare providers' experiences coordinating and delivering care virtually during the rapid rollout and their preferences going forward; and 3) develop actionable guidance that can inform an equitable telehealth program that is person-centered, coordinated, and value-based in Fraser Health's LTC sector. Value-based care refers to the balance of achieving improved health or improved care quality against the cost of reaching these outcomes (Teisberg et al., 2020). The objectives of the larger evaluation study to which my research contributes are to:

1) inform regional decision-maker knowledge users on the findings of the evaluation aimed at guiding the meso-level (i.e., regional) adoption of virtual physician care in LTC;
2) create an infographic aimed at physicians and health-care providers on best practices for a balanced micro-level adoption of equitable, value-based virtual physician care alongside in-person care for LTC residents to ensure person-centered and inter-professional team-based, coordinated care for optimal resident and provider experience; and
3) create an infographic or short video aimed at giving residents and family caregivers practical tips on choices for different care mediums and the application of virtual (e.g., video, phone, text) or in-person care, links to resources to support equitable healthcare (e.g., virtual translator options) and advice to support an optimal experience and value from virtual physician care in LTC.

Knowledge mobilization in a study like this is imperative as the results can be used to improve health outcomes by re-evaluating existing telehealth use (Straus et al., 2011).

1.5. Thesis Outline

My thesis involves two qualitative analyses (Chapters 2 and 3), both of which address the stated objectives. The analysis in Chapter 2 has been accepted and in press with *BMC Digital Health,* while the analysis in Chapter 3 has been submitted to *BMC Geriatrics*. Both analyses draw from the data gathered for the evaluation study and thus share study designs, though the analytic processes for each are distinct. Semi-structured interviews were conducted with three participant groups, residents, family caregivers, and care staff. Focus groups were employed to gather insights from physicians. Thematic analysis was used to support identifying meta-themes and themes.

Chapter 2 focuses on identifying challenges related to the preparedness of Fraser Health's LTC homes to rapidly support telehealth for physician visits. Specifically, there were challenges with connectivity, devices, privacy, and information sharing. Paper Chapter 3 highlights instances when telehealth was viewed to be not appropriate comparatively between care providers and care users. Specifically, participants indicated that telehealth was not appropriate for visits involving resident-physician introductions, in-depth medical conversations, or hands-on assessments and diagnoses. This analysis offers novel insights that can be integrated into plans around continued telehealth use in the sector. Chapter 4 concludes the thesis. It highlights how my research objectives were met and provides an overview of relationships between the two analyses and offers recommendations going forward to support telehealth use in LTC homes.

1.6. Positionality and Reflexivity

When engaging with participants, research may be 'insiders' (sharing similar group identities) or 'outsiders' (not sharing similar group identities) (Clarke & Braun, 2013; Bourke, 2014). Overall, a researcher's positionality can shape the design and direction of a study, and thus it is essential that it be acknowledged (Yip, 2023). As such, here I reflect on my own role as a researcher within the study and my connection to those who I interviewed.

I am not an insider to any of the groups who participated in this study. Being a researcher who had no prior experience with LTC before this study, I sometimes found it hard to relate to many of the everyday processes that occurred within these homes. When conducting interviews within LTC homes, for example, I felt at times like I was continually adjusting to the environment to ensure I was being respectful to the residents, family, and staff. During interviews with residents, I found it difficult at times to relate to their lived experiences as I am young and identify as healthy. Further, I have had few interactions with people managing cognitive impairments prior to this study so I could not draw on my own lived experiences to support conversational flow with residents.

I do not have a comprehensive understanding of medical practices and healthcare systems in comparison to the care provider participants (LTC staff, and physicians) I interviewed. As such, at times I had difficulty understanding certain terms or acronyms they used during interviews. When interviewing physicians, I also found that in some instances I felt unsure about redirecting the conversation due to the apparent power dynamic as well as the understanding that they were taking time out of their busy schedules to accommodate participating. Despite feeling like an outsider and having challenges in some of the interviews, having little existing experience with LTC allowed me to stay open-minded as I did not come in with preconceived notions or biases.

Reflexivity describes a researcher's role in the creation of knowledge while being transparent about how personal biases, positionality, and social background have shaped their research (Palaganas et al., 2017; Dodgson, 2019). I was fortunate enough to have multiple factors that significantly enabled me to complete this thesis research. First, my thesis supervisor involved me in the early stages of the larger evaluation study, which allowed me to be meaningfully involved in planning data collection and leading analyses. Second, becoming a part of the Long-Term Care and Assisted Living Research Unit at Fraser Health allowed me to collaborate with embedded researchers who were able to assist me with learning more about what LTC is and how it functions. Having team members who gave me access to continuous feedback and support was vital to the completion of my thesis. Third, I was provided opportunities to present emerging findings to different audiences, which supported me in gathering feedback from multiple audiences that I used to refine my approaches to the analyses presented in Chapters 2 and 3. Across these opportunities, which I acknowledge are not always

present for graduate students, I have gained significant tangible knowledge that has supported the completion of the thesis and building my own confidence in integrating the findings into the larger evaluation study.

1.7. Summary

My thesis utilizes qualitative data gathered through semi-structured interviews and focus groups to explore the perspectives of care recipients and providers regarding the rapid rollout of telehealth services for physician visits in LTC homes during the COVID-19 pandemic. Multiple analytic themes were identified relating to challenges with physical infrastructure to support telehealth and the appropriateness of telehealth use in particular care instances. Based on the findings, recommendations are provided that can inform decision-makers who aim to support future continued use of telehealth in LTC. I believe that this thesis is topical, and the literature reviews in Chapters 2 and 3 highlight the novelty of the analyses relative to existing knowledge. Most importantly, many LTC physicians in Fraser Health have indicated they will continue to provide telehealth services throughout the course of the larger evaluation study. As such, it is essential to understand how telehealth can be best implemented into LTC to ensure it is effective and equitable for care recipients and providers alike.

Chapter 2. "*I would have to walk around to find the best Wi-Fi connection…*": Qualitatively exploring challenges associated with rapid rollout of telehealth in Canadian long-term care homes

2.1. Abstract

Background: Early in the COVID-19 pandemic, long-term care (LTC) homes in British Columbia, Canada, restricted visitation to ensure the safety of their residents against transmission of the novel coronavirus. As such, these LTC homes had to quickly implement a rapid rollout of telehealth services to maintain physician care for residents while avoiding the infection risk of in-person visits amidst lockdown measures. The abrupt transition from traditional in-person physician care to telehealth presented significant challenges. Investigating these challenges is pivotal to the development of strategies for sustained telehealth use for physician services in LTC homes. **Methods:** This analysis is part of a broader qualitative, utilization-focused evaluation study of telehealth services rapidly implemented for physician care in LTC homes within the Fraser Health Authority region of British Columbia. The evaluation has aimed to consider integral factors such as telehealth challenges, facilitators, preferences, and continued use. Semi-structured interviews and focus groups were conducted with 70 physicians, staff, residents, and family caregivers across 27 different LTC homes in the region. All interviews and focus groups were transcribed verbatim and were analyzed using a thematic approach to identify common barriers surrounding the rapid rollout of telehealth in LTC across relevant groups. **Results:** From the data, four challenges were identified: connectivity challenges (e.g., inconsistent or no Wi-Fi or cellular connectivity), device challenges (e.g., lack of accessible devices and software issues), privacy challenges (e.g., lack of private space to support telehealth use), and informational challenges (e.g., lack of electronic medical record access). All challenges posed barriers to telehealth access for both care provider and recipient groups in LTC settings. **Conclusions:** The challenges identified in this analysis are supported by existing literature, which is significant given the different contexts within which such research has been undertaken. Collectively, this knowledge base can support evidence-informed improvements to telehealth for physician care in LTC settings. Future research should capture the

perspectives of diverse cultural groups, LTC residents with cognitive impairments, and those who provide and receive care in rural settings.

2.2. Background

Long-term care (LTC) homes - also known as nursing homes, personal care homes, or residential care facilities (Canadian Institutes for Health Information, n.d.) – provide round-the-clock on-site health and personal care for people with complex medical care needs who are no longer able to live independently (Canadian Institutes for Health Information, n.d.; National Institute of Aging, 2023). LTC often houses people who are 65 and older, many of whom have chronic conditions such as physical or cognitive impairments, including dementia (Pillemer et al., 2020). Within the Canadian province of British Columbia (BC), LTC homes have care teams that are equipped to deal with the complex medical needs of the residents, including nurses, physical therapists, and social workers (Fraser Health, 2023; Government of British Columbia, n.d.), along with a dedicated physician (The College of Family Physicians of Canada, 2011). The nature of these teams, and the size of the home, depends greatly on their jurisdiction and ownership. Within BC, approximately one-third of LTC homes are publicly funded and run by the regional health authority that administers publicly funded care where they are located (Cox et al., 2023). Fraser Health is one such regional authority, which serves the largest number of British Columbians of any regional health authority in the province and is the focus of the current analysis (Fraser Health, n.d.).

The effects of the COVID-19 pandemic were devastating for Canada's LTC homes, with this care sector seeing virus outbreaks and subsequent deaths in homes throughout the country (Akhtar-Danesh et al., 2022; Liu et al., 2020; Estabrooks et al., 2020). Early research emerged showing that LTC residents often have health complications that put them at an increased risk of severe infection or even death after contracting COVID-19 (Thompson et al., 2020). In comparison to other countries, Canada's LTC sector had the highest proportion of deaths related to COVID-19 reported globally (Canadian Institutes for Health Information, 2021b). Within BC, the greatest number of deaths and outbreaks happened in LTC homes within the Fraser Health Authority region (Cox et al., 2023). In an attempt to control outbreaks and lessen viral spread, particularly prior to the arrival of vaccines, healthcare jurisdictions across Canada implemented policies to restrict visitation to LTC homes in order to protect

residents and staff alike (Liu et al., 2020). Within the Fraser Health region, these 'lockdown' protocols included heavily restricting family and friend visits, limiting opportunities for staff to work in more than one LTC home, and reducing in-person visits from physicians and other healthcare providers (Vijh et al., 2022; Sorensen et al., 2024; Fraser Health, 2021).

To support access to physician care for residents during COVID-19-related care home lockdowns, telehealth was rapidly rolled out by LTC sector administrators in many jurisdictions in BC, including by the Fraser Health Authority (Warmoth et al., 2022). Telehealth involves providing medical care through methods such as video and phone calling, emailing, and texting and is a type of virtual care (Catalyst, 2018). Traditionally, telehealth was used as a supplementary mode of care delivery in LTC homes, with in-person family physician and specialist appointments being the norm (Edirippulige et al., 2013; Gray et al., 2012). At the outset of the COVID-19 pandemic, however, the preferred mode of medical care rapidly shifted to providing even the most routine physician consults by telehealth to limit the movement of non-essential people into and out of care homes (Groom et al., 2021; Doraiswamy et al., 2021; Dai et al., 2023). The rapid nature of the rollout of telehealth in LTC homes as a measure to protect residents' health left little opportunity for evidence-informed planning, such as ensuring infrastructure readiness to support this mode of care delivery. There is an opportunity now, however, to retrospectively evaluate this rapid rollout period to identify experienced challenges that can inform thinking and planning around the continued use of telehealth in LTC homes to support physician care. Such research is of critical importance given the number of physicians across Canada who indicate an intention to substantially maintain or increase care provision via telehealth relative to pre-pandemic rates (Canada Health Infoway & Canadian Medical Association, 2021), including within LTC contexts (Chuen et al., 2023).

The analysis presented herein qualitatively identifies and explores four critical challenges experienced during the rapid rollout of telehealth in Fraser Health's LTC sector in response to visitation restrictions, including by physicians, to minimize COVID-19 spread. Importantly, we triangulate the experiential perspectives of two groups: care providers (i.e., front-line LTC staff and physicians) and care recipients (i.e., LTC residents and family caregivers). While there is some existing literature that engages with understanding challenges and barriers to telehealth uptake in LTC (e.g., Khowaja et

al., 2023; Breton et al., 2021; Tan et al., 2024), it heavily draws from the care provider perspective or uses quality indicators that have been gathered without direct engagement of relevant groups. The current analysis thus presents novel insights while also contributing to a larger utilization-focused evaluation anchored around three objectives that will ultimately mobilize the findings directly to LTC leadership in the Fraser Health region to support experientially informed, recipient-centered, and provider-engaged approaches to sustained telehealth use for physician care in this sector.

2.3. Methods

The current analysis contributes to a qualitative evaluation study of the rapid rollout of telehealthcare in LTC during the COVID-19 pandemic within the Fraser Health region. The objectives of the larger evaluation study were to: (1) explore residents' and family caregivers' experiences of receiving physician care by telehealth, including their preferences for such care in LTC homes; (2) examine physicians' and healthcare providers' experiences of coordinating and delivering care by telehealth and their preferences for doing so post-pandemic; and, (3) develop actionable tools to address identified facilitators and challenges to inform an equitable telehealth physician care program that is person-centered, coordinated, and value-based. Patton's (2008) 12-step utilization-focused evaluative process informed our design, whereby steps look at readiness to evaluate; evaluator readiness; engagement of end users; situational analysis; identifying end users; defining evaluative scope; choosing techniques; piloting techniques; collecting data; analyzing data; knowledge mobilization; and reflection. Utilization-focused evaluation focuses on collaboration between specific end-users and researchers to ensure that findings are useful and relevant for future decision-making (Patton, 2008). Initial steps in the evaluation process identified the relevant groups consulted in the current analysis to be important knowledge holders. They also led us to partner with the Fraser Health Long-Term Care and Assisted Living Research Partners Group – a research advisory group of LTC residents, family members, volunteers, and staff – to ensure we maintained a focus on the intended use of telehealth for physician care by intended users. Our research team thus consisted of health services and LTC researchers who span academic and health authority contexts, as well as the relevant groups involved in this advisory group.

Our conceptual approach to understanding the domains of significance related to facilitating the implementation and use of telehealth in LTC for this utilization-focused evaluation was informed by Canada Health Infoway's Benefits Evaluation – Clinical Adoption Framework (Lau et al., 2011). This Framework identifies two scales of factors that are critical to the adoption of telehealth for physician care in practice settings (Lau et al., 2011):

> (1) micro-level-factors: health information system quality (performance of the online systems), usage quality (user satisfaction and usefulness), and net benefits (care quality, access and availability of services, and productivity); and
>
> (2) meso-level-factors: people (who was involved and their roles), organization (strategy, culture, structure, infrastructure), and implementation (project management and adoption).

These scales of factors intersect with the four components of the Quadruple Aim of health system strengthening, which is to improve patient and caregiver experiences, health, healthcare costs, and quality of work life for health workers (Sikka et al., 2015; Bodenheimer & Sinsky, 2014). We thus viewed data collection as an opportunity to contribute important insights into more meaningfully addressing the quadruple aim in LTC settings through the lens of telehealth use in this care context at the micro- and meso-level.

To explore the differing perspectives on facilitators and barriers to the implementation and use of telehealth during the COVID-19 pandemic, four relevant LTC groups were identified in the initial steps of the evaluative process for primary data collection: residents, family caregivers, providers, and physicians. *Residents* were those who resided in LTC homes in the Fraser Health region. *Family caregivers* were those involved in coordinating, supporting, or supplementing a resident's medical care as a friend or family member. *Providers* were those who worked and assisted with telehealth use within LTC homes (e.g., Licensed Practical Nurses, Registered Nurses, Directors of Care, and Recreation Staff). Lastly, *physicians* provided medical care to residents in LTC via telehealth. We aimed to conduct both one-on-one (at least 5 per group) and dyad interviews (at least 5 pairs) with LTC residents and family caregivers, one-on-one interviews with LTC providers (at least 20), and a single focus group with physicians (6-

10 participants). Overall, we aimed to recruit at least 50 participants across the four relevant groups consulted in this evaluative study, using a temporal cut-off of a six-month data collection period that reflected the time made available by our health system partners to support this evaluation and our research resources.

All participant groups were recruited over a six-month period in 2023. To recruit residents, family caregivers, and staff emails were sent to Nurse Managers in each of the 83 LTC homes in the Fraser Health region describing the study and asking for information to be shared with potential participants. To recruit physicians, emails were sent to Facility Medical Directors in the 83 homes inviting participation. Nurse Managers and Facility Medical Directors were also able to request posters that could be put up in appropriate spaces (break rooms, family member visiting areas, etc.). All recruitment materials were in English but could be requested in French, Korean, Punjabi, Farsi, Spanish, Chinese, and Vietnamese, which are all common languages in the region. The study was also advertised via a health research participant recruitment website, REACH BC. In addition to sharing study details and research team contact information, all recruitment tools noted a CAD$50 honorarium upon completion of the interview or focus group.

Eligibility to participate in the study was relatively straightforward. Residents had to be cognitively able to provide informed consent and be living in a LTC home where telehealth for physician care had been made available. Family caregivers were unpaid and untrained carers who had supported telehealth use for a resident. For dyad interviews, caregivers had to have been providing this support for the participating resident. Providers had to have had direct experience supporting the use of telehealth for physician care. Finally, physicians had to have direct experience in using telehealth to deliver medical care to residents. The overriding geographic inclusion criterion was that all participant groups had to have had this involvement in a LTC home in the Fraser Health region.

Semi-structured interviews and focus group guides (See Appendix B) were created for each participant group, with questions being informed by Canada Health Infoway's Benefits Evaluation – Clinical Adoption Framework and the Quadruple Aim of health system strengthening. Interview guides for all groups started with demographic questions (See Appendix A) as well as an assessment of digital literacy. This

assessment was done via administering the standardized Digital Health Literacy Scale (See Table D1, Appendix D), which assesses one's ability to independently use technology and solve technological issues by a three-item, five-point Likert scale (Nelson et al., 2022). The focus group was held virtually following a virtual administrative meeting among LTC physicians so as to facilitate participation. One-on-one and dyad interviewees had the option of participating virtually, by phone, or in person in the care home based on personal preference. An audio recording device was utilized to record phone and in-person interviews, while virtual interviews and the focus groups were recorded using Microsoft Teams. Interviews and focus groups were administered following participants providing oral consent to participate in the study. Interviews typically lasted 20-30 minutes, while the physician focus group ran for an hour. Interviewers were a group of trained research assistants led by the first author.

All interview and focus group recordings were transcribed verbatim using a professional service. The lead author reviewed transcripts for completeness and resolved any inconsistencies before analysis. To facilitate analysis, anonymized transcripts were imported into NVivo for data management. A thematic approach to analysis was employed, informed by Braun and Clark's (2012) design. First, members of the Fraser Health Long-Term Care and Assisted Living Research Partners Group were each assigned 3-4 transcripts to independently review. This review focused on identifying expected and unexpected experiences shared in the interview and focus group discussions. Group members then met identify important and meaningful directions for analysis with members of the research team. Members of the research team iteratively used insights from this meeting, ongoing conversations about analytic possibilities documented in fieldnotes and shared in team meetings throughout data collection, and their own independent transcript reviews to ultimately identify three meta-themes to be explored through thematic analysis. These preliminary (i.e., pre-coding) meta-themes were presented back to the Long-Term Care and Assisted Living Research Partners Group to reinforce best practices for engagement and to enhance rigour via triangulation.

Following identification and confirmation of the meta-themes that could serve as directions for thematic analysis, a coding tree was created and organized around themes and sub-themes. These themes and sub-themes were both inductive and deductive, reflecting insights from the triangulated process of identifying the meta-themes as well

as the questions probed in the semi-structured guides. The research team worked together to create this coding scheme, with the first author conducting the coding. A single coder was used to enhance consistency, but any uncertainty regarding interpretation was taken back to the research team by the coder to ensure consensus. Consistent with thematic analysis, upon completion of coding the team returned to the literature to identify existing research closely aligned with the meta-themes to facilitate consideration of the scope and scale of each as it related to the evaluative study and the novelty of the related findings. Following this, the team worked to assign the coded data to the meta-themes. In the remainder of this paper, an analysis of one of the meta-themes, challenges with rapid virtual physician care roll-out and adoption in LTC, is presented. The other meta-themes will be presented in separate analyses. This analysis draws upon four themes coded for within the dataset around the challenges meta-theme. Verbatim quotes are integrated to support the interpretation of these themes and enhance rigour via authenticity.

2.4. Results

A total of 70 people participated in this study across the relevant groups: residents (n=26), family caregivers (n=13), care staff (n=16), and physicians (n=15). Participants lived, worked, or supported care in 27 of the 83 LTC homes (32.5%) in the Fraser Health region. Forty-two identified as women (60%), 27 as men (39%), and one as non-binary (1%). Table C1 (See Appendix C) expands on the demographic characteristics of care recipients (residents and caregivers). Table C2 (See Appendix C) shares details on formal care provider groups (care staff and physicians).

Thematic analysis of the interviews and focus groups identified four primary challenges that were experienced during the rapid rollout of telehealth in LTC for physician care as a protective measure during the COVID-19 pandemic. These challenges were related to connectivity, devices, privacy, and information. In the sections that follow, we expand upon these challenges, offering first-hand insights from participants. Though we consider each challenge separately, we acknowledge that there are interconnections and expand upon some of these in the discussion section.

2.4.1. Connectivity Challenges

The most commonly discussed challenge that negatively impacted the effective provision of telehealth for physician care was the immense gap in Wi-Fi and cellular infrastructure present in LTC homes relative to the level of connectivity required to actually support virtual visits. In fact, many participants indicated that they were living or working in LTC homes with no Wi-Fi connectivity. Workarounds had to be quickly identified and implemented. In one example, a care staff detailed that their LTC home was using work phones with cellular data to support telehealth in the absence of Wi-Fi. Cellular infrastructure was also not seamless throughout the region. As another participant explained: *"If I said I wanted to speak to a doctor, I would call from home because I couldn't risk calling from the facility."* Many physicians shared that LTC buildings were typically old and, as a result, they had issues connecting virtually, if at all. The sentiment *"the homes cannot support a lot of the technology that we want to use"* was echoed by many.

Connectivity inconsistencies were commonly reported in LTC homes that had existing infrastructure to support telehealth. Numerous participants, for example, described encountering functional and dead zones for both Wi-Fi and cellular connectivity. Consequently, there was a consistent movement of staff and residents alike within homes to find a strong enough connection to support a telehealth visit, which negatively impacted on-site strategies to reduce COVID-19 transmission. In one instance, a caregiver described having to *"walk outside the building in order for it [connection to a care conference] to work many times."* A care staff member shared a similar experience: *"my Care Manager would have to move her computer around to see where she would get the [connectivity] bars. Sometimes, when I was doing meetings, I would have to walk around to find the best Wi-Fi connection."* Staff movement of this kind was not ideal as it often took them away from the resident they were supposed to be on the call with, as in many cases residents faced mobility restrictions. Participants also explained how the search for connectivity also posed time management implications, taking them away from other critical tasks as they looked for an area with Wi-Fi or cellular reception.

2.4.2. Device Challenges

Participants felt there were not enough existing online capable multimedia devices, such as tablets and mobile phones, available in LTC homes to sufficiently support the rapid rollout of extensive telehealth for physician care. Many residents discussed how devices made available by care homes were often already in use when they needed them or required them to relocate to common areas for virtual appointments due to internal protocols. Care staff from multiple LTC homes expressed that facilities were simply unprepared when it came to ensuring device accessibility for telehealth. A common problem was coordinating device use. This was particularly problematic for homes with large resident populations. One care staff explained that *"we could have used an additional laptop or tablet because we only had one per floor and have seven floors."* Physicians reiterated that many of the homes they visited did not have the appropriate technology to support telehealth. For example, reports of the lack of devices that allowed taking and sending photos during telehealth visits were numerous. This led some staff to use personal devices to facilitate taking and transmitting photos, which physicians noted raised significant privacy issues.

Software access compounded the device availability challenges reported by participants. For example, participants discussed how preferred platforms, such as FaceTime, were not commonly available on devices owned by LTC homes. Others reported software updates not being initiated resulting in Zoom calls failing. As a care staff who worked in multiple LTC homes explained: *"it's not very efficient when the softwares [sic] and things are not kept up to date. And if the devices become old or there's some issues with it, care facilities sometimes don't know that."* External devices owned by family caregivers that connected to telehealth meetings also ran into issues, which created problems for telehealth. Staff reported troubleshooting challenges that emerged when family members joined telehealth appointments remotely. A family caregiver discussed how *"the sound quality of the [telehealth] meeting wasn't that good. And it could be our fault because our computer is old."* Overall, device age limitations and software absence or inaccessibility consistently challenged telehealth use for physician visits across all participant groups.

2.4.3. Privacy Challenges

Private spaces for telehealth meetings were not available in every care home. One caregiver noted they did not feel comfortable sharing personal health details with a physician during a phone call in the care recipient's room because a roommate could listen in. Numerous participants echoed such privacy concerns. Even if a home had private space available for telehealth, not all residents were mobile enough to be relocated. An administrator explained that *"if the resident can come to my office…we'll do it in there. But there are some residents that don't like to leave their room, or because of function and pain, they don't do well in their wheelchair."* Private bedrooms with doors that could close were viewed as optimal spaces for telehealth: *"We had no noise and distractions because we were in a private resident room."* Noise distractions in non-private spaces were seen as highly disruptive, especially for residents with cognitive impairments. Some care staff also felt they found it hard to fully focus on supporting telehealth appointments when there were a lot of disruptions in the background.

Many participants discussed having access to private spaces outside of residents' rooms in LTC homes, but it was suggested that many of these spaces could not support telehealth meetings effectively. Prior to the COVID-19 pandemic, these spaces were used for in-person checkups and medical visits. It was uncommon for these rooms to have been outfitted to support virtual appointments, and thus they typically had poor Wi-Fi connectivity. This issue was particularly problematic for smaller care homes, as one care staff noted: *"Our building is very small, so we had a real lack of privacy. When we identified a private area, we didn't really have good Wi-Fi connection."* Many physicians indicated that they had to give up on video calls and switch to cellular calling into care conferences held in the LTC home due to poor Wi-Fi in private medical visitation rooms. This strategy took away the potential for visual interaction being supported by telehealth during these visits.

2.4.4. Informational Challenges

A prevalent challenge reported by care providers was the unavailability of electronic medical records (EMRs) during the rapid rollout of telehealth. For some physicians, having access to EMRs created a streamlined process for being able to effectively monitor residents and have access to their medical histories when working

off-site. However, not all homes supported EMR use, which led to increased informational discontinuity, given that opportunities for on-site care were extremely limited. This was especially true for LTC homes where patient charts were kept on paper, whereby remotely following *"what was going on with people…was not an option"* via virtual visits. Another physician went further to say that *"there's a very clear line in the sand that paper-based charts are terrible and do not support off-site access."* Several LTC homes in the region used paper charts at the point of rapid telehealth rollout, which created extensive care coordination and informational continuity challenges in the context of virtual physician visits.

The rapid rollout of telehealth within LTC homes prompted some sites to push EMR rollout simultaneously. One care staff highlighted their experience: *"Our goal was to have an electronic medical system called eMAR, so they had our Wi-Fi bumped up. They thought it would work really well, and then the first day we started using the records, it crashed, and we haven't gone back to using it again."* In this instance, the care home had to continue using paper charts despite knowing the impacts this would have on supporting telehealth for physician care. Experiences such as this one also pointed to the amplified demand that remote care placed on LTC homes with regard to Wi-Fi infrastructure in instances where it was strong enough to support telehealth.

2.5. Discussion

Contributing to a larger utilization focused-evaluation, the findings shared above highlighted the lived experiences of both care recipients and care providers within LTC settings during the rapid rollout of telehealth services for physician visits during the COVID-19 pandemic, with a focus on four types of challenges experienced. There are important interconnections between these challenges. For example, connectivity challenges, specifically reliable Wi-Fi access, proved to be a catalyst for contributing to other challenges. This included weak Wi-Fi access negatively affecting the functionality of online EMRs during telehealth visits while also not allowing for appropriate spatial privacy due to needing to avoid 'cold zones' during appointments. While device challenges were reported by all participant groups, care staff were particularly affected as it was their responsibility to keep a constant stream of communication between residents, their families, and physicians during the rapid rollout of telehealth and throughout the pandemic. The magnitude of how challenges were experienced and what

their impacts were varied, with the size, layout, and age of LTC homes playing a key role in such variation. In the remainder of this section, we contrast the findings against existing knowledge to identify novel contributions while also considering implications for continuing telehealth use for physician care in LTC post-pandemic and for future research.

Connectivity issues have been highlighted as a substantial barrier that negatively affects telehealth use in other LTC studies. For example, two recent syntheses identified a lack of Wi-Fi connectivity to be a substantial barrier to effective telehealth use in LTC homes across a number of geographic contexts (Groom et al., 2021; Tan et al., 2024). Even more closely aligned with the current study, Mohammed and colleagues identified how, in another Canadian province, limited Wi-Fi connectivity negatively impacted the use of virtual care across all primary care sectors, including LTC, throughout the COVID-19 pandemic (Mohammed et al., 2021). Further, our findings support prior research showing that Wi-Fi connectivity can be greatly affected by the age of an LTC home (Ickert et al., 2020). Device challenges have also been discussed extensively in related literature. A study conducted in a region of Ontario, Canada, noted that a number of LTC homes had to fundraise in order to purchase tablets for telehealth and social use by residents during the lockdown stages of the COVID-19 pandemic (Khowaja et al., 2023). In some cases, the devices that were donated were older and did not fully support telehealth (Khowaja et al., 2023), which aligns with the device challenges commented on by participants of the current study. A focus group study of Canadian family caregivers in LTC during the COVID-19 pandemic further identified the lack of suitable technology and the inability of existing technologies to adapt to the needs of residents as substantial barriers to effective virtual visitations (C.H. Chu et al., 2022). When coupled with the findings of this analysis and the larger utilization focused-evaluation study, this research can and should be collectively leveraged to call for improvements in Wi-Fi and device access and upkeep that can ultimately positively impact, for example, the maintenance of spatial privacy during virtual care in LTC homes.

One of the most significant challenges identified by participants was the lack of EMR use in LTC homes and how this negatively affected the provision of telehealth. Our interviews did not set out to probe EMR use, but it was a consistent talking point for care provider participants in particular. The connection between the presence of EMR use

and the success of telehealth for physician care is not well established in the LTC literature on virtual care. A Canadian study examining family physicians' experiences of delivering virtual care during the COVID-19 pandemic found that EMR access greatly facilitated such care provision (Hedden et al., 2023). Participants in the current study echoed this, though in the context of the care provided in LTC homes. The importance of having access to private space and facilitating such privacy to support telehealth use is another aspect of the findings of the current study that has received relatively little consideration in the LTC literature. Many homes, especially in Canada, have rooms that are not private (Liu et al., 2020; Stall et al., 2020). For this reason, best practices around providing privacy during virtual visits are not shared widely. One study notes that LTC residents may be fully content with using a conference room for telehealth meetings (Perri et al., 2020); however, the transferability of such a practice is limited to homes with good Wi-Fi connectivity and device access. This was not the case for many LTC homes in the current study, where findings documented residents being moved into open, non-private spaces with good Wi-Fi access or even using care providers' private devices on entranceways outside homes during appointments.

The findings of this analysis can be used to inform the identification of opportunities to reduce future challenges surrounding the implementation and continuation of telehealth services in LTC for physician care. For example, the four challenges identified provide insight for LTC administrators in Fraser Health and beyond as to where additional capacity is needed within LTC homes to support telehealth use for physician visits as a continuing strategy, which is an objective of the larger utilization-focused evaluation. One example is to identify a space in all LTC homes with stable Wi-Fi and up-to-date technology and software that can be available for telehealth and is maintained for this purpose. Doing so may avoid the fairly consistent movement of both residents and staff within homes reported during this study. While such movement may have been an unintended consequence of rapid rollout, the pace and timelines regarding supporting the continuing use of telehealth in this care sector can involve planning to undo these short-term relocations and the harm they had to residents' privacy. Among other factors, planning for dedicated telehealth spaces will allow for minimizing trip hazards by ensuring that dedicated telehealth spaces can accommodate medically fragile residents (Sixsmith et al., 2013). Overall, better supporting telehealth use in LTC can assist with preparing this sector for health emergency management in relation to

climate emergencies that limit access to care sites by physicians and others (Pierce et al., 2017). Floods, wildfires, and extreme heat have all negatively impacted LTC homes in Fraser Health in recent years, which serves to underscore the importance of being able to provide telehealth options for residents and physicians alike (Wollschlaeger et al., 2022). Finally, many Canadian physicians have expressed a desire to continue to use telehealth services that were rolled out rapidly during the COVID-19 pandemic (Canada Health Infoway & Canadian Medical Association, 2021; Mohammed et al., 2021; Johnson et al., 2021) and so preparing LTC support this care medium into the future is responsive to providers' requests.

Many important directions for future research emerge from this analysis, three of which we highlight here. First, this analysis has explored challenges that were experienced due to the rapid rollout of telehealth across Fraser Health's LTC sector. It would be very meaningful to explore the opportunities that emerge through the use of telehealth in LTC homes from the same relevant groups consulted in the current analysis. An analytic direction of this nature from the current dataset would directly support the objectives of the larger utilization-focused evaluation, while also allowing triangulated consideration of the challenges identified herein to support actionable solutions. Such insight can support larger, dedicated exploration as to whether or not the opportunities presented using telehealth are substantial enough to warrant the financial and resource investment needed to overcome the challenges identified herein. Second, LTC staff consistently discussed how they were expected to facilitate successful telehealth interactions through getting residents into spaces that could support connectivity, preparing devices, and often initiating appointments. It would be useful for future research to consider informational tools and innovative resources to support inclusive and sustained telehealth for staff and residents with diverse needs, including those living with dementia in LTC homes. For example, telepresence robots, as detailed by Hung and colleagues (2023) could expand on their potential to provide support for telehealth, contributing to inclusivity of care. This research should also consider factors such as training, time availability, and best practice. Finally, there is the potential for the barriers identified in the current analysis to be transferrable to other contexts. Many assisted living apartments, which are residences for residents-primarily older adults -who can live independently but require functional care support, and other residential nursing care settings across Canada supported telehealth use by residents during the COVID-19

pandemic (Abdallah et al., 2022). Thus, the presence of the challenges identified in the current analysis should be explored in these contexts. Similarly, research exploration of the ways in which the challenges identified in the current analysis have been addressed in differing jurisdictions, including areas with fewer health system resources or dissimilar LTC sector structures, would be very useful in terms of identifying directions for solutions that have yet to be considered in Canadian contexts.

2.5.1. Strengths & Limitations

This analysis has several strengths. Most significantly, we gathered perspectives from both care recipients and providers that allowed for a robust analysis of both sides of the care process of telehealth use in LTC homes. Further to this, a sizeable number of LTC homes in the region of focus for this study were involved in data collection, which provided triangulated insight into similar challenges that were occurring across diverse homes in Fraser Health. We believe this, coupled with the contextual information provided about the rapid rollout in Fraser Health, enhances the transferability of the findings. Another strength is that we incorporated a partner-centered approach to data collection and analysis, where people who had close ties to LTC were involved in every stage of the research process. This ensured that the research would be applicable to end-users, informed appropriate language choices for interview materials, and identified meaningful directions for data collection.

There are limitations to our study, three of which we highlight here. First, many residents in LTC homes lack the cognitive capacity to consent to participate in a study such as this (Lam et al., 2018; Hedge & Ellajosyula, 2020). As such, the voices of this majority resident group are underrepresented in the analysis. This means we have missed perspectives on how the rapid rollout affected those who were far into cognitive decline and their family caregivers, though no insights from care provider participant groups indicated that the experiences of this resident group were unique compared to others. Second, although we provided options for data collection to occur in languages other than English, this was requested only once. Fraser Health is an incredibly diverse region of BC, and it is likely that our participant group does not capture the ethno-linguistic diversity of LTC residents and care providers. Finally, residents stay in LTC for an average of approximately two years (Office of the Seniors Advocate British Columbia,

2020). Because of this, our data collection will have substantially missed engagement with residents who experienced the earliest stages of telehealth rapid rollout during the COVID-19 pandemic. This limitation is not specific to our study and is more reflective of conducting evaluative and/or implementation research in LTC contexts.

2.6. Conclusions

The rapid rollout of telehealth in LTC settings across BC to support physician visits during the COVID-19 pandemic had immense benefits as it ensured the continuation of care during a time when in-person visitation was risky and thus discouraged. Despite these benefits, the rapid nature of the transition to using telehealth did not occur without challenges. This qualitative study has identified such challenges that were reported by four distinct relevant groups as part of a larger evaluation study. These challenges relate to connectivity, device use, privacy, and information access. Overall, we found that LTC homes throughout BC's Fraser Health region were largely not adequately prepared for the quick shift from telehealth being a supplementary form of care to becoming the primary form of care. Addressing the challenges is imperative not only for strengthening telehealth practice in LTC sectors but also for ensuring that healthcare service systems are robust against future pandemics or climate emergencies requiring telehealth-enabled physician care.

Chapter 3. "*Nothing is going to replace an in-person visit*": Canadian long-term care providers' and recipients' perspectives on when telehealth for physician visits in not appropriate

3.1. Abstract

Background: Within long-term care (LTC) homes, telehealth use has been found to reduce unnecessary emergency department transfers, support the care needs of rural and underserved communities, and supplement in-person physician care. Despite these benefits, it is not well understood when telehealth is not an appropriate medium for providing physician care to residents with complex health needs. This knowledge gap must be addressed given the recent rise in telehealth use in LTC homes in many health systems following the COVID-19 pandemic, when virtual care use rose in many healthcare sectors to limit travel and in-person exposure risks, that is expected to be maintained going forward. **Methods:** This analysis contributes to a broader evaluative study investigating care provider and care recipient experiences and preferences for physician telehealth in LTC homes within the Fraser Health region in British Columbia, Canada. For data collection, semi-structured interviews and focus groups were undertaken with seventy care providers (staff, physicians) and recipients (residents, family caregivers). Using a thematic approach, transcripts were analyzed to find common instances where using telehealth for physician care was seen as not appropriate across participant groups. **Results:** Three types of patient care activities were identified as not appropriate to be conducted via physician visits using telehealth. First, new patient visits were thought to benefit from an interpersonal and conversational familiarity that could not be supported by telehealth. Second, difficult in-depth conversations that required conversational nuance (e.g., eye contact, supportive body language), such as palliative care planning, were thought to be inappropriate for telehealth appointments. Finally, instances where LTC staff would need to perform hands-on clinical assessments on behalf of physicians who were attending virtually via telehealth were not seen as desirable. **Conclusions:** This analysis highlights perspectives surrounding when telehealth is not appropriate for providing physician services for residents in LTC based on the preferences and experiences shared by both care recipients and care providers. The findings present an opportunity to develop and

implement guidelines on appropriate use of telehealth in LTC to support best care practices.

3.2. Background

Long-term care (LTC) homes are residential care settings where staff provide continuing care to support the personal and medical needs of residents who are unable to live independently (National Institute of Aging, 2023; Canadian Institutes for Health Information, n.d.). LTC residents typically have high rates of cognitive impairment, such as dementia, frailty, and palliative care needs (Yuan et al., 2021; Office of the Seniors Advocate British Columbia, 2023a). While LTC homes typically do not have age restrictions, residents in the Canadian province of British Columbia (BC), which is the focus of the current analysis, are on average 83 years of age (The Office of the Seniors Advocate British Columbia, 2023a). To meet residents' complex and individualized care needs, LTC homes in BC employ a variety of on-site care providers such as, but not limited to, care aides, nurses, physical therapists, and social workers (Fraser Health, 2023; Government of British Columbia, n.d.). Further, each home has an associated physician who oversees the medical care of all residents and is available to visit with residents as needed to support their health and wellbeing (The College of Family Physicians of Canada, 2021). While care services and associated support staff may differ between LTC homes across BC, those that are publicly funded and affiliated with regional health authorities generally follow a similar staffing composition.

Telehealth involves using virtual methods, most commonly video and phone calls, to remotely monitor and provide care for patients (Gajarawala & Pelkowski, 2021). Until recently, telehealth in LTC homes was most commonly used to avoid unnecessary emergency department transfers by enabling physicians to call in virtually to make a clinical assessment (Sunner et al., 2023; Gillespie et al., 2019; Perri et al., 2020). This technology reduced stress and potential infections for residents associated with being hospitalized (Hofmeyer et al., 2016). LTC homes in rural and remote areas have also benefited from telehealth as this care medium has improved access to physician and specialist care for residents (Dai et al., 2023). During the COVID-19 pandemic, LTC homes throughout BC and across Canada enacted strict visitation restrictions to safeguard residents against the virus (Saad et al., 2022; Vellani et al, 2022). Consequently, there was a significant increase in telehealth use to ensure that residents'

health needs were being met despite the minimized on-site presence of physicians (Dai et al., 2023; Harris et al., 2021). Physicians across many care sectors in Canada who shifted to using telehealth as a primary form of care delivery during this period have indicated an intention to continue using it at rates greater than they did prior to the pandemic (Collins et al., 2024; Yu et al., 2023). This is true in BC's LTC sector, where telehealth is no longer thought of as a secondary or supplementary medium for care delivery by physicians.

Research has documented some instances in which telehealth use is both common and desired in the LTC context, most of which are intended to supplement in-person physician care (Edirippulige et al., 2013). For example, one common use is for physicians to regularly review medications being taken by residents via phone or video (Walton et al., 2023). Some physical assessments are successfully conducted by telehealth, such as monitoring wound care (Gray et al., 2012), assessing spasticity (Harper et al., 2019), and orthopedic consultations (Cheng et al., 2020). For mental health assessments, telehealth has been used for diagnosing and evaluating dementia-related psychosis (Shaughnessy et al., 2022) and other psychiatric consultations to improve quality of life (Groom et al., 2021). Great uncertainties remain, however, regarding instances in which it is not appropriate or desired to use telehealth for providing physician care for LTC residents and their complex medical and social support needs. This draws particular concern given the pressing need to support best practice in light of the sustained, more-than-supplementary use of telehealth by physicians in the LTC sector post-pandemic.

The qualitative analysis presented herein responds directly to the knowledge gap identified above by integrating the perspectives of LTC care providers and recipients alike to explore specific instances when telehealth for physician visits is understood to be undesirable or inappropriate. We draw together insights from staff, physicians, residents, and family caregivers involved in the LTC sector in the populous Fraser Health Authority administrative region of BC. While some existing literature has looked at telehealth appropriateness in the LTC context (e.g., Wardlow, 2023; Chua et al., 2024; Ladin et al., 2024), it is still quite limited and perspectives from care recipients are severely underrepresented. The current analysis not only gives voice to this underrepresented group but also considers (in)appropriateness at a very granular level by acknowledging different types or purposes of physician visits that take place in LTC.

Not only does this analysis support addressing gaps in our knowledge about the use of telehealth for physician visits in LTC, but it also contributes to a larger utilization-focused evaluation being conducted in partnership with the Fraser Health Authority. As such, the findings will be used by decision-makers within the Fraser Health Authority and other knowledge users across BC to inform best practice planning and implementation regarding when telehealth is not appropriate and in-person physician care is best to support LTC residents' complex care needs.

3.3. Methods

The current analysis is part of a larger qualitative evaluation study that has retrospectively investigated the rapid roll-out of telehealth services to support physician visits implemented in LTC homes at the outset of the COVID-19 pandemic. The evaluation has also explored interest in maintaining or increasing telehealth use in LTC homes in the region post-pandemic, identifying lessons from the rapid roll-out period for continued use. The area of focus of the evaluation is the Fraser Health Authority region of BC, which houses 83 LTC homes. The study was designed using Patton's (2008) 12-step utilization-focused evaluation process. The evaluative steps required us to: consider the readiness for the evaluative focus; consider the readiness of the evaluative team; engage end users; conduct a situational analysis; identify participant groups; define the evaluative scope; choose data collection techniques; pilot data collection techniques; collect data; analyze data; mobilize knowledge; and critically reflect. Utilization-focused evaluation requires an integrated knowledge translation approach as it emphasizes the collaborative efforts between researchers and end-users to ensure the relevance of findings for future decision-making (Patton, 2008). The Fraser Health Long-Term Care and Assisted Living Research Partners Group, which includes LTC residents, family members, volunteers, and staff, was involved throughout the evaluation to ensure an engaged and patient-centered approach was integrated into every component. The conceptual framing of the evaluation was informed by Canada Health Infoway's Benefits Evaluation – Clinical Adoption framework and Canada's Quadruple Aim for Strengthening healthcare systems (Lau et al., 2011; Canadian Institutes of Health Research, 2022). The former identifies micro- and meso-level factors that contribute to high-quality virtual care, including telehealth, while the latter identifies enhancing patient

experiences, health outcomes, care costs, and healthcare work environments as priorities for creating a strengthened healthcare system.

Four participant groups involved in care provision or receipt in Fraser Health's LTC sector were consulted in this study: residents, family caregivers, providers, and physicians. *Residents* lived in LTC homes and could participate in one-on-one interviews or dyadic interviews with a family caregiver. *Family caregivers* were friends and/or family of those living in LTC homes who took on some informal care responsibilities and could participate in one-on-one or dyadic interviews. *Care staff* worked in LTC homes providing direct care, such as Care Aides and Licensed Practical Nurses, or administrators, such as Directors of Care, and could participate in one-on-one interviews. *Physicians* provided medical care to LTC residents, including via telehealth, and could participate in a virtual focus group. We aimed to recruit at least 70 participants across these groups, seeking to hear from at least 30 care recipients (residents and family caregivers) and 40 care providers (care staff and physicians) from a number of LTC homes across the Fraser Health Authority region. Data was collected over a 6-month period (March to August, 2023).

To recruit care recipients (namely residents and family caregivers) and care staff, e-mails inviting participation were sent to Directors of Care and Medical Directors in each of the 83 LTC homes in the Fraser Health Authority region. The emails contained information about the study and an invitation for staff, residents and caregivers to participate. Posters were also provided that could be displayed in common areas of the LTC home. All recruitment materials were provided in English with the option to request materials in other languages commonly used in the region – namely French, Korean, Punjabi, Farsi, Spanish, Chinese, and Vietnamese. To support physician participation, an invitation was sent to LTC physicians to participate in a virtual focus group immediately following a regional physician leadership team meeting. The study was further advertised to care recipients and care staff on REACH BC, a website where volunteers can sign up to participate in health research in BC.

To be eligible for the study, all participants needed to be cognitively able to participate in an interview and provide verbal consent. Residents and caregivers were not required to have firsthand experience with telehealth services but were recruited from homes where it was known that telehealth was being used for physician care. For

care staff and physicians, it was expected they had experience in either supporting or providing telehealth services for physician visits in the LTC homes affiliated with the Fraser Health Authority. Those who met these inclusion criteria took part in a virtual (online or phone) or in-person interview or focus group and received an honorarium.

All interviews and focus groups started with a series of demographic questions (See Appendix A) followed by the Digital Healthcare Literacy Scale (Nelson et al., 2022). This Scale is the sum of five-point Likert scale responses to 3-items assessing one's ability to utilize different forms of technology and solve basic technological issues on their own (See Figure D1, Appendix D) (Nelson et al., 2022). The main part of the interview included questions about participants' experiences of either receiving or providing telehealth for physician visits (see Appendix B). Further, questions probed into participants' preferences regarding physician telehealth, any barriers or enablers for this care medium, and their telehealth preferences going forward. Each interview was conducted either by the first author or a research assistant trained by the first author. The physician focus group was conducted by a senior member of the research team, with the first author serving as a notetaker. On average, each interview lasted 10 to 30 minutes while the focus group lasted approximately an hour. Interviews and focus groups were audio recorded and professionally transcribed verbatim.

Transcripts were reviewed by the lead author to remove personal identifiers and ensure completeness. Anonymized transcripts were uploaded into NVivo to manage data organization and coding. A thematic approach to analysis was employed, which was informed by Braun and Clark's approach (2012). One member of the Fraser Health Long-Term Care and Assisted Living Research Partners Group and the research team each independently read three transcripts to provide initial input on themes and potential analytical directions to the research team. Three meta-themes were identified for deeper analysis. To further enhance rigour and to engage in best practice around end-integrated knowledge translation, the analytic scope of these meta-themes was presented back to the Long-Term Care and Assisted Living Research Partners Group to ensure that these directions were relevant to current end-users.

Themes and sub-themes associated with the three meta-themes were identified through an iterative process of transcript review and team discussion led by the lead author. The scope of each was confirmed by the second and third authors, after which a

coding tree was created that integrated inductive and deductive codes. The dataset was coded by the first author to ensure interpretive consistency. Input from the second and third authors was sought to address any concerns that emerged during the coding process. Coding extracts were independently reviewed by members of the research team as a final step to confirm the integrity of the coding tree and its interpretation. The research team then met to discuss the details of the analytic directions for each of the meta-themes, two of which were identified to be most robust and ready to move to full analysis. One of these robust meta-themes serves as the focus of the current paper, while the other will be separately explored. Our next step was to contrast the themes central to this analysis against the existing literature to identify the novelty of the analytic directions and opportunities for transferability. This is an important step in thematic analysis (Braun & Clark, 2012). We engage with such literature in the discussion section, while in the section that follows, we present the analytic findings. To support the trustworthiness of interpretation we integrate verbatim quotations throughout from both care provider and care recipient participant groups.

3.4. Results

For this study, 70 participants were recruited from 27 LTC homes in the Fraser Health Authority region across the four groups: residents (n=26), family caregivers (n=13), care staff (n=16), and physicians (n=15). On average, residents were 76 years of age (range: 47-90) and had lived in LTC for 3 years. Family caregivers were on average 52 years of age (range: 24-74). Care staff had worked in the LTC sector on average for 11 years while physicians had done so for 12 years. Using Statistics Canada's ethnicity designations (Statistics Canada, 2022), the majority of participants identified as White (69%) while there were also smaller numbers who identified as Southeast Asian (16%), South Asian (7%), Indigenous (3%), Latin American (1%), and Middle Eastern (1%). Two participants chose not to disclose their ethnicities. Forty-two participants identified as women, 27 as men, and one as non-binary. A majority of residents and family caregivers reported having access to a personal device that they could use for telehealth for physician visits. However, residents were generally more apprehensive than family caregivers about using technology, and only four reported direct experience of having had physician visits via telehealth. Physicians and staff provided and supported care, respectively, using various methods of telehealth such as video and phone calls,

including for physician visits. Physicians and staff felt comfortable using technology with the small exception that care staff indicated they were not as adept at solving basic technological problems as were physicians. Information about the digital literacy of participants is summarized in Tables C3 and C4 (See Appendix C).

Participants across all four groups openly discussed their experiences, observations, and expectations of instances when physician telehealth was perceived as not appropriate. Through thematic analysis we identified three such instances that were discussed with consistency across participant groups: when new resident-physician introductions were being made; when in-depth and difficult conversations needed to be had; and when hands-on clinical assessments were required. Perspectives from care recipient groups and care provider groups offered unique experiential insights on why such instances were deemed not suitable for physician visits via telehealth in the LTC context. In the remainder of this section, we expand on each of these instances, contrasting perspectives from care recipient and provider groups to understand the full scope of why participants identified each as not being a suitable focus for telehealth appointments with physicians. Though we discuss them separately in the following sub-sections, we acknowledge that there are intersections between these instances, some of which we explore in the discussion section that follows.

3.4.1. Care-Recipient-Physician Introductions

Participants in all groups discussed the value of having in-person interactions between physicians and recipients when meeting for the first time. Residents who were admitted to LTC during the pandemic when in-person physician visits were limited, sometimes reported not knowing who their physician was despite widespread use of physician telehealth in their LTC home. It was thought that one reason for such confusion was that introductory meetings had not happened in person. For all participant groups, there was apprehension that not being able to have in-person new patient visits negatively impacted the development of interpersonal continuity of care.

For care recipients, the lack of an in-person introduction negatively impacted the development of a sense of personal connection and rapport with physicians. For some family caregivers, it was mentioned that not meeting directly with the physician providing care raised questions about how care decisions were being made. In some instances,

family caregivers reported only ever meeting with physicians virtually in group contexts: *"out of all of the care conferences, the physician only participated in one or two. It would be great if they could be there more to ask more pointed questions or to have a dedicated phone call."* It was explained that visiting with physicians only in group telehealth conferences was not an adequate substitute for the rapport built through an in-person introductory meeting, nor was communication being channeled exclusively by direct care staff to residents and family caregivers. Two of the four residents who had received physician care in LTC via telehealth mentioned that they felt they could not adequately express their concerns nor speak freely. The sentiment *"It's just a blank conversation back and forth"* was shared by one resident referring to how difficult it was to explain their care needs over the phone to the physician.

The views of care providers were predominately aligned with care recipients with regard to the importance and value of having an initial in-person introductory meeting. Many care staff agreed that an initial in-person physician visit was important for residents since many struggled to actively participate in telehealth meetings due to hearing, visual, and/or cognitive impairments. Care staff also agreed that in-person introductory visits helped residents to get to know the physician responsible for their care. The importance of creating such an understanding was highlighted by care providers. For example, it was noted that it could be confusing for new residents to comprehend that a LTC home physician was now responsible for overseeing their medical care as opposed to the family physician they may have been visiting with in a community clinic for years. Among physicians, it was agreed that it was difficult to get to know residents and their families when having to start building a relationship using telehealth. As one physician put it *"you ultimately need the in-person interaction to establish that trust and the therapeutic relationship,"* while another explained that *"you have to form a rapport with someone before you can carry on with virtual visits."* Comments such as these underscored the significance of shifting to telehealth only after first meeting in person.

3.4.2. Difficult In-Depth Conversations

Participants across all groups agreed that difficult in-depth conversations, such as end-of-life care planning, were not appropriate to be done over telehealth. Participants placed a high value on the tone and dynamics of in-person interpersonal

connections supporting the success of what could be very challenging and nuanced discussions involving several parties. Specifically, care providers and recipients alike noted that telehealth meetings with physicians and others in the care team did not allow for enough eye contact or personal touch to enable positive interactions during difficult in-depth conversations.

For care recipients, telehealth was generally viewed as useful for physicians to quickly consult with residents and not for in-depth extensive consultation and information exchange. For a majority of family caregivers, there was a preference for in-person discussions with physicians for difficult conversations such as end-of-life care planning or other emotionally laden conversations. In such instances, telehealth excluded the integration of caring and comforting body language. As one family caregiver put it: *"with those more serious conversations, I would prefer to have a closer type of dialogue instead of just a few minutes over the phone."* Others related to this experience, adding that it was harder to 'read the room' when difficult conversations took place during telehealth visits. Some were uncomfortable discussing certain topics, such as end-of-life planning, in great depth through telehealth appointments with their physicians, signalling there was a lack of face-to-face contact and personal touch to support them. One resident added that *"because I'm not comfortable with technology,"* participating in any telehealth meetings, whether brief or in-depth, was not an option. This was not surprising given the difficulties residents reported regarding using the types of digital technologies and applications that can support telehealth in Table C3 (See Appendix C), which were much greater than those reported by staff and physicians in Table C4 (See Appendix C). A small number of residents were indifferent as to whether in-depth conversations happened in person or virtually, while some caregivers noted that in-person meetings augmented by telehealth could support the participation of remote family members.

Care providers echoed care recipients' desires for in-person interactions for difficult in-depth conversations, noting the inappropriateness of telehealth for longer meetings with residents and caregivers. As a care staff explained: *"someone who's going to palliative care or going to end-of-life, I really think that still having a physician being there and talking to family is helpful."* Other care staff agreed, adding that having a physician physically present during such discussions reinforced personal connections between care providers and recipients. Most physicians indicated that they were content using telehealth for ongoing minor consults, such as medication reconciliation, but urged

that having an in-person presence was still preferred for in-depth conversations. For example, one physician mentioned *"I personally find having those difficult conversations [with families] face-to-face much easier."* Overall, it was agreed that there needed to be an appropriate balance of telehealth and in-person meetings depending on the nature of the physician visit.

3.4.3. Advanced Clinical Assessments

Participants raised concerns about the feasibility and quality of performing hands-on clinical assessments through telehealth appointments through physicians instructing nursing staff to assess on their behalf. While specific concerns varied by participant group, both care recipients and caregivers questioned the appropriateness of telehealth for clinical assessment. There was consensus that routine assessments, such as blood pressure checks, were suitable for physician telehealth appointments. Alternatively, assessments that required more advanced clinical skills, and thereby necessitated extensive physician guidance for care staff not trained to independently conduct the assessment, were best to be done in person to ensure quality.

Many residents did not note specific preferences for how their physical assessments were done. Instead, they were primarily concerned about how conversations unfolded when care was delivered via telehealth, including during physical assessments. Family caregivers, however, were more vocal about the inappropriateness of using telehealth for physical assessments and diagnostic testing. In a few cases, family caregivers were okay with having minor assessments done via telehealth appointments, such as examining rashes or small wounds using video call functions. Overall, the majority felt that physicians should be present and not reliant on care staff to conduct advanced clinical assessments. The statement, *"as far as I'm concerned, with a vulnerable population, nothing is going to replace an in-person visit,"* aligned with what was said by many caregivers. This was further stressed by another caregiver who explained that *"I didn't really like the virtual or phone because you can't diagnose someone by not seeing them and some of the changes may not always be describable."* Many caregivers were specifically concerned that new symptoms would go unnoticed or undiagnosed if a physician was not present during a clinical assessment.

Care staff mainly echoed the concerns raised by family caregivers, noting that telehealth was inappropriate for physician visits that required hands-on clinical assessment. One main concern for care staff was being regularly tasked with the responsibility for verbally or visually relaying all details about residents' symptoms or being guided by physicians to undertake advanced clinical assessments, which many cited as being challenging. As one care staff participant explained:

> *…in terms of consults with a doctor, it's so hard. I mean you can describe it in your own way, but even if you're doing a video call with them it's hard to distinguish the width and size of a laceration for example. It's so different between in-person versus a picture or video.*

While there were a few physicians who were comfortable with guiding nurses through virtual clinical assessments, most preferred to conduct such consults in person. They specifically felt that telehealth was not an appropriate medium for being able to fully examine a resident and provide an accurate diagnosis in cases requiring more advanced clinical assessment. As one physician put it, *"We were relying on nurses who do not have the same scope of practice. They play an important role, but we were expecting them to be physician assistants [in instances of telehealth appointments]."* Outside of crisis circumstances, such as during limited in-person contact during the COVID-19 pandemic or home closures due to environmental disasters (e.g., nearby flooding), they agreed that telehealth involving advanced clinical assessments were not a suitable replacement for in-person visits.

3.5. Discussion

Our findings have highlighted resident, family caregiver, staff and physician groups' experiences and expectations with telehealth in LTC and their preferences and perspectives on the appropriateness of this care medium for physician visits going forward. Specifically, participants felt that telehealth was not a suitable medium for physician visits in instances of new patient visits, when difficult in-depth conversations were needed, or when involving advanced clinical assessments. These instances were commonly connected to the belief held by participants that using telehealth sometimes negatively impacted the resident, family and staff experience and quality of care as well as the formation of a therapeutic relationship between residents and physicians. Care

providers and care recipients alike further indicated that, in such instances, telehealth created a degree of separation among parties during consults that could not be overcome through conversation alone. The technological divide between residents, who indicated a lack of comfort with using tablets and cellular phones, and care providers created another form of separation between the parties involved in virtual physician visits. The lack of physical co-presence during telehealth appointments meant that such visits were void of face-to-face contact and personal touch, both of which were deemed important when talking about difficult topics in particular. A lack of personal touch further extended to advanced clinical assessments, where concerns were expressed regarding the impact on the quality of care. In the remainder of this section, we consider these findings in light of the existing knowledge base on telehealth use in LTC contexts and highlight some directions for future research.

Multiple recent studies have documented the challenges associated with LTC residents and physicians meeting for the first time via telehealth (Wardlow, 2023; Chua et al., 2024), including the challenges brought on by a lack of physical touch during such initial consults (Allen-Watts, 2021). The current analysis adds nuance to this existing research by integrating the perspectives of both care provider and care recipient groups. Our findings further support prior research that has highlighted that telehealth may be not appropriate for physician visits in LTC when advanced clinical assessments are needed. For example, a scoping review undertaken by Tan and colleagues (2024) identified multiple studies that documented uncertainties regarding how accurate a diagnosis could be if a nurse was describing symptoms through a telehealth medium versus if a physician were to attend in person. The current study highlights the depth of this concern among LTC care staff and family caregivers in particular. Finally, other studies have echoed concerns among physicians that using telehealth for hands-on physical assessments could compromise the quality of care provided to LTC residents as physicians are unable to palpate and examine residents via phone or video (Ladin et al., 2021; Dai, 2024). When pandemic protocols were in place that limited visitation, as was the case in the Fraser Health Authority region, physicians and care staff had to facilitate almost all physician visits via telehealth due to the inaccessibility of in-person care options. However, participants in all groups of the current study felt that advanced clinical assessment was best done in person by physicians and should be conducted in person going forward barring any visitation restrictions that would prevent doing so.

Participants in the current study were unanimous in their belief that telehealth is not an appropriate care medium for difficult in-depth conversations about topics such as end-of-life care planning as there was a lack of personal touch and no possibility of using caring body language. There is little existing consideration of particular conversational contexts such as these related to the appropriateness of telehealth use for physician visits in LTC. As such, this is an important finding that adds critical nuance. Gaur and colleagues (2020) note the importance of ensuring adequate emotional support during advance care planning consults, citing that the social isolation typically experienced by LTC residents – which was heightened during the pandemic - may make telehealth and other virtual care mediums for such conversations more isolating rather than supportive. Residents with auditory impairments will be particularly challenged in meaningfully participating in such in-depth conversations via telehealth (Landin et al., 2021), which may lead to a deeper sense of isolation and lack of emotional support among this group. Despite awareness that telehealth can decrease the ability to read non-verbal cues and provide empathetic physical touch (Duffy et al., 2023), physicians' concerns about the use of telehealth for difficult in-depth conversations captured in the current study were heavily driven by acknowledgement of the threat this care medium places on effectuating the therapeutic bond between patient and physician. The formation and enactment of a trusting, honest, and caring therapeutic relationship between patients and physicians is known to benefit patients' quality of life (Williams et al., 2007; Roter, 2000), including in the LTC context (Terada et al., 2013). Findings from the current study raise questions about how the therapeutic potential of physician visits may be threatened in the LTC context by the use of telehealth, particularly for introductory visits and difficult in-depth conversations.

The findings from this analysis can be used to inform future decision-making on when telehealth should and should not be used to support physician visits in the LTC context within and beyond the Fraser Health Authority region. Attentiveness to providing equitable person-centered care for residents is consistent with avoiding telehealth, when possible, for the three instances identified in this analysis. The COVID-19 pandemic saw a sweeping, rapid uptake of telehealth by Canadian physicians across multiple care sectors, some of whom have expressed concern about the lack of guidelines on when and how this care medium is best used (Hedden et al., 2023). Within LTC, there are also uncertainties about if and how to integrate specialist care into telehealth given residents'

complex care needs (Yu et al., 2023), which is something that was not addressed in the current evaluative study. Moving forward, it is essential that clear guidelines be set by physician regulatory bodies and policymakers in LTC given that Canadian physicians heavily plan to continue providing care via telehealth at a rate higher than they did prior to the pandemic (Canada Health Infoway & Canadian Medical Association, 2021; Johnson et al., 2021; Chuen et al., 2023). It is anticipated that telehealth use will continue to grow specifically in LTC contexts (Yu et al., 2023), which increases the importance of having evidence-based guidelines on the appropriate use of telehealth for physician visits in LTC.

Future research exploring telehealth use in the LTC context should engage with the findings of the current analysis, and here we highlight three meaningful directions. First, our study did not explore specific indicators of care quality or health outcomes related to telehealth use in LTC for physician visits. It would be useful for future research to explore such outcomes related specifically to the three instances identified in this analysis given that care quality served as a significant driver of participants' concern. Second, now that the roll-out of telehealth in LTC has already occurred in the Fraser Health Authority region, there may be opportunities to explore how its use can be improved to ensure that care can be provided more appropriately in a range of emergency contexts when in-person visitation is not possible or limited. For example, climate emergencies, such as wildfires and floods, are becoming increasingly common in BC and elsewhere in Canada (Wollschlaeger et al., 2022). These emergencies can impact physical access to LTC homes due to road closures or flooding, especially in rural or remote communities where crisis response resources are more limited (Festa et al., 2023). Finally, the current analysis has focused on instances when care provider and care recipient participants deemed telehealth to be inappropriate for physician visits. It would be beneficial for future research to qualitatively explore similar topics, such as understanding if telehealth is appropriate for supporting culturally responsive and spiritual approaches to physician care. Such research would be responsive to calls to understand how to better support the culturally informed care needs of LTC residents who identify as Indigenous as current research primarily explores this topic relating to community-dwelling older adults (Webkamigad et al., 2020).

3.5.1. Strengths & Limitations

This analysis has numerous strengths, two of which we wish to highlight. First, we gained perspectives from care recipients and providers alike, which provided a robust understanding of how telehealth for physician visits was experienced or perceived in the LTC context. Our use of a partner-centered approach was a second strength, where people who were closely linked to LTC supported and informed both data collection and analytical directions and enabled integrated knowledge translation. This approach was particularly useful for ensuring appropriate language use in the interview and focus group guides. With regard to limitations, we highlight three. First, a majority of residents in the Fraser Health Authority's LTC homes had cognitive impairments that made them ineligible to participate (Office of the Seniors Advocate British Columbia, 2023b). Therefore, only the perspectives of cognitively able residents were included, which is a group that may not fully represent resident-focused experiential perspectives on telehealth use in LTC. Second, while there were options to do interviews in languages other than English, only one participant requested this. Participants in this study thus lack the full scope of ethno-cultural-linguistic diversity in the Fraser Health region. Third, only a small number of resident participants had first-hand experience with attending physician visits via telehealth. As such, the majority of their input was based on preferences for telehealth going forward instead of direct experience.

3.6. Conclusions

Despite telehealth having various benefits for supporting physician care within LTC homes, there are limits to the appropriateness of its use. This analysis, which contributes to a larger utilization-focused evaluation study exploring the rapid roll-out of telehealth during the COVID-19 pandemic and continued telehealth use in LTC homes in BC's Fraser Health Authority region, has identified three such limits. First, care providers and recipients agree that telehealth is not the appropriate visit medium for when residents and physicians are to meet for the first time. Second, telehealth limits the eye contact and body language that can meaningfully support difficult in-depth conversations during physician visits, such as end-of-life care planning. Third, telehealth appointments are not suitable for advanced clinical assessments if in-person options are available. Going forward, guidelines informing the appropriate use of telehealth-based physician

care for providing equitable person-centered care in LTC should be created and implemented. These guidelines should integrate nuance regarding specific types of visits between residents and physicians and their appropriateness to be supported via telehealth in instances when there are also in-person options available.

Chapter 4. Conclusion

4.1. Overview

Starting in 2020, preventative measures put in place during the COVID-19 pandemic to protect residents' health required Canadian LTC homes to enact strict lockdown procedures that deterred non-essential on-site visitation. As a result, in-person physician care was interrupted in many instances, and a rapid rollout of telehealth services was needed to provide continuity of care for residents. Due to the sudden shift of care provision to predominately virtual methods, there was limited time for consultation to determine how these practices would be best implemented in a LTC setting. Having little consultation was concerning as the best health system changes and innovations come through evidence-informed practices.

Due to the recency of the pandemic, there have been very few empirical studies exploring the rapid rollout or telehealth for physician visits and how it unfolded within LTC homes specifically. This thesis has used qualitative methods, semi-structured interviews and focus groups, across two analyses to better understand the lived experiences of both care recipients and providers (n= 70) and assess the complexities that arose during the rapid rollout. Both analyses came from the same study co-led by investigators at Simon Fraser University and the Fraser Health Authority. Chapter 2 analyzed how ready homes were for the rapid rollout and highlighted challenges surrounding gaps in the physical infrastructure to support telehealth meetings. Chapter 3 explored when telehealth use was not appropriate for certain types of physician care in a LTC context.

Combining both analyses, my research contributes to knowledge gaps pertaining to the challenges associated with the rapid rollout of telehealth in BC's LTC landscape while providing a foundation for future research and decision-making on how best to implement and balance telehealth going forward. In the next section of this chapter, the research objectives set in Chapter 1 are revisited in light of the findings shared in Chapters 2 and 3. From there, future research directions will be explored, and to conclude, the importance of my thesis will be reflected upon.

4.2. Revisiting Objectives

In Chapter 1, three main objectives were set with the goal that my research will support informing best practices going forward for continued telehealth use in Fraser Health's LTC sector based on what was learned from the rapid rollout. The objectives were to: (1) explore residents' and family caregivers' experiences of receiving telehealth during the rapid rollout and their preferences going forward; (2) examine physicians' and healthcare providers' experiences coordinating and delivering care virtually and their preferences going forward; and (3) develop actionable tools to address identified facilitators and barriers to inform an equitable telehealth program that is person-centered, coordinated, and value-based. Each objective will be expanded upon in detail and will be connected to the findings in both Chapters 2 and 3.

4.2.1. Objective 1: Explore residents' and family caregivers' experiences of receiving telehealth during the rapid rollout and their preferences going forward.

A factor that supported addressing Objective 1 was the inclusion of residents and family care partners in the process of designing the interview guides. Collaborating with the Fraser Health Long-Term Care and Assisted Living Research Partners Group, multiple perspectives were shared by associated members about their experiences during the rapid rollout of telehealth in LTC. Using this information, my collaborators and I were able to tailor questions that were relevant to the context of rapid rollout despite data collection occurring retrospectively, following this period. Further, it provided us with insight into what language was the most appropriate to ensure that every question was in terms that were easily understandable by both groups. Overall, the inclusion of LTC residents as participants in this study helped to address a critical knowledge gap as their voices have rarely been integrated into the research that exists regarding telehealth use in care homes.

To address the objective, the study that guided Chapter 2 and Chapter 3 focused intently on recruiting both LTC residents (n= 26) and family caregivers (n= 13) from the Fraser Health Authority region. Questions in the interview guides were individualized for each group to explore their uniquely situated perspectives. We also recruited participants from multiple LTC homes within the Fraser Health Authority region, which

provided important diversity in LTC home contexts from which we could draw from. Our study also greatly benefited from having the perspectives of care recipients integrated in both Chapters 2 and 3 as past literature has found that including their voices can greatly benefit decision-making processes to be more equitable (Bombard et al., 2018).

The analytical direction of Chapter 2 provided insight into the experiences of the rapid rollout regarding difficulties that arose with accessing and maintaining telehealth consultations. First, many family caregivers indicated that connecting to telehealth consultations was difficult at times and they often had to walk to locations outside of the resident's room to ensure they could have a clear conversation with the physician over the phone. Some family caregivers preferred to participate in their own homes because they were cautious about poor Wi-Fi connectivity in care homes impeding their meetings. Second, many residents and family caregivers did not have the appropriate technology to support the use of telehealth, which was problematic due to it being the predominant form of care during the rapid rollout. For residents, it was rare that they owned their own devices due to a lack of digital literacy and/or interest. As such, many had to borrow devices from the communities they lived in to access meetings. Homes, however, did not always have devices that were actively available for residents. For family caregivers, there were a few instances where they noted their personal devices did not have the capacity or applications required to fully support video calls to connect to homes. Finally, there was a severe lack of private space for residents to use during telehealth meetings. Many shared bedroom spaces with others, which brought concerns about confidentiality. All three domains created barriers for care recipients to fully use telehealth and took away from its effectiveness during a period when it was very heavily relied on

While Chapter 2 focused primarily on challenges that arose during the rapid rollout, Chapter 3 was more analytically focused on when telehealth was not appropriate for certain care interactions between residents and physicians. First, not having in-person introductions was seen as problematic for care recipients as they mentioned that not being able to meet with a physician for the first time took away from building personal connections. Some residents further indicated they felt more like a statistic when they did not get the opportunity to meet the physician responsible for their care. Both residents and family caregivers indicated that if telehealth is to be used in the future, they would prefer having an in-person meeting first before shifting to telehealth. Second, there were mixed perspectives surrounding having difficult in-depth discussions

through telehealth. For family caregivers who lived far from the LTC home, telehealth was seen as highly beneficial as it allowed them to keep in constant contact with a physician. These perspectives shifted for families who lived closer and residents, both of whom preferred to have more serious conversations in person, while minor check-ins could be the main focus of telehealth. Finally, for advanced clinical assessments, it was found that family caregivers preferred examinations to be done in person, with the exception of smaller complications such as rashes or small infections. Many family caregivers were concerned that health issues would go unnoticed without a physician present. It should be mentioned that while some participants did not find telehealth useful in some instances, it was generally agreed that it was a needed care medium and beneficial due to the constraints during the pandemic. Overall, both analyses provided deeply insightful perspectives into how care recipients viewed the rapid rollout and highlighted their preferences moving forward for telehealth use in LTC.

4.2.2. Objective 2: Examine physicians' and healthcare providers' experiences coordinating and delivering care virtually during the rapid rollout and their preferences going forward.

Objective 2 complemented Objective 1 by providing an all-encompassing overview of both sides of the care process by introducing the perspectives of care providers. To support this objective, a wide array of care providers were recruited for the study, including care staff who worked in LTC homes (n =16) and physicians who oversaw the medical care LTC homes in the Fraser Health Authority region (n = 15). Care staff included, but were not limited to, social workers, registered nurses, and licensed practical nurses. Having a diverse range of care staff gave the research team deeper insight into the varying roles and responsibilities taken on during the rapid rollout. Like care recipients, participants in the care provider groups came from a diverse range of care homes. This allowed for common complexities and perspectives to be triangulated throughout the analytic findings.

Chapter 2 dealt with challenges that arose in providing care provision via telehealth throughout the rapid rollout in LTC. For care staff, the first concern that arose while using predominantly telehealth as a care medium was the weakness of the Wi-Fi and cellular connections available in the homes in which they worked. As staff were the ones setting up and supporting telehealth meetings, they identified multiple

complications such as having hot and cold zones for connection, and subsequently had to move around homes to find suitable areas for telehealth meetings. Care staff mentioned that addressing these challenges took time away from caring for residents. Physicians echoed care staff and mentioned that many homes they worked in did not have the infrastructure to support telehealth. The second challenge was that providing care by telehealth was limited by the number of usable devices there were in LTC homes. Both care staff and physicians indicated that many devices could not support video appointments, while staff specifically mentioned that devices ran into software issues as they were not being updated. The third challenge was reflected mostly on by care staff who reported the significant unavailability of private spaces for telehealth meetings in LTC homes. Even if a private space could be found, it could only be used if there was a strong enough Wi-Fi connection. A few physicians mentioned that they gave up using video calls and switched to phone calls as private conference rooms in homes did not have sufficient Wi-Fi. The final concern, that was mostly identified by physicians, was the lack of electronic medical records in LTC homes. As such, it was difficult for physicians to receive constant updates about residents' health when they could not visit in person. Based on our findings in Chapter 2, the rapid rollout provided many challenges for care providers to effectively administer care during periods of lockdown.

Chapter 3 dealt with insights into when telehealth is not appropriate for providing care to vulnerable populations, as informed by unique experiences during the rapid rollout. Like care recipients, care providers indicated that telehealth was not a preferred medium for care provision but was adaptable and needed during the pandemic. Going forward, both groups felt a balance was needed between in-person and telehealth visits, especially if telehealth is needed more often due to physician shortages. First, care staff felt that using telehealth for in-person introductions between care-recipients and physicians was not appropriate as residents often struggled to use technology due to cognitive or sensory impairments. From the perspectives of physicians, they echoed the importance of being able to meet residents and their families in person first. Second, care staff and physicians both agreed that telehealth can be appropriate for certain kinds of conversations, such as medication updates, but not for those involving deep and challenging decisions. For more serious conversations, both groups identified that in-person visits are still preferred as they allow for body language and eye contact which can be important indicators of compassion and understanding. Finally, regarding clinical

assessments, care staff expressed that they were comfortable assisting with minor diagnoses but were anxious about explaining more serious or multi-layered medical issues through the phone or video. For physicians, there were a mix of perspectives. On one hand, some indicated they felt comfortable guiding nurses through telehealth to examine residents, while others noted that they would prefer to do all examinations outside of minor instances in person. Overall, the analyses in both Chapter 2 and Chapter 3 helped me achieve Objective 2 by allowing for deep consideration of how care providers traversed and adapted their practices within the constraints of the rapid rollout. Additionally, the findings of both analyses supported meeting Objective 2 by providing insight into future preferences regarding how to balance telehealth with in-person care within LTC settings.

4.2.3. Objective 3: Develop actionable tools to address identified facilitators and barriers to inform an equitable telehealth program that is person-centered, coordinated, and value based.

In support of meeting Objective 3, I was given the unique opportunity to present the findings from both Chapters 2 and 3 to a group of physicians within the Fraser Health Authority region to support their implementation of a telehealth clinic pilot project being rolled out in select LTC homes. Their goal is to expand this service province-wide so it could support care delivery in LTC homes across the province that are experiencing physician shortages. In that meeting, I specifically highlighted how having access to private space with a sufficient Wi-Fi connection to support telehealth use was highly variable. The physicians I met with will mobilize this particular finding in relation to their implementation planning. It was further indicated that there may be opportunities for checklists to be created going forward to inform what services should/should not be provided within this program, which is responsive to the implications highlighted in Chapter 3.

When disseminating the findings of Chapter 2 to the larger Long-Term Care and Assisted Living research team, there was an emphasis placed on how much electronic medical records are needed going forward in LTC homes to support off-site physician care. Consequently, there are plans to reach out to technology departments of the different health authorities within BC to better understand how electronic medical records can be best implemented to support telehealth going forward. I am now aware that the

practice link between electronic medical record access and the successful provision of care via telehealth has been under-conceptualized.

These dissemination opportunities have allowed me to complete the first stage of the knowledge mobilization plan outlined in Chapter 1. This plan includes informing regional decision-maker knowledge users on the findings of the evaluation aimed at guiding the meso-level (i.e., regional) adoption of physician care by telehealth in LTC. It is expected that my research will be integrated into planning around the second and third stages of the knowledge mobilization plan moving forward.

4.3. Future Research Directions

My thesis research has contributed to several knowledge gaps relating to the use of telehealth in LTC by highlighting perceived barriers surrounding its implementation and perspectives regarding its appropriateness for certain facets of physician care. However, there are still many avenues that can be explored to provide a more encompassing understanding of how telehealth can be best used to provide equitable, person-centered care to LTC residents. In addition to the future research directions identified in Chapters 2 and 3, I propose two more based on what was found in my thesis: 1) exploring how best to provide personalized assistance for residents when using telehealth to support their unique needs; and 2) identifying what training can be provided to increase the comfort of using telehealth within LTC homes going forward.

As LTC residents often have diverse care needs and impairments, future research should highlight how LTC homes can best provide personalized assistance to support telehealth use. For example, it should be better understood how telehealth meetings can support residents with varying sensory impairments such as those who are hard of hearing or seeing. Concerns surrounding equitable telehealth use for those with sensory impairments have been raised in prior literature (Nene et al., 2023), but have not focused on potential solutions. Future research can meaningfully focus on how to support those with physical impairments that limit functional ability. Specifically, there could be further exploration into what infrastructure can be provided, such as tablet stands, so residents do not need to continually hold devices during appointments. This can support a personalized approach to supporting residents. Doing so would ideally

reduce the workload of care staff, who continually are involved in the process of setting up and maintaining telehealth calls in homes where this care medium is supported.

While my thesis touched briefly on the difficulties of having to become familiar with using telehealth platforms in a short amount of time, it did not specifically expand on how comfortable care staff felt supporting telehealth appointments. This highlights a particular concern as care staff play an instrumental role in facilitating and supporting telehealth meetings between residents, family caregivers, and physicians. Are they comfortable with doing so? Does their training support them in playing this role? These are critical unanswered questions. Despite the essential role care staff have in the telehealth process, it was found that there was a collective struggle in being able to fix technological challenges as they arose (See Table C4, Appendix C). Therefore, future research should then not only better understand care staff perspectives surrounding their feelings toward supporting telehealth use by residents, but it should also identify what types of training can be implemented to support them in this capacity. Future research can explore telehealth training opportunities for other LTC end-users to improve the collective understanding of how to use platforms commonly associated with telehealth such as Zoom.

4.4. Importance of the Research

One of the most important drivers of this research is the knowledge that telehealth may have increased use in Canada's LTC sector. Canadian physicians have indicated they may maintain or increase their use of telehealth across a number of care sectors (Canadian Health Infoway & Canadian Medical Association, 2021; Mohammed et al., 2021; Johnson et al., 2021) including within LTC (Chuen et al., 2023). Telehealth use may also be needed to support future instances in which LTC homes have limited physical access due to environmental disasters (Pierce et al., 2017), which have become increasingly prevalent in BC (Wollschlager et al., 2022). Based on these potential future scenarios that would shift telehealth to the primary mode of care provision for a period of time or see its use increase in general, there is a need for best practices going forward for telehealth use that meet the needs of care providers and recipients alike.

This research also contributes to informing decision-makers with the perspectives of both care recipients and providers integrated into the findings, many of which are actionable. Based on my extensive literature review for this thesis, I believe this study is the first of its kind that highlights both perspectives in the context of the rapid rollout. Providing insights from a range of stakeholder groups is beneficial for integrative healthcare to ensure it is meeting the needs of all parties involved (Crocker et al., 2020). Relating back to the field of geographies of care in Chapter 1, this research also contributes to literature relating to how caring practices are produced and transformed within space depending on the type of care provided. Thus, I believe my thesis research is of great importance for informing the future continued implementation of telehealth in the Fraser Health Authority's LTC sector, especially in contexts where telehealth may be needed as a predominant method of care provision in the future. This provides value for public health officials and micro and meso-level healthcare decision-makers to provide comprehensive plans going forward to ensure all end-users in LTC are best supported so that care can be administered effectively and equitably in times of need.

References

Abdallah, L., Stolee, P., Lopez, K. J., Whate, A., Boger, J., & Tong, C. (2022). The Impact of COVID-19 on Older Adults' Perceptions of Virtual Care: Qualitative Study. *JMIR aging*, *5*(4), e38546.

Akhtar-Danesh, N., Baumann, A., Crea-Arsenio, M., & Antonipillai, V. (2022). COVID-19 excess mortality among long-term care residents in Ontario, Canada. *PLoS One*, *17*(1), e0262807.

Alami, H., Lehoux, P., Attieh, R., Fortin, J. P., Fleet, R., Niang, M., ... & Ly, B. A. (2021). A "Not So Quiet" revolution: systemic benefits and challenges of Telehealth in the context of COVID-19 in Quebec (Canada). *Frontiers in Digital Health*, 133.

Allen-Watts, K., Malone, E., Dionne-Odom, J. N., McCammon, S., Currie, E., Hicks, J., ... & Bakitas, M. (2021). Can you hear me now?: Improving palliative care access through telehealth. *Research in nursing & health*, *44*(1), 226-237.

Banerjee, A. (2007). An overview of long-term care in Canada and selected provinces and territories. *Women and Healthcare Reform*.

Berta, W., Laporte, A., Zarnett, D., Valdmanis, V., & Anderson, G. (2006). A pan-Canadian perspective on institutional long-term care. *Health Policy*, *79*(2-3), 175-194.

Betini, R., Milicic, S., & Lawand, C. (2021). The impact of the COVID-19 pandemic on long-term care in Canada. *Healthcare Quarterly (Toronto, Ont.)*, *24*(3), 13-15.

Bhatia, R. S., Chu, C., Pang, A., Tadrous, M., Stamenova, V., & Cram, P. (2021). Virtual care use before and during the COVID-19 pandemic: a repeated cross-sectional study. *Canadian Medical Association Open Access Journal*, *9*(1), E107-E114.

Bodenheimer, T., & Sinsky, C. (2014). From triple to quadruple aim: care of the patient requires care of the provider. *The Annals of Family Medicine*, *12*(6), 573-576.

Bombard, Y., Baker, G. R., Orlando, E., Fancott, C., Bhatia, P., Casalino, S., ... & Pomey, M. P. (2018). Engaging patients to improve quality of care: a systematic review. *Implementation Science*, *13*, 1-22.

Boscart, V. M., Sidani, S., Ploeg, J., Dupuis, S. L., Heckman, G., Kim, J. L., ... & Brown, P. (2019). Neighbourhood Team Development to promote resident centred approaches in nursing homes: a protocol for a multi component intervention. *BMC Health Services Research*, *19*, 1-7.

Bourke, B. (2014). Positionality: Reflecting on the research process. *The qualitative report*, *19*(33), 1-9.

Braun, V., & Clarke, V. (2012). *Thematic analysis*. American Psychological Association.

Breton, M., Sullivan, E. E., Deville-Stoetzel, N., McKinstry, D., DePuccio, M., Sriharan, A., ... & McAlearney, A. S. (2021). Telehealth challenges during COVID-19 as reported by primary healthcare physicians in Quebec and Massachusetts. *BMC family practice*, *22*, 1-13.

Canada Health Infoway & Canadian Medical Association. (2021). *2021 National Survey of Canadian Physicians.* https://www.infoway-inforoute.ca/en/component/edocman/3935- 2021-national-survey-of-canadian-physicians/view-document?Itemid=0

Canadian Institutes for Health Information (n.d.). *Long-term care.* https://www.cihi.ca/en/topics/long-term-care

Canadian Institutes for Health Information. (2021a). *Long-term care homes in Canada. How many and who owns them?.* https://www.cihi.ca/en/long-term-care-homes-in-canada-how-many-and-who-owns-them

Canadian Institutes for Health Information. (2021b). *The Impact of COVID-19 on Long-Term Care in Canada: Focus on the First 6 Months.* https://www.cihi.ca/sites/default/files/document/impact-covid-19-long-term-care-canada-first-6-months-report-en.pd

Canadian Institutes of Health Research. (2022). *Transforming Health with Integrated Care (THINC): Areas of Focus and Essential Elements.* Government of Canada.

Canadian Institutes for Health Information. (2023). *The Expansion of Virtual Care in Canada: New Data and Information.* https://www.cihi.ca/sites/default/files/document/expansion-of-virtual-care-in-canada-report-en.pdf

Catalyst, N. E. J. M. (2018). What is telehealth?. *NEJM Catalyst*, *4*(1).

Chaudhury, H., Cooke, H. A., Cowie, H., & Razaghi, L. (2018). The influence of the physical environment on residents with dementia in long-term care settings: A review of the empirical literature. *The Gerontologist*, *58*(5), e325-e337.

Cheng, O., Law, N. H., Tulk, J., & Hunter, M. (2020). Utilization of Telemedicine in Addressing Musculoskeletal Care Gap in Long-Term Care Patients. *Journal of the American Academy of Orthopaedic Surgeons. Global research & reviews*, *4*(4), e19.00128.

Chu, C. H., Donato-Woodger, S., & Dainton, C. J. (2020). Competing crises: COVID-19 countermeasures and social isolation among older adults in long-term care. *Journal of advanced nursing*, *76*(10), 2456.

Chu, C. H., Ronquillo, C., Khan, S., Hung, L., & Boscart, V. (2021). Technology Recommendations to Support Person-Centered Care in Long-Term Care Homes during the COVID-19 Pandemic and Beyond. *Journal of Aging & Social Policy*, 33(4-5), 539– 554. https://doi.org/10.1080/08959420.2021.1927620

Chu, C. H., Yee, A., & Stamatopoulos, V. (2022). Poor and Lost Connections: Essential Family Caregivers' Experiences Using Technology with Family Living in Long-Term Care Homes during COVID-19. *Journal of Applied Gerontology*, 41(6), 1547–1556. https://doi.org/10.1177/07334648221081850

Chu, C., Brual, J., Fang, J., Fleury, C., Stamenova, V., Bhattacharyya, O., & Tadrous, M. (2022). The Use of Telemedicine in Older-Adults During the COVID-19 Pandemic: a Weekly Cross-Sectional Analysis in Ontario, Canada. *Canadian Geriatrics Journal CGJ*, 25(4), 380–389. https://doi.org/10.5770/cgj.25.610

Chua, M., Lau, X. K., & Ignacio, J. (2024). Facilitators and barriers to implementation of telemedicine in nursing homes: A qualitative systematic review and meta-aggregation. *Worldviews on Evidence‐Based Nursing*.

Chuen, V. L., Dholakia, S., Kalra, S., Watt, J., Wong, C., & Ho, J. M. (2023). Geriatric specialists' perspectives on telemedicine during the COVID-19 pandemic: a concurrent triangulation mixed-methods study. *Canadian Geriatrics Journal*, *26*(2), 283.

Clarke, J. (2021). *Impacts of the COVID-19 Pandemic in Nursing and Residential Care Facilities in Canada.* Statistics Canada. https://www150.statcan.gc.ca/n1/en/pub/45-28- 0001/2021001/article/00025-eng.pdf?st=UGJ8qVnS

Clarke, V., & Braun, V. (2013). Successful qualitative research: A practical guide for beginners. *Successful qualitative research*, 1-400.

Collins, R., Charles, J., Moser, A., Birmingham, B., Grill, A., & Gottesman, M. (2024). Improving medical services in Canadian long term care homes. *Canadian Family Physician*.

Comondore, V. R., Devereaux, P. J., Zhou, Q., Stone, S. B., Busse, J. W., Ravindran, N. C., ... & Guyatt, G. H. (2009). Quality of care in for-profit and not-for-profit nursing homes: systematic review and meta-analysis. *Bmj*, *339*.

Conradson, D. (2003). Geographies of care: spaces, practices, experiences. Social & Cultural Geography, 4(4), 451–454. https://doi.org/10.1080/1464936032000137894

Cox, M. B., McGregor, M. J., Poss, J., & Harrington, C. (2023). The association of facility ownership with COVID-19 outbreaks in long-term care homes in British Columbia, Canada: a retrospective cohort study. *Canadian Medical Association Open Access Journal*, *11*(2), E267-E273.

Crocker, H., Kelly, L., Harlock, J., Fitzpatrick, R., & Peters, M. (2020). Measuring the benefits of the integration of health and social care: qualitative interviews with professional stakeholders and patient representatives. *BMC Health Services Research*, *20*, 1-9.

Dai, Z. (2023). Telehealth in long-term care facilities during the Covid-19 pandemic–Lessons learned from patients, physicians, nurses and healthcare workers. *BMC Digital Health*, *1*(1), 2.

Dee, B. B., & Rysanek, A. (2023). Single-versus shared-occupancy bedrooms in long-term care homes during the COVID-19 pandemic: A regional cohort study of 355 facilities in British Columbia, Canada. In *E3S Web of Conferences* (Vol. 396, p. 01098). EDP Sciences.

Dodgson, J. E. (2019). Reflexivity in qualitative research. *Journal of Human Lactation*, *35*(2), 220-222.

Doraiswamy, S., Jithesh, A., Mamtani, R., Abraham, A., & Cheema, S. (2021). Telehealth Use in Geriatrics Care during the COVID-19 Pandemic-A Scoping Review and Evidence Synthesis. *International Journal of Environmental Research and Public Health*, 18(4), 1755. https://doi.org/10.3390/ijerph18041755

Duffy, L. V., Evans, R., Bennett, V., Hady, J. M., & Palaniappan, P. (2023). Therapeutic relational connection in telehealth: concept analysis. *Journal of medical Internet research*, *25*, e43303.

Dummer, T. J. B. (2008). Health geography: Supporting public health policy and planning. *Canadian Medical Association Journal (CMAJ)*, 178(9), 1177–1180. https://doi.org/10.1503/cmaj.071783

Edirippulige, S., Martin-Khan, M., Beattie, E., Smith, A. C., & Gray, L. C. (2013). A Systematic Review of Telemedicine Services for Residents in Long Term Care Facilities. *Journal of Telemedicine and Telecare*, 19(3), 127–132

Elliott, S. J. (2018). 50 years of medical health geography (ies) of health and wellbeing. *Social Science & Medicine*, *196*(C), 206-208.

Estabrooks, C. A., Straus, S. E., Flood, C. M., Keefe, J., Armstrong, P., Donner, G. J., ... & Wolfson, M. C. (2020). Restoring trust: COVID-19 and the future of long-term care in Canada. *Facets*, *5*(1), 651-691.Canada: a retrospective cohort study. *Canadian Medical Association Open Access Journal*, *11*(2), E267-E273.

Federal Communications Commission. (n.d.). *Telehealth, Telemedicine, and Telecare: What's What?.* https://www.fcc.gov/general/telehealth-telemedicine-and-telecare-whats-what

Ferdous, F. (2021). Social Distancing vs Social Interaction for Older Adults at Long-Term Care Facilities in the Midst of the COVID-19 Pandemic: A Rapid Review and Synthesis of Action Plans. *The Journal of Healthcare Organization, Provision, and Financing,* 58, 4695802110442–469580211044287. https://doi.org/10.1177/00469580211044287

Festa, N., Throgmorton, K. F., Davis-Plourde, K., Dosa, D. M., Chen, K., Zang, E., ... & Gill, T. M. (2023). Assessment of regional nursing home preparedness for and regulatory responsiveness to wildfire risk in the Western US. *JAMA Network Open*, *6*(6), e2320207-e2320207.

Fraser Health (n.d.). *About Fraser Health. https://www.fraserhealth.ca/about-us/about-fraser-health*

Fraser Health. (2021). *Long-Term Care, Assisted Living COVID-19 Resource Toolkit. https://www.fraserhealth.ca//media/Project/FraserHealth/FraserHealth/employees/clinical-resources/coronavirus-information/ltc-al-li/LTC_AL_-COVID-Resource-Toolkit_May19.pdf?rev=42e4300b0ad04e7ea9f21dfc8c2839c2*

Fraser Health. (2023). *Long-Term Care.* https://careers.fraserhealth.ca/long-term-care/

Gajarawala, S. N., & Pelkowski, J. N. (2021). Telehealth benefits and barriers. *The Journal for Nurse Practitioners*, *17*(2), 218-221.

Gaur, S., Pandya, N., Dumyati, G., Nace, D. A., Pandya, K., & Jump, R. L. (2020). A structured tool for communication and care planning in the era of the COVID-19 pandemic. *Journal of the American Medical Directors Association*, *21*(7), 943-947.

Gillespie, S. M., Moser, A. L., Gokula, M., Edmondson, T., Rees, J., Nelson, D., & Handler, S. M. (2019). Standards for the use of telemedicine for evaluation and management of resident change of condition in the nursing home. *Journal of the American Medical Directors Association*, *20*(2), 115-122.

Godfrey, M., Young, J., Shannon, R., Skingley, A., Woolley, R., Arrojo, F., ... & Surr, C. (2018). Person-centred care: meaning and practice. In *The person, interactions and environment programme to improve care of people with dementia in hospital: A multisite study*. NIHR Journals Library.

Government of British Columbia. (n.d.). *Long-Term Care Services. https://www2.gov.bc.ca/gov/content/health/accessing-health-care/home-community-care/care-options-and-cost/long-term-care-services*

Gray, L. C., Edirippulige, S., Smith, A. C., Beattie, E., Theodoros, D., Russell, T., & Martin-Khan, M. (2012). Telehealth for nursing homes: the utilization of specialist services for residential care. *Journal of telemedicine and telecare*, *18*(3), 142-146.

Groom, L. L., McCarthy, M. M., Stimpfel, A. W., & Brody, A. A. (2021). Telemedicine and telehealth in nursing homes: an integrative review. *Journal of the American Medical Directors Association*, *22*(9), 1784-1801.

Hanrahan, K. B., & Smith, C. E. (2020). Interstices of care: Re-imagining the geographies of care. Area, 52 (2), 230–2 34.

Hantke, N. C., & Gould, C. (2020). Examining Older Adult Cognitive Status in the Time of COVID-19. *Journal of the American Geriatrics Society (JAGS)*, 68(7), 1387–1389. https://doi.org/10.1111/jgs.16514

Harper, K. A., Butler, E. C., Hacker, M. L., Naik, A., Eoff, B. R., Phibbs, F. T., ... & Charles, P. D. (2021). A comparative evaluation of telehealth and direct

assessment when screening for spasticity in residents of two long-term care facilities. *Clinical Rehabilitation*, *35*(4), 589-594.

Harris, D. A., Archbald-Pannone, L., Kaur, J., Cattell-Gordon, D., Rheuban, K. S., Ombres, R. L., Albero, K., Steele, R., Bell, T. D., & Mutter, J. B. (2021). Rapid Telehealth-Centered Response to COVID-19 Outbreaks in Postacute and Long-Term Care Facilities. *Telemedicine Journal and e-Health,* 27(1), 12–106. https://doi.org/10.1089/tmj.2020.0236

Hawe, N., Seaton, C. L., Corman, K., Burton, L., & Rush, K. L. (2023). 'There'sa lot less time on small talk': Rural patient perspectives on shifting to technology-enabled healthcare in Canada during COVID-19. *SSM-Health Systems*, *1*, 100002.

Hawthorne, G. (2008). Perceived social isolation in a community sample: its prevalence and correlates with aspects of peoples' lives. *Social psychiatry and psychiatric epidemiology*, 43, 140-150.

Hedden, L., Spencer, S., Mathews, M., Marshall, E. G., Lukewich, J., Asghari, S., ... & Schacter, G. (2023). "There's nothing like a good crisis for innovation": a qualitative study of family physicians' experiences with virtual care during the COVID-19 pandemic. *BMC Health Services Research*, *23*(1), 338.

Hegde, S., & Ellajosyula, R. (2016). Capacity issues and decision-making in dementia. *Annals of Indian Academy of Neurology*, *19*(Suppl 1), S34-S39.

Hofmeyer, J., Leider, J. P., Satorius, J., Tanenbaum, E., Basel, D., & Knudson, A. (2016). Implementation of telemedicine consultation to assess unplanned transfers in rural long-term care facilities, 2012–2015: a pilot study. *Journal of the American Medical Directors Association*, *17*(11), 1006-1010.

Hung, L., Yang, S. C., Guo, E., Sakamoto, M., Mann, J., Dunn, S., & Horne, N. (2022). Staff experience of a Canadian long-term care home during a COVID-19 outbreak: a qualitative study. *BMC Nursing*, 21(1), 45–45. https://doi.org/10.1186/s12912-022- 00823-3

Hung, L., Hu, G., Wong, J., Ren, H., Ahmed, N., Hussein, A., ... & Wong, L. (2023). Telepresence robots in long-term care settings in British Columbia during the COVID-19 pandemic: analyzing the experiences of residents and family members. *Gerontology and Geriatric Medicine*, *9*, 23337214231166208.

Ickert, Rozak, H., Masek, J., Eigner, K., & Schaefer, S. (2020). Maintaining Resident Social Connections During COVID-19: Considerations for Long-Term Care. Gerontology and Geriatric Medicine, 6, 2333721420962669–2333721420962669. https://doi.org/10.1177/2333721420962669

Johnson, C., Dupuis, J. B., Goguen, P., & Grenier, G. (2021). Changes to telehealth practices in primary care in New Brunswick (Canada): A comparative study pre and during the COVID- 19 pandemic. *PloS One*, 16(11), e0258839–e0258839. https://doi.org/10.1371/journal.pone.0258839

Jong, M., Mendez, I., & Jong, R. (2019). Enhancing access to care in northern rural communities via telehealth. *International Journal of Circumpolar Health*, *78*(2), 1554174.

Kearns, R., & Collins, D. (2010). Health geography. *A companion to health and medical geography*, 15-32.

Kearns, R., & Moon, G. (2002). From medical to health geography: novelty, place and theory after a decade of change. *Progress in Human Geography*, 26(5), 605–625. https://doi.org/10.1191/0309132502ph389oa

Khowaja, A., Syed, N., Michener, K., Mechelse, K., & Koning, H. (2023). Managers' and Administrators' Perspectives on Digital Technology Use in Regional Long-Term Care Homes During the COVID-19 Pandemic. *Gerontology and Geriatric Medicine*, 9, 23337214221146665–23337214221146665. https://doi.org/10.1177/23337214221146665

Kichloo, A., Albosta, M., Dettloff, K., Wani, F., El-Amir, Z., Singh, J., ... & Chugh, S. (2020). Telemedicine, the current COVID-19 pandemic and the future: a narrative review and perspectives moving forward in the USA. *Family medicine and community health*, *8*(3).

Kirkham, J., Shorey, C. L., Iaboni, A., Quirt, H., Grigorovich, A., Astell, A., Lin, E., & Maxwell, C. J. (2022). Staff perceptions of the consequences of COVID-19 on quality of dementia care for residents in Ontario long-term care homes. *International Journal of Geriatric Psychiatry*, 37(6), n/a–n/a. https://doi.org/10.1002/gps.5725

Koivunen, M., & Saranto, K. (2018). Nursing professionals' experiences of the facilitators and barriers to the use of telehealth applications: a systematic review of qualitative studies. *Scandinavian journal of caring sciences*, *32*(1), 24-44.

Kruse, C., Fohn, J., Wilson, N., Patlan, E. N., Zipp, S., & Mileski, M. (2020). Utilization barriers and medical outcomes commensurate with the use of telehealth among older adults: systematic review. *JMIR medical informatics*, *8*(8), e20359.

Ladin, K., Porteny, T., Perugini, J. M., Gonzales, K. M., Aufort, K. E., Levine, S. K., ... & Weiner, D. E. (2021). Perceptions of telehealth vs in-person visits among older adults with advanced kidney disease, care partners, and clinicians. *JAMA network open*, *4*(12), e2137193-e2137193.

Lam, H. R., Chow, S., Taylor, K., Chow, R., Lam, H., Bonin, K., ... & Herrmann, N. (2018). Challenges of conducting research in long-term care facilities: a systematic review. *BMC geriatrics*, *18*, 1-11.

Lau, F., Price, M., & Keshavjee, K. (2011). Making sense of health information system success in Canada. *Healthc Q*, *14*(1), 39-46.

Lawson, V. (2007). Geographies of care and responsibility. *Annals of the Association of American Geographers*, *97*(1), 1-11.

Liu, M., Maxwell, C. J., Armstrong, P., Schwandt, M., Moser, A., McGregor, M. J., Bronskill, S. E., & Dhalla, I. A. (2020). COVID-19 in long-term care homes in Ontario and British Columbia. *Canadian Medical Association Journal (CMAJ),* 192(47), E1540–E1546. https://doi.org/10.1503/cmaj.201860Appendix A.

Madigan, S., Racine, N., Cooke, J. E., & Korczak, D. J. (2021). COVID-19 and telemental health: Benefits, challenges, and future directions. *Canadian Psychology/Psychologie canadienne*, *62*(1), 5.

Mahoney, M. F. (2020). Telehealth, Telemedicine, and Related Technologic Platforms: Current Practice and Response to the COVID-19 Pandemic. *Journal of Wound, Ostomy, and Continence Nursing*, 47(5), 439–444. https://doi.org/10.1097/WON.0000000000000694

Malagon-Maldonado, G. (2014). Qualitative Research in Health Design. *HERD*, 7(4), 120–134. https://doi.org/10.1177/193758671400700411

McEwan, C., & Goodman, M. K. (2010). Place geography and the ethics of care: Introductory remarks on the geographies of ethics, responsibility and care. *Ethics, Place and Environment*, *13*(2), 103-112.

McGrail, K. M., McGregor, M. J., Cohen, M., Tate, R. B., & Ronald, L. A. (2007). For-profit versus not-for-profit delivery of long-term care. *Cmaj*, *176*(1), 57-58.

McGregor, M. J., Cohen, M., McGrail, K., Broemeling, A. M., Adler, R. N., Schulzer, M., ... & Beck, M. (2005). Staffing levels in not-for-profit and for-profit long-term care facilities: Does type of ownership matter?. *Cmaj*, *172*(5), 645-649.

McGregor, M. J., Tate, R. B., McGrail, K. M., Ronald, L. A., Broemeling, A. M., & Cohen, M. (2006). Care outcomes in long-term care facilities in British Columbia, Canada: Does ownership matter?. *Medical care*, 929-935.

Mechanic, O. J., Persaud, Y., & Kimball, A. B. (2017). Telehealth systems.

Milligan, C. (2014). Geographies of care. *The Wiley Blackwell Encyclopedia of Health, Illness, Behavior, and Society*, 683-685.

Mohammed, H. T., Hyseni, L., Bui, V., Gerritsen, B., Fuller, K., Sung, J., & Alarakhia, M. (2021). Exploring the use and challenges of implementing virtual visits during COVID-19 in primary care and lessons for sustained use. *PloS one*, *16*(6), e0253665.

National Institute of Aging. (2023). *What is Long-Term Care?. https://www.nia.nih.gov/health/long-term-care/what-long-term-care*

Nelson, L. A., Pennings, J. S., Sommer, E. C., Popescu, F., & Barkin, S. L. (2022). A 3-item measure of digital healthcare literacy: development and validation study. *JMIR Formative Research*, *6*(4), e36043.

Nene, S., Rauch, M., Belanger, D., Bennett, R., Berry, G., Saad, N., ... & Morin, S. N. (2023). Personalized telehealth: Redesigning complex care delivery for the 65+

during the COVID pandemic: A survey of patients, caregivers, and health-care providers. *Canadian Geriatrics Journal*, *26*(1), 150.

Nygaard, A., Halvorsrud, L., Grov, E. K., & Bergland, A. (2022). 'What matters to you?'—a qualitative study on the views of nursing home residents with dementia regarding the healthcare they receive. *Journal of Clinical Nursing*, *31*(1-2), 262-274.

Office of the Seniors Advocate British Columbia (2020). *British Columbia Long-Term Care Facilities Quick Facts Directory 2020 Summary Report.* https://www.seniorsadvocatebc.ca/app/uploads/sites/4/2020/12/QuickFacts2020-Summary.pdf

Office of the Seniors Advocate British Columbia (2023a). *British Columbia Long-Term Care and Assisted Living Directory 2023 Summary Report.* https://www.seniorsadvocatebc.ca/app/uploads/sites/4/2023/12/OSA-QuickFacts-Summary-2023-Final-Report.pdf

Office of the Seniors Advocate British Columbia. (2023b). *2022-2023 Annual Report of the Office of the Seniors Advocate.* https://www.seniorsadvocatebc.ca/app/uploads/sites/4/2023/08/OSA-Annual-Report-2022_23-final.pdf

Palaganas, E. C., Sanchez, M. C., Molintas, M. V. P., & Caricativo, R. D. (2017). Reflexivity in qualitative research.

Patton, M. Q. (2008*). Utilization-focused evaluation / Michael Quinn Patton*. (4th ed.). Sage Publications.

Perri, G. A., Abdel-Malek, N., Bandali, A., Grosbein, H., & Gardner, S. (2020). Early integration of palliative care in a long-term care home: a telemedicine feasibility pilot study. *Palliative & Supportive Care*, *18*(4), 460-467.

Pierce, J. R., Morley, S. K., West, T. A., Pentecost, P., Upton, L. A., & Banks, L. (2017). Improving long-term care facility disaster preparedness and response: A literature review. *Disaster medicine and public health preparedness*, *11*(1), 140-149.

Pillemer, K., Subramanian, L., & Hupert, N. (2020). The importance of long-term care populations in models of COVID-19. *Jama*, *324*(1), 25-26.

Read, S., Comas-Herrera, A., & Grundy, E. (2020). Social isolation and memory decline in later-life. *The Journals of Gerontology: Series B*, 75(2), 367-376.

Robič, M., & Pavlič, D. R. (2021). COVID-19 and Care for the Elderly in Long-Term Care Facilities: The Role of Information Communication Technology. *Acta Medica Academica*, *50*(3).

Rocard, E., Sillitti, P., & Llena-Nozal, A. (2021). COVID-19 in long-term care: Impact, policy responses and challenges.

Roter, D. (2000). The enduring and evolving nature of the patient–physician relationship. *Patient education and counseling*, *39*(1), 5-15.

Rutledge, C. M., Kott, K., Schweickert, P. A., Poston, R., Fowler, C., & Haney, T. S. (2017). Telehealth and eHealth in nurse practitioner training: current perspectives. *Advances in medical education and practice*, 399-409.

Saad, A., Magwood, O., Benjamen, J., Haridas, R., Hashmi, S. S., Girard, V., ... & Pottie, K. (2022). Health equity implications of the COVID-19 lockdown and visitation strategies in long-term care homes in Ontario: A mixed method study. *International Journal of Environmental Research and Public Health*, *19*(7), 4275.

Samsi, K., & Manthorpe, J. (2020). Interviewing people living with dementia in social care research. *London: NIHR School for Social Care Research*.

Saunders, C. H., Sierpe, A., von Plessen, C., Kennedy, A. M., Leviton, L. C., Bernstein, S. L., ... & Leyenaar, J. K. (2023). Practical thematic analysis: a guide for multidisciplinary health services research teams engaging in qualitative analysis. *bmj*, *381*.

Schwiter, K., & Steiner, J. (2020). Geographies of care work: The commodification of care, digital care futures and alternative caring visions. *Geography Compass*, 14(12), n/a–n/a. https://doi.org/10.1111/gec3.12546

Seifert, A., Batsis, J. A., & Smith, A. C. (2020). Telemedicine in Long-Term Care Facilities During and Beyond COVID-19: Challenges Caused by the Digital Divide. *Frontiers in Public Health*, 8, 601595–601595. https://doi.org/10.3389/fpubh.2020.601595

Shaughnessy, L., Brunton, S., Chepke, C., Farmer, J. G., Rosenzweig, A. S., & Grossberg, G. (2022). Using Telemedicine to Assess and Manage Psychosis in Neurodegenerative Diseases in Long-Term Care. *Journal of the American Medical Directors Association*, *23*(7), 1145–1152.

Sikka, R., Morath, J. M., & Leape, L. (2015). The quadruple aim: care, health, cost and meaning in work. *BMJ quality & safety*, *24*(10), 608-610.

Sixsmith, A., Woolrych, R., Schonnop, R., Robinovitch, S., Chaudhury, H., & Feldman, F. (2013). Understanding contextual factors in falls in long-term care facilities. *Quality in Ageing and Older Adults*, *14*(3), 160-166.

Smith, S. J., & Easterlow, D. (2005). The strange geography of health inequalities. *Transactions of the Institute of British Geographers*, *0*(2), 173-190.

Sorensen, J., Kadowaki, L., Kervin, L., Hamilton, C., Berndt, A., Dhadda, S., ... & Mithani, A. (2024). Quality improvement collaborative approach to COVID-19 pandemic preparedness in long-term care homes: a mixed-methods implementation study. *BMJ Open Quality*, *13*(2), e002589.

Stall, N. M., Jones, A., Brown, K. A., Rochon, P. A., & Costa, A. P. (2020). For-profit long-term care homes and the risk of COVID-19 outbreaks and resident deaths. *Cmaj*, *192*(33), E946-E955.

Statistics Canada. (2021). *A profile of nursing and residential care facilities, 2019.* https://www150.statcan.gc.ca/n1/daily-quotidien/210916/dq210916c-eng.htm

Statistics Canada. (2022). *Visible Minority and Population Group Reference Guide, Census of Population, 2021*. https://www12.statcan.gc.ca/census-recensement/2021/ref/98-500/006/98-500-x2021006-eng.cfm

Straus, S. E., Tetroe, J. M., & Graham, I. D. (2011). Knowledge translation is the use of knowledge in healthcare decision making. *Journal of clinical epidemiology*, *64*(1), 6-10.

Sunner, C., Giles, M. T., Kable, A., & Foureur, M. (2023). Does telehealth influence the decision to transfer residents of residential aged care facilities to emergency departments? A scoping review. *International journal of older people nursing*, *18*(1), e12517.

Tan, A. J., Rusli, K. D., McKenna, L., Tan, L. L., & Liaw, S. Y. (2024). Telemedicine experiences and perspectives of healthcare providers in long-term care: A scoping review. *Journal of telemedicine and telecare*, *30*(2), 230-249.

Teisberg, E., Wallace, S., & O'Hara, S. (2020). Defining and implementing value-based healthcare: a strategic framework. *Academic Medicine*, *95*(5), 682-685.

Terada, S., Oshima, E., Yokota, O., Ikeda, C., Nagao, S., Takeda, N., ... & Uchitomi, Y. (2013). Person-centered care and quality of life of patients with dementia in long-term care facilities. *Psychiatry research*, *205*(1-2), 103-108.

The College of Family Physicians of Canada. (2021). *Joint Position Statement on the Role of Family Physicians in Long-Term Care Homes March 2021.* https://www.cfpc.ca/CFPC/media/PDF/Role-Family-Physicians-Long-Term-Care-March-2021.pdf

Thompson, D.-C., Barbu, M.-G., Beiu, C., Popa, L. G., Mihai, M. M., Berteanu, M., & Popescu, M. N. (2020). The Impact of COVID-19 Pandemic on Long-Term Care Facilities Worldwide: An Overview on International Issues. *BioMed Research International*, 8870249–7. https://doi.org/10.1155/2020/8870249

Vellani, S., Zuniga, F., Spilsbury, K., Backman, A., Kusmaul, N., Scales, K., ... & McGilton, K. S. (2022). Who's in the house? Staffing in long-term care homes before and during COVID-19 pandemic. *Gerontology and Geriatric Medicine*, *8*, 23337214221090803.

Vijh, R., Ng, C. H., Shirmaleki, M., & Bharmal, A. (2022). Factors associated with transmission of COVID-19 in long-term care facility outbreaks. *Journal of Hospital Infection*, *119*, 118-125.

Walton, L., Courtright, K., Demiris, G., Gorman, E. F., Jackson, A., & Carpenter, J. G. (2023). Telehealth palliative care in nursing homes: a scoping review. *Journal of the American Medical Directors Association*, *24*(3), 356-367.

Wardlow, L., Roberts, C., & Archbald-Pannone, L. (2022). Perceptions and Uses of Telehealth in the Care of Older Adults. *Telemedicine Journal and e-Health*. https://doi.org/10.1089/tmj.2022.0378

Warmoth, K., Lynch, J., Darlington, N., Bunn, F., & Goodman, C. (2022). Using video consultation technology between care homes and health and social care professionals: a scoping review and interview study during COVID-19 pandemic. *Age and Ageing*, 51(2).

Webkamigad, S., Rowe, R., Peltier, S., Froehlich Chow, A., McGilton, K. S., & Walker, J. D. (2020). Identifying and understanding the health and social care needs of Indigenous older adults with multiple chronic conditions and their caregivers: a scoping review. *BMC geriatrics*, *20*, 1-19.

Webster, P. (2021). COVID-19 highlights Canada's care home crisis. *The Lancet (British Edition)*, 397(10270), 183–183. https://doi.org/10.1016/S0140-6736(21)00083-0

Williams, S. L., Haskard, K. B., & DiMatteo, M. R. (2007). The therapeutic effects of the physician-older patient relationship: effective communication with vulnerable older patients. *Clinical interventions in aging*, *2*(3), 453-467.

Wollschlaeger, S., Sadhu, A., Ebrahimi, G., & Woo, A. (2022). Investigation of climate change impacts on long-term care facility occupants. *City and Environment Interactions*, *13*, 100077.

Xia, N., & Li, H. (2018). Loneliness, social isolation, and cardiovascular health. *Antioxidants & redox signaling*, 28(9), 837-851.

Yip, S. Y. (2023). Positionality and reflexivity: negotiating insider-outsider positions within and across cultures. *International Journal of Research & Method in Education*, 1-11.

Yu, J., Yun, H., Unruh, M. A., O'Donnell, E. M., Katz, P. R., Ancker, J. S., & Jung, H. Y. (2023). Perspectives of physicians with experience in nursing home care on telehealth use during the COVID-19 public health emergency. *Journal of General Internal Medicine*, *38*(7), 1722-1728.

Yuan, Y., Lapane, K. L., Tjia, J., Baek, J., Liu, S. H., & Ulbricht, C. M. (2021). Physical frailty and cognitive impairment in older nursing home residents: a latent class analysis. *BMC geriatrics*, *21*, 1-12.

Zhang, T., Mosier, J., & Subbian, V. (2021). Identifying barriers to and opportunities for telehealth implementation amidst the COVID-19 pandemic by using a human factors approach: a leap into the future of healthcare delivery?. *JMIR human factors*, *8*(2), e24860.

Appendix A.

Participant Group Demographic Questions

Demographic Questions for Care Recipients

1. How old are you?
2. Do you identify yourself as a woman, man, or in another way?
3. How do you identify your culture?
4. What's the highest grade you completed in school?
5. Do you / does your loved one have any difficulty with:
    a. Hearing (Yes/No)
    b. Seeing (Yes/No)
    c. Mobility (Yes/No)
    d. Memory (Yes/No)
    e. If you feel comfortable sharing, what specific difficulties do you / does your loved one have?
6. How long have you / has your loved one been living here at (name of facility)?
7. Have you/has your loved one had the same doctor for the entire time you/they have lived in this care home?
8. How often do you/does your loved one meet with your/their doctor?
    a. How do you/they meet with your/their doctor? In person, by phone, on video, or some other way? (*Determines which interview guide to use for care recipients)*
9. Digital literacy
    - Do you feel comfortable using a cell phone?
        - Do you have one of your own?
        - Do you use text messages to keep in touch with people?
        - Do you use e-mail to keep in touch with people?
    - Do you have access to a computer, iPad/tablet, cell phone or other device on which you can send and receive e-mails? Do you experience any challenges using the device/connection in this home?
    - Complete the 'Digital Literacy Scale: **(See Figure 1, Appendix C)**

Demographic Questions for Care Providers

1. How old are you?
2. Do you identify yourself as a woman, man, or in another way?
3. How do you identify your cultural background?
4. Which Fraser Heath LTC home(s) are you working in?
5. How long have you been working in LTC?
6. What has your role(s) been in LTC home during the COVID-19 pandemic?
7. Which form(s) of telehealth (e.g., text, phone, image, video) have you used in LTC?
8. Who was involved in telehealthcare and when (e.g., consult, referral, care conference)?
9. Complete the 'Digital Literacy Scale: **(See Figure 1, Appendix C)**

Appendix B.

Semi Structured Interview and Focus Group Guides

Interview Guide (Solo) for Resident

In our conversation today we will talk about experiences you have had with talking to your doctor in-person, or over video, by phone, in text messages, or by e-mail over the last few years or months. These are sometimes called telehealth. It's okay if you haven't had many appointments with a doctor this way, I still want to hear about your experiences discussing your medical care. Sometimes during the COVID-19 pandemic, visits with your doctor could only be this way because of visitor restrictions, which is something I am very interested in hearing about. Sometimes I might ask a question that you're not sure how to answer. If that happens let me know and I'll ask it in a different way. And sometimes I might ask you a question that you don't want to answer or that isn't relevant to you, which is also okay. Let me know and we will skip it.

GUIDE: Choose questions based on:

***If participants have**:*

Physician care VIRTUALLY

Physician care in-person ONLY

NO physician care or virtual care

VIRTUAL Physician Care (Questions)

1. How would you say your Wi-Fi or cell phone reception is here?
    a. (Follow up) Has the Internet or cellular connection ever affected you when you connected virtually with the doctor?
    b. (Follow up) Did it ever affect your meeting with the doctor?

2. I want to ask you some questions about your experience of having a telehealth meeting with the doctor. This may have been by video chat, or on your phone. Tell me a bit about one of these meetings.
    a. (Follow up) How did you prepare for the meeting with the doctor?
    b. (Follow up) Did anybody help you to prepare for the meeting?
3. Where were you when you had the appointment (in your room, a common area, etc.)?
    a. (Follow up) Who was present for the meeting?
    b. (Follow up) Were those people present virtually or in-person? What was their role?
4. What did you like about meeting this way with the doctor? What didn't you like? What made it easy/hard? Any examples? (Follow up)
    a. (Follow up) How does it compare to in-person visits? What do you prefer?
    b. (Follow up) What circumstances affected your preference?
5. What advice would you give to another resident in your care home who was about to meet with a physician virtually for the first time?

Physician in-person ONLY Questions

1. I want to ask you some questions about your experience of having a meeting with the doctor. Tell me a bit about one of these meetings.
    a. (Follow up) How did you prepare for the meeting with the doctor?
    b. (Follow up) Did anybody help you to prepare for the meeting?
    c. (Follow up) Where were you when you had the appointment (in your room, a common area, etc.)?
    d. (Follow up) Who was present for the meeting?
    e. (Follow up) What did you like about meeting this way with the doctor? What didn't you like? What made it easy/hard? Any examples?
    f. (Follow up) Would you want the option of meeting virtually (through a phone call, video call, etc.) with your doctor as well? Why or why not.
    g. (Follow up) Has your doctor ever suggested meeting virtually before?

NO Physician OR virtual Questions

I now want to ask you some questions about your experience living in this care home and how you have been receiving medical care during your time here. Also, I want to ask if you have any preferences for medical care in the future.

1. If you have not met with the doctor while you have been living here, how and with whom did you communicate about your medical care?
    a. How would you like to have been able to meet with the doctor: in person, by phone, on video, some other way?
        i. (Follow up) (if the resident only says they would like in-person) Would you also like an option to be able to meet with a physician virtually if you don't see one in your home? Why or why not?
            (Probes: through video, through the phone etc.)
    b. How often would you like to be able to meet with a doctor?
    c. Is there anyone else you would like to be present when you meet with the doctor e.g., family member / friend / other?
    d. Are there any other things you'd like to be considered when meeting with the doctor?
2. What could be done differently to improve your medical care experience in the future? Can you provide some examples, if any?

Interview Guide (Solo) for Family/Friends Caregiver

In our conversation today we will talk about experiences with telehealthcare that you or your loved one in LTC received in the last few years or months. By telehealth, I mean any care that was administered by a doctor using methods such as video, phone, texting, or email. It is okay if they have only had a few appointments this way; I still want to hear your experience and how you felt about it. You can feel free to skip a question for any reason.

GUIDE: Choose questions based on:

***If participants have**:*

Physician care VIRTUALLY

Physician care in-person ONLY

NO physician care or virtual care

VIRTUAL Physician Care (Questions)

1. Does your loved one who lives (lived) in Long-Term Care experience any challenges using the device/connection?
2. Have you ever been involved in any of the meetings with your loved one and their doctor?
    a. (If yes) Did you help with the appointment in any way? Translation? Technology support? Emotional support? Providing answers/information? Asking questions?
    b. Were the meetings at good times for you?
    c. What did you like about meeting this way? What didn't you like? What made it easy/hard? Any examples?
3. How does telehealth compare to in-person visits?
    a. What do you prefer?
    b. What does your loved one prefer?
        i. (Follow up) What circumstances affected your/their preference?
4. What do you think your loved one likes (liked) about meeting with the doctor virtually? What didn't they like? What made it easy/hard? Any examples?
5. How did your loved one prepare for the meeting with the doctor?
    a. (Follow up) Did anybody help them prepare for the meeting?
    b. (Follow up) Were those people present virtually or in-person? What was their role?
    c. Where did your loved one often have their appointment (in their room, a common area, etc.)?
6. How would you say the Wi-Fi or cell phone reception is in the home where those who you care for lives?
    a. (Follow up) Has the quality of the Internet or cellular connection ever affected those who you care for when they connected virtually with their doctor?
    b. (Follow up) Did it ever affect their meeting with their doctor?

7. What advice would you give to another care partner in your position if they had a loved one who lived in Long-Term Care using telehealth for the first time?

Physician in-person ONLY Questions

1. Have you ever been involved in any of the meetings with your loved one and their doctor?
    a. (If yes) Did you help with the appointment in any way? Translation? Emotional support? Providing answers/information? Asking questions?
    b. Were the meetings at good times for you?
    c. What did you like about meeting this way? What didn't you like? What made it easy/hard? Any examples?

2. How did your loved one prepare for the meeting with the doctor?
    a. (Follow up) Did anybody help them prepare for the meeting?
    b. (Follow up) Were those people present virtually or in-person? What was their role?
    c. Where did your loved one often have their appointment (in their room, a common area, etc.)?

3. What did they like about meeting this way with the doctor? What didn't they like? What made it easy/hard? Any examples? (Follow up)
    a. (Follow up) Would they want the option of meeting virtually (through a phone call, video call, etc.) with the doctor as well? Why or why not.
    b. (Follow up) Has their doctor ever suggested meeting virtually before?

NO Physician OR virtual Questions

1. If your loved one who lives in LTC has not met with the doctor while they been living there, how and with whom do they communicate about their medical care?
    a. Also, how would they like to have been able to meet with the doctor: in person, by phone, on video, some other way?
        i. Is there anyone else they would like to be present when they meet with the doctor e.g., family member / friend / other?
        ii. How often would they like to be able to meet with a doctor?

iii. Are there any other things they would like to be considered when meeting with the doctor?

b. Has your loved one ever met with a doctor during a care conference?
   i. If so, did they meet: in person, by phone, on video, some other way?
   ii. Who else was present during the meeting? Were they present virtually or in person?

2. What could be done differently to improve their medical care experience in the future? Can you provide some examples, if any?

Interview Guide for Resident-Caregiver Dyad

In our conversation today we will talk about experiences you have had with talking to your/the doctor over video, by phone, or some other method over the last few years or months. These are sometimes called telehealth. It's okay if you haven't had many appointments with a doctor this way, I still want to hear about your experiences. Sometimes during the COVID-19 pandemic, visits with your doctor could only be this way because of visitor restrictions. This is something I am very interested in hearing about. Sometimes I might ask a question that you're not sure how to answer. If that happens let me know and I'll ask it in a different way. And sometimes I might ask you a question that you don't want to answer or that isn't relevant to you, which is also okay. Let me know and we will skip it. Most of the bigger questions apply to both of you so I would like to hear both of your input to them.

Most questions are to be answered by the Resident, but can also be answered by the Caregiver

GUIDE: Choose questions based on:

***If participants have**:*

Physician care VIRTUALLY

Physician care in-person ONLY

NO physician care or virtual care

VIRTUAL Physician Care (Questions)

1. (Resident) How would you say your Wi-Fi or cell phone reception is here?
    a. (Follow up) Has the Internet or cellular connection ever affected you when you connected virtually with your doctor?
    b. (Follow up) Did it ever affect your meeting with your doctor?
2. I want to ask you some questions about your experience of having a telehealth meeting with the doctor. This may have been by video chat, or on your phone. Tell me a bit about one of these meetings.
    a. (Resident) How did you prepare for the meeting with the doctor?
        i. (Follow up) Did anybody help you to prepare for the meeting?
    b. (Care Givers): Did you ever attend any of the meetings between the resident and doctor?
        i. (If yes) Did you help with the appointment in any way? Translation? Technology support? Emotional support? Providing answers/information? Asking questions?
        ii. Were the meetings at good times for you?
    c. (Resident) Where were you when you had the appointment (in your room, a common area, etc.)?
        i. (Follow up) Who was present for the meeting?
        ii. (Follow up) Were those people present virtually or in-person? What was their role?
3. (Resident) What did you like about meeting this way with the doctor? What didn't you like? What made it easy/hard? Any examples?
    a. (Follow up) How does it compare to in-person visits? What do you prefer?
    b. (Follow up) What circumstances affected your preference?
4. (Care Givers) What advice would you give to another care giver that has a loved one living in long-term care that was about to meet with their family physician virtually for the first time?

Physician in-person ONLY Questions

1. (Resident) How did you prepare for the meeting with the doctor?
    a. Did anybody help you to prepare for the meeting?

b. (Care Givers): Did you ever attend any of the meetings between the resident and doctor?
    i. (If yes) Did you help with the appointment in any way? Translation? Emotional support? Providing answers/information? Asking questions?
    ii. Were the meetings at good times for you?

2. (Resident) Where were you when you had the appointment (in your room, a common area, etc.)?
    a. (Follow up) Who was present for the meeting?
3. (Resident) What did you like about meeting this way with the doctor? What didn't you like? What made it easy/hard? Any examples?
    a. (Follow up) Would you want the option of meeting virtually (through a phone call, video call, etc.) with your doctor as well? Why or why not.
    b. (Follow up) Has your doctor ever suggested meeting virtually before?

NO Physician OR virtual Questions

1. (Resident) If you have not met with the doctor while you have been living here, how and with whom did you communicate about your medical care?
    a. Also, how would you like to have been able to meet with the doctor: in person, by phone, on video, some other way?
        i. (Follow up) (if the resident only says they would like in-person) Would you also like an option to be able to meet with a physician virtually if you don't see one in your home? Why or why not?
        ii. (Follow up) Is there anyone else you would like to be present when you meet with the doctor e.g., family member / friend / other?
        iii. (Follow up) How often would you like to be able to meet with a doctor?
        iv. Are there any other things you'd like to be considered when meeting with the doctor?
2. (Resident) What could be done differently to improve your medical care experience in the future? Can you provide some examples, if any?

Interview Guide for Other Healthcare Providers

In our conversation today, we will talk about experiences with telehealth in LTC. For the purposes for this study, 'telehealth' will include any interaction between you and

members of the resident's circle of care, occurring remotely, using any forms of communication or information technologies, such as text, phone, image, and video. Sometimes I might ask a question that you're not sure how to answer. If that happens let me know and I'll ask it in a different way. And sometimes I might ask you a question that you don't want to answer or that isn't relevant to you, which is also okay. Let me know and we will skip it.

Accommodations & Infrastructure Questions

1. How would you say the Wi-Fi or cell phone reception is in you LTC home(s)?
    a. (Follow up) Has the quality of the Internet or cellular connection ever affected provision of telehealth?

2. How did you prepare for supporting telehealth?
    a. (Follow up) Did anybody help prepare for the meeting?
    b. (Follow up) Were those people present virtually or in-person? What was their role? Who else was present during the telehealth? Who would you like have been present?
    c. Where did the telehealth occur (e.g., nursing station, resident's room, a common area, etc.)? Did this fit with your preferences?
    d. When and how often did the telehealth occur? Did this fit with your preferences?
    e. What did you like about meeting this way? What didn't you like? What made it easy/hard? Any examples? Did this fit with your preferences?

3. Can you describe how you and your LTC home(s) were prepared/not prepared for the sudden shift to using telehealth during the COVID-19 pandemic?

4. What enabled / challenged telehealth?

Usefulness and Satisfaction with Telehealth Meetings Questions

1. Did you find that telehealth worked well to support medical care for residents in your LTC home? Why or why not?
    a. Provide an example(s) when telehealth worked well? Didn't work well?

2. How does this differ to in-person care, such as related to support patient and family-centered care and nature of care supported?
3. What is your preferred form of care and why?
4. What do you think could be changed/stay the same for the future to ensure that telehealth could be effective for supporting care in your LTC home?
5. What if any resources, training, or other supports are needed for telehealth?
6. What advice would you give somebody in your position who may be new to telehealth?
7. Anything else you would like us to know.

Interview Guide for Physicians

In our conversation today, we will talk about experiences with telehealth in LTC. For the purposes for this study, 'telehealth' will include any interaction between you and members of the resident's circle of care, occurring remotely, using any forms of communication or information technologies, such as text, phone, image, and video. Sometimes I might ask a question that you're not sure how to answer. If that happens let me know and I'll ask it in a different way. And sometimes I might ask you a question that you don't want to answer or that isn't relevant to you, which is also okay. Let me know and we will skip it.

Accommodations & Infrastructure Questions

1. How would you say the Wi-Fi or cell phone reception is in your LTC home(s)?
    a. (Follow up) Has the quality of the Internet or cellular connection ever affected provision of telehealth?
2. How did you prepare for providing telehealth?
    b. (Follow up) Did anybody help prepare for the meeting?
    c. (Follow up) Were those people present virtually or in-person? What was their role? Who else was present during the telehealth? Who would you like have been present?
    d. Where did the telehealth occur (e.g., nursing station, resident's room, a common area, etc.)? Did this fit with your preferences?

e. When and how often did the telehealth occur? Did this fit with your preferences?
f. What did you like about meeting this way? What didn't you like? What made it easy/hard? Any examples? Did this fit with your preferences?

(Probes: Privacy? Noise / distractions? Need for translation support?)

3. Can you describe how you and your LTC home(s) were prepared/not prepared for the sudden shift to using telehealth during the COVID-19 pandemic?
4. What enabled / challenged telehealth?

Usefulness and Satisfaction with Telehealth Meetings Questions

1. Did you find that telehealth worked well to provide medical care for residents in your LTC home? Why or why not?
    a. Provide an example(s) when telehealth worked well? Didn't work well?
2. How does this differ to in-person care, such as related to provide patient and family-centered care and nature of care provided?
3. What is your preferred form of care and why?
4. What do you think could be changed/stay the same for the future to ensure that telehealth could be effective for providing care in your LTC home?
5. What if any resources, training, or other supports are needed for telehealth?
6. What advice would you give somebody in your position who may be new to telehealth?
7. Anything else you would like us to know.

Focus Group Guide for Physicians

For the purposes for this study, 'telehealth' will include any interaction between you and members of the resident's circle of care, occurring remotely, using any forms of communication or information technologies, such as text, phone, image, and video.

1. Can you describe how you and your LTC home(s) were prepared/not prepared for the sudden shift to using telehealth during the COVID-19 pandemic? What enabled / challenged telehealth?

2. Did you find that telehealth worked well to provide medical care for residents in your LTC home? Why or why not? How does this differ to in-person care, such as related to provide patient and family-centered care and nature of care provided?
3. What do you think could be changed/stay the same for the future to ensure that telehealth could be effective for providing care in your LTC home? What if any resources, training, or other supports are needed for telehealth?
4. What advice would you give somebody in your position who may be new to telehealth?
5. Anything else you would like us to know.

Appendix C.

Tables

Table C1. Demographic Information of Care Recipients

Variables	Residents (n =26)		Caregivers (n= 13)	
	n	%	*n*	%
Age				
<25	0	0	1	8
25-50	0	0	4	31
51-75	3	11	8	61
75-100	22	85	0	0
Unsure	1	4	0	0
Gender Identity				
Female	13	50	9	69
Male	13	50	3	23
Non-Binary	0	0	1	8
Ethnicity				
White	21	81	10	77
Southeast Asian	0	0	3	23
Indigenous	2	8	0	0
Middle Eastern	1	3	0	0
Prefer not to answer	2	8	0	0
Years in LTC*				
<1	2	8	1	8
1-2	6	23	6	46
3-4	3	12	3	23
5+	5	19	3	23
Unsure	10	38	0	0
Access to a Device**				
Yes	18	69	12	100
No	8	31	0	0
Hearing Difficulty*				
Yes	8	31	8	62
No	18	69	5	38
Vision Difficulty*				
Yes	6	23	5	38
No	20	77	8	62
Mobility Difficulty*				
Yes	19	73	13	100
No	7	27	0	0
Memory Difficultly*				
Yes	6	23	12	92
No	20	77	1	8

Note. Residents were on average 76.2 years old, while Caregivers were 52.3 years old. Not all percentages add up perfectly to 100% due to rounding.

* Caregiver answers are referring to the care recipient who is a resident in LTC

** A device is any piece of technology that can be used for telehealth.

Table C2. Demographic Information of Care Providers

Variables	Care Staff (n =16)		Physicians (n= 15)	
	n	%	*n*	%
Age				
<25	1	6	0	0
25-50	6	38	8	53
51-75	9	56	7	47
75-100	0	0	0	0
Gender Identity				
Female	14	88	9	60
Male	2	12	6	40
Non-Binary	0	0	0	0
Ethnicity				
White	9	56	8	53
Southeast Asian	4	25	4	27
South Asian	3	19	2	13
Latin American	0	0	1	7
Years worked in LTC				
<5	4	25	1	7
5-10	3	19	8	53
11-15	3	19	3	20
16-20	3	19	1	7
>20	3	19	2	13
Prior Telehealth Use*				
Video only	1	6	0	0
Non-video only	7	44	4	27
Video + non-video	6	38	11	73
No experience	2	12	0	0

Note. Care Staff were on average 48.3 years old, while Physicians were 48.9 years old. Not all percentages add up perfectly to 100% due to rounding.

* Non video relates to phone calls, texting, and emailing.

[a] Care Staff roles during COVID-19 were as follows: Director of Care (n= 4), Social Worker (n= 3), Licensed Practical Nurse (n= 2), Registered Nurse (n= 2), Other (n=5)

Table C3. Digital Literacy Scores of Care Recipients based on Nelson and colleagues (2022), Digital Health Literacy Scale (DHLS)

5 Point Scale	I can use applications /programs (like Zoom) on my cell phone, computer, or another electronic device on my own (without asking for help from someone else)	I can set up a video chat using my cell phone, computer, or another electronic device on my own (without asking for help from someone else).	I can solve or figure out how to solve basic technical issues on my own (without asking for help from someone else)
Resident (n = 25) *			
0 (Strongly Disagree)	15	17	16
1 (Disagree)	1	0	1
2 (Neutral)	1	1	1
3 (Agree)	3	4	4
4 (Strongly Agree)	5	3	3
Average Score	**1.28**	**1.04**	**1.08**
Caregiver (n = 13)			
0 (Strongly Disagree)	1	1	1
1 (Disagree)	1	0	0
2 (Neutral)	0	1	1
3 (Agree)	1	3	2
4 (Strongly Agree)	10	8	9
Average Score	**3.38**	**3.31**	**3.38**

Note. *One resident passed away during the study before we were able to revisit and do their digital literacy scores. As such, n= 25 participants.

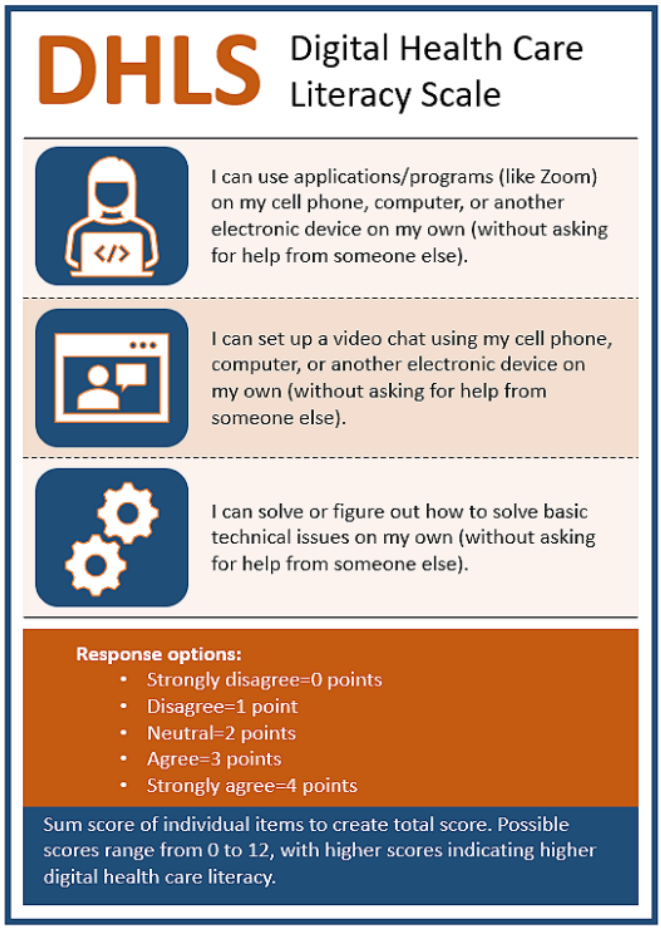
Table C4. Digital Literacy Scores of Care Providers based on Nelson and colleagues (2022), Digital Health Literacy Scale (DHLS)

5 Point Scale	I can use applications /programs (like Zoom) on my cell phone, computer, or another electronic device on my own (without asking for help from someone else)	I can set up a video chat using my cell phone, computer, or another electronic device on my own (without asking for help from someone else).	I can solve or figure out how to solve basic technical issues on my own (without asking for help from someone else)
Care Staff (n = 16)			
0 (Strongly Disagree)	0	0	1
1 (Disagree)	2	1	2
2 (Neutral)	0	1	3
3 (Agree)	4	2	3
4 (Strongly Agree)	10	12	7
Average Score	**3.37**	**3.56**	**2.81**
Physicians (n = 15)			
0 (Strongly Disagree)	0	0	0
1 (Disagree)	0	0	0
2 (Neutral)	0	1	3
3 (Agree)	2	4	3
4 (Strongly Agree)	13	10	9
Average Score	**3.67**	**3.60**	**3.40**

Appendix D.

Figures

Figure D1. Nelson and colleagues (2022), Digital Health Literacy Scale (DHLS)



Note. This figure was used in the demographic section of every interview guide to get participant digital literacy scores.