Sydney Policy Reform Project

Research Paper for NSW Council of Social Service: Patient and consumer experiences of telehealth services

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About the Sydney Policy Reform Project

The Sydney Policy Reform Project (‘Project’) facilitates University of Sydney students to write research papers for policy organisations, and submissions to government inquiries, under supervision from University of Sydney academics. The Project is a volunteer, extra-curricular activity.

The Project is an initiative of the Student Affairs and Engagement Team within the Faculty of Arts and Social Sciences, and the Division of Alumni and Development, at the University of Sydney. The Project is funded by a donor to the University of Sydney.

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1. Introduction

Telehealth can be understood as the ‘use of telecommunication techniques for the purpose of providing telemedicine, medical education, and health education over a distance’ (Australian Department of Health 2015). Telehealth services in Australia cover a broad range of services and types of healthcare, and concern multiple levels of stakeholders at an individual level and a government and service delivery level. This literature review will form part of ongoing research conducted by the NSW Council of Social Service (‘NCOSS’) on the social determinants of health to provide advice to government agencies on health issues affecting vulnerable peoples in NSW. Due to the COVID-19 pandemic, the telehealth services available under the Medical Benefits Scheme (MBS) have been expanded from March 2020 until December 31, 2021, and these items ‘are available to GPs, medical practitioners, specialists, consultant physicians, nurse practitioners, participating midwives, allied health providers and dental practitioners in the practice of oral and maxillofacial surgery’ (Australian Department of Health 2021).

Wider access to telehealth services due to both increased affordability and availability has spotlighted the potential for such services to fill the gaps currently in healthcare and to expand due to new technology. This technology includes telephone and video consultations, technical peripherals, self-monitoring technologies, and emerging technologies. Although technology itself is constantly updating, telehealth service providers and consumers alike had generally been slow to follow suit, until the COVID-19 pandemic, during which there has been a rapid increase in the use of telehealth services. According to MBS Data reported in February 2021, around when the pandemic began, there were 3.3 million telehealth consultations in February, with 93% being via telephone and 7% being via videoconference (Centre for Online Health 2021). This was a rapid increase in the use of telehealth services made possible through the prevalence of available online technology and pre-existing billing procedures (Sansom-Daly & Bradford 2020). The lack of implementation prior to the pandemic may be due to, for example, concerns around privacy and technical standards – yet this may not be the only explanation, since these concerns have affected telehealth services since the rise of internet and mobile phone use in the late 1990s and early 2000s (Mitchell 2000; Hailey & Crowe 2003).

There is limited specific data available on patient and consumer experiences of telehealth in New South Wales and Australia more broadly. Key focus areas of older Australians, rural infrastructure access, and post COVID-19 emergence uptake of telehealth is where the quantitative data is most concentrated. This literature review will gather available and comparable research to showcase patient and consumer experiences in the key areas of affordability, accessibility, appropriateness for different types of healthcare, appropriateness for different demographics, and any other available measures of patient satisfaction.

2. Methodology

Our definition of telehealth is developed from the brief provided by NCOSS, to respond most accurately to the brief. The definition is also limited to health services provided in New South Wales and Australia. Particular emphasis is given to services offered under the MBS as these services were expanded due to the COVID-19 pandemic, making them timely and relevant.

As a team of five researchers, we divided research and searched terms on multiple databases, including the University of Sydney Library, University of New South Wales Library, JSTOR, Google Scholar, Scopus, MedLine and SAGE databases. The terms included in our search were 'telehealth', 'e-health', 'telemedicine' 'consumer', 'patient', 'experience', 'perception' and related terms. These terms were searched in conjunction with 'New South Wales', 'Australia' and were dated from 2000 onwards, with a strong focus on articles within the last three years. Research from the earlier 2000s was used primarily for background information to give context to current telehealth policy and service availability. More recent studies were given preference due to the rapid nature of technological change.

Our original approach to this literature review was to individually research different demographic areas in relation to telehealth experiences – for example, the demographics of people living in rural areas, people with disabilities, people from a CALD background, elderly people, and LGBTQIA+ people. It quickly became evident that only some of these demographics, particularly rurally located people, elderly people and people with disabilities, had much research on patient and consumer experiences of telehealth. In searching, for example, 'telehealth' in conjunction with variants of 'LGBTQIA+' (such as 'LGBT', 'Lesbian', 'Gay' and so on), very few studies mention LGBTQIA+ people specifically. Some studies point to the potential for telehealth services to help increase accessibility for certain demographic groups, such as the LGBTQIA+ community, for example through providing services to rural areas which may not have healthcare workers who are well trained in areas of LGBTQIA+ health (Zwickl et al. 2019). This gap in research then informed our recommendations for further research into these demographics.

Due to the wide scope of the project, the literature review focuses on specific demographic areas. Some of the research is also Australia-wide rather than New South Wales specific, and some research mentioned is from comparable countries. Grey literature and other hand-picked research is also included in addition to academic work, such as some news articles, and government reports, to give context and inform in areas which academic writing has yet to cover.

3. Affordability

In addition to the terms discussed in section 2, the research summarised in this section searched using the terms ‘affordability’, ‘telehealth’, ‘NSW’, ‘cost’, ‘Australia’, ‘productivity’, ‘waiting times’, and ‘travel’, in the specified databases. 60 documents were screened using these terms, with 18 relevant documents identified.

Average annual Australian out-of-pocket healthcare expenses (co-payments) are $1,265 per person aged 18-88 (Australian Institute of Health and Welfare020). Nonetheless, nation-wide survey data (Zurynski et al. 2020) estimates the extent of the population who forego treatment due to cost concerns in a 48-month period as follows:

- 48% have not visited a dentist;
- 49.7% have not filled a prescription or have skipped doses;
- 30.7% skipped follow-up appointments;
- 13.8% have not visited a doctor; and
- 75% reported a reliance on bulk billing.

Such data does not isolate whether co-payments or indirect costs caused this phenomenon, however telehealth presents opportunities to reduce both. Direct savings are from recovered from co-payments. Indirect savings result from patients not having to travel or sit in waiting rooms to receive healthcare, thereby saving on costs such as travel, lost work, childcare, and caregiver expenses. This review finds mixed evidence on whether telehealth reduces direct patient costs, but it finds strong evidence that telehealth reduces indirect healthcare costs. International examples further illustrate a pathway for direct savings to be generated.

3.1 Direct Savings to Patients

Direct cost savings of telehealth primarily result from technologies reducing the length of time required by clinicians to consult or administer treatments. This is a significant productivity improvement for healthcare providers, as reducing the number and duration of required consultations or treatments can generate a direct cost saving to patients. Flynn et al. (2020), found that following an initial in-person consultation, website materials were able to primarily guide physiotherapy for Parkinson’s patients, reducing average subsequent treatment time from 98 to 10 minutes. Partial self-treatment therefore represents a potential area of cost saving.

Similarly, remote monitoring and self-monitoring technologies, especially for sufferers of chronic health conditions, presents an opportunity for costs savings. This typically involves patients taking their own weight, blood glucose levels, or blood pressure, combined with telephone consultations to monitor patients and ensure adherence. Such measures reduce the duration and frequency of consultations (Caffery et al. 2017). An additional benefit is reducing secondary care requirements, as physicians can predict and avoid admissions with low-cost interventions (Snoswell et al. 2019; Snoswell et al. 2020; Razavi et al. 2017; Infrastructure NSW 2018). Snoswell et al. (2019) found that store-and-forward technology also reduces reliance on secondary care. When patients are admitted to hospital, remote screening may bypass emergency departments, presenting a further direct cost reduction (Jung et al. 2020).

Through improving the collection and management of patient data, and by educating and equipping patients to involve them in their own treatment, telehealth can make healthcare far cheaper to administer. The studies examined did not quantify the co-payment savings generated. Caffery et al. (2020) notes that providers and Medicare do not reflect time savings in their pricing, however in the United States, telephone consultations are cheaper due to their efficiency. Healthcare providers may lower prices if the widespread use of self-monitoring, self-treatment, and remote consultation is expanded and maintained to reflect productivity gains.

3.2 Direct Costs to Patients

Despite being cheaper to administer, in some cases, inadequate reimbursement may increase out-of-pocket healthcare expenses. Many self-treatment and monitoring practices require patients to purchase their own aids or maintain them such as by replacing batteries. For low-income individuals and particularly pensioners, such costs can be unmanageable (Greig et al. 2020). Some forms of healthcare are more expensive when delivered remotely such as tele-screening for skin cancer diagnosis (Snoswell et al. 2019) and 20% of dietician treatments (Kelly et al. 2020).

Consultations via telehealth also strain healthcare providers due to higher cancellation rates (Kelly et al. 2020). A 9% increase in general usage of healthcare services has also been recorded in Australia since the expansion of the MBS to include telehealth (Caffery et al.

2020). It is unknown to what extent this is an inefficient overuse of healthcare services or a result of improved accessibility to services, or other pandemic-related factors.

3.3 Indirect Savings to Patients

While it is generally unclear whether telehealth can reduce co-payments, with each form of treatment requiring individual assessment, there is consistently strong evidence that it can reduce indirect costs, greatly improving the affordability of healthcare.

Travel times are one such cost, which in Queensland and Western Australia-based studies have been shown to be sufficiently reduced by telehealth consultations so as to lower the overall cost of treatment, particularly for remote patients (Taylor et al. 2018; Razavi et al. 2017; Snoswell et al. 2019). The majority of studies considered failed to quantify the relative significance of various indirect cost savings, instead amalgamating all indirect costs circumvented by telehealth including lost working time, childcare costs, and caregiver costs (Maurice et al. 2020; Snoswell et al. 2020; Razavi et al. 2017; Cabrera et al. 2020; Kelly et al. 2020; Damberger 2018). These studies regard such savings as the principal benefit of telehealth.

Estimates on the magnitude of indirect costs vary widely, and while these costs are generally proportional to the length of time it takes to receive traditional treatment, it is important to note that these costs exist and are saved in urban settings. Chai et al. (2019), for example, have identified the potential for family-based treatments, which were prohibitively expensive or unfeasible due to indirect costs in urban settings, to become viable when delivered online. Given that telehealth has successfully substituted for at least 34% of all consultations during the pandemic (Caffery et al. 2020), and two thirds of patients find this experience at least as good as in-person (Isautier et al. 2019), telehealth has enormous potential to improve affordability beyond the pandemic by reducing the indirect costs associated with healthcare.

4. Appropriateness for Mental Health Care

One concern addressed by studies is whether telehealth is an appropriate mode for delivering mental health care services. Some consider that the ability to build rapport can be lost when using technology, and that ‘telehealth may be unable to facilitate the human-to-human connection required, or that something of the therapeutic interaction's *essence* may be lost in the process’ (Sansom-Daly & Bradford 2020, pp.1404-1405). They argue that the ‘human element’ is not wholly erased in telehealth; rather, the mode of interaction is different, which may bring both challenges and benefits. One benefit, for example, is that they find people tend to act differently when communicating electronically from a home environment, compared to when in person at a medical facility, and this can reveal information not otherwise able to be gathered.

A randomised control trial conducted by Chalmers, Sansom-Daly, Patterson, McCowage, and Anazodo (2018) assigned a small sample of young (15-25 year old) cancer patients into either in-person or videoconference consultations with a clinical psychologist. This is a vulnerable population which experiences clinical distress in 23-27% of patients and has a high suicide risk. This population also requires highly specialised psychosocial support, and the provision of these specialised services to small, dispersed populations is a key advantage of telehealth. 87.5% of the treatment group indicated no preference, or a preference for telehealth. Preference of telehealth was always for logistical reasons. The majority of those assigned face-to-face indicated a preference for in-person consultations, which suggests perceptions of telehealth (videoconferencing) improve after exposure to it. Many clinicians considered videoconferencing to be on par with in-person treatment, at least for some forms of telehealth. Further, evidence shows that teletherapy cognitive behavioural therapy (CBT) is as effective as clinician-delivered CBT (Reay, Looi & Keightley 2020). As such, these studies suggest telehealth services offer new and useful benefits to service delivery.

5. Appropriateness for Different Demographics

5.1 General Population

Parker et al. (2018) conducted a meta-analysis of primarily Australian and some OECD country studies on the experience of telehealth patients from vulnerable groups (CALD, Indigenous, SES, remote) with chronic disease. They identified 18 relevant studies which reported widely differing levels of satisfaction with use of various telehealth treatments. Most of these studies focused on self-management of chronic conditions by encouraging goal setting, providing rewards for achievement, and enhancing patient responsibility for symptom monitoring. The uptake of and satisfaction with self-management techniques was found to be highly dependent on the patient's intrinsic motivation. Further, satisfaction was high when patients perceived interventions to be highly relevant to their needs and they felt actively supported, and when technologies were relatively uncomplicated. This suggests a need for telehealth self-management services to be highly targeted to the relevant group, and a need for health and tech literacy, such that patients understand their conditions, and the importance of their role in its management, and how to use any relevant technologies.

5.2 Culturally and Linguistically Diverse People

The Australian Bureau of Statistics defines Culturally and Linguistically Diverse (CALD) communities as individuals born overseas and individuals with a parent born overseas (ABS 2020). While many overseas-born Australians and their families are healthy, the NSW Department of Health has nevertheless identified some CALD communities as being disproportionately affected by illnesses such as coronary heart disease, diabetes, and psychological distress (NSW Health 2020). Furthermore, preliminary studies conducted by researchers at Melbourne and Monash University indicate that CALD communities in Victoria are disproportionately impacted by the ongoing COVID-19 pandemic (Skouteris 2020; Grills & Butcher 2020). In addition, Zhang et al.'s study on mobile technology utilisation among CALD patients found CALD people are likely to be familiar and comfortable using mobile phone technology. These factors suggest that CALD communities can be beneficiaries of telehealth services.

Unfortunately, despite the relative vulnerability of CALD communities, their experiences with telehealth services have been mixed (Kong et al. 2020; Nouri et al. 2020). A 2020 US study on the equity of access to telehealth services during the COVID-19 pandemic revealed that while non-CALD patients are more likely to consult with clinicians following the implementation of telemedicine, CALD communities, including Latinx and Pacific Islander communities, are now less likely to attend check-ups or consult with physicians (Nouri et al. 2020). Barriers created by the health system (such as inadequate access to interpreters), and the low levels of awareness of telehealth services among some CALD communities, are identified as the leading causes of CALD attrition from accessing healthcare services since the pandemic-induced shift towards telemedicine (Nouri et al. 2020).

While CALD communities in the United States undoubtedly face challenges unique to America's demographic, political and healthcare landscape, lack of access to interpreters and barriers in digitally communicating important health information to CALD communities present a significant issue in Australia too (RACGP 2020). From 16 March 2020, Medicare-funded telehealth services were expanded in Australia. In the first six weeks following the expansion2% or 7 million of all surveyed consultations were conducted via a telehealth service (Snoswell, Smith & Caffery 2020). While the uptake in telehealth use is positive, media statements by the Royal Australian College of General Practitioners (RACGP) and Australia's multicultural Special Broadcasting Service (SBS) have already identified deficiencies in the current availability and accessibility of interpreters for assistance in the use of telehealth services (RACGP 2020; Murray & Houghton 2020). To avoid the levels of attrition from health services witnessed in the United States amongst CALD communities, NSW should ensure that CALD communities are both aware of the availability of telehealth and are provisioned with appropriate cultural and linguistic supports (Wild et al. 2021).

5.3 Elderly

The NSW government defines elderly as individuals aged 65 years or over. However, there is an understanding that the term is amorphous and people as young as 50 have been included in some studies of the 'elderly' – particularly concerning Aboriginal and Torres Strait Islander communities (McIntosh & Phillips 2003). Importantly, individuals considered elderly are at increased risk of health-related disorders and thus stand to benefit immensely from telehealth services. Unfortunately, lower levels of digital literacy among this group impacts access to telehealth. Additionally, while there exists some level of support for telehealth services, particularly among elderly patients with neurodegenerative disorders like Alzheimer's disease and dementia (Haralambous et al. 2019; ANJ 2013), both elderly individuals from CALD communities, and clinicians themselves, have historically expressed a preference for face-to-face consultations (Fisk, Livingstone & Pit 2020; Haralambous et al. 2019). Fortunately, post-COVID data suggests that clinicians may be ready to overcome their ambivalence towards telehealth services, with 87% of those surveyed desiring the retention of certain COVID-19 specific telehealth items after the abatement of the COVID crisis (O'Kane 2020).

Importantly, significant heterogeneity exists within the elderly community, and as a group already predisposed towards disadvantage, intersections with other marginalised groups can have a compounding effect. One such group is elderly CALD Australians. Media reports have highlighted the ongoing difficulties CALD patients have experienced accessing COVID-19 specific telehealth services due to inadequate access to translation and interpreter services (Murray & Houghton 2020). Given that elderly patients often possess low levels of digital literacy, elderly CALD patients may be 'doubly' disadvantaged.

Furthermore, despite the increased prevalence of video conferencing telehealth services due to their increased utility as diagnostic tools, elderly Australians have experienced difficulty in understanding and navigating the technology required to support these services (O'Kane 2020; Fisk, Livingstone & Pit 2020; Haralambous et al. 2019). Additionally, there exist concerns that elderly Australians may 'defer' from regular appointments and check-ups if telehealth services are their only alternative. This is particularly true for elderly Australians living in remote and rural areas (Fisk, Livingstone & Pit 2020). Overall, telehealth offers concrete advantages to geriatric Australians as a whole. However, people aged over 65 are not a homogenous group and demographic differences within this population accounts for further difficulties in accessing telehealth services. The current dearth in academic literature on the confluence between elderly Australians and other marginalised groups reflects a lacuna that both academic and NSW government support services would do well to address.

5.4 People with Disability

Although many studies are not generalisable due to small sample sizes and the diversity of disabilities, individual studies and systemic reviews reveal positive patient and caregiver responses to telehealth interventions, therapy, and self-monitoring. Children and their parents have responded positively to online technologies for learning disabilities (Hodge et al. 2019). Best practice for learning disabilities, intellectual disability and neurodevelopmental disorders stresses the importance of building social communication and daily living skills through regular and in-home contexts. Telehealth can enable this by allowing easier access to specialists in non-metropolitan areas, address workforce constraints and decrease primary and secondary costs. The shift towards more complex technologies may risk trading off one skills shortage (health professionals) for another (digital professionals). The need to address digital skills and literacy of healthcare professionals to deal with the anticipated widespread implementation of new technologies such as artificial intelligence has been recognised in the Federal Government's seven-year strategy paper the *Australian National Digital Health Workforce and Education Roadmap*, and the current pandemic (and associated increased demand for telehealth) has likely exacerbated this skills gap (ADHA 2020).

An early COVID-19 study showed only 30% of telehealth users were satisfied, with only 52.8% of practitioners feeling confident with administering the services (Masi et al. 2021). Although subsequent studies have shown promising willingness to use telehealth, ongoing digital education will be required for all stakeholders, including to address additional burdens placed on caregivers to assist in telehealth operation (Mayston 2021). Telehealth can also shift burdens of labour towards disadvantaged families. In-home therapy promises families and caregivers greater time and quality of interaction, but often requires two caregivers to manage siblings, thus exacerbating inequalities for single parents (Pacia et al. 2021). Consumer choice is emphasised as a prerequisite of telehealth adoption, often described as 'complementary' to in-person care. This raises concerns for people with a disability in rural and remote areas given that choice may not exist in practice, due to socio-economic disadvantage and logistical difficulties.

Usability issues have been identified for older adults with cognitive impairment and in management of multiple sclerosis (Jakobsson et al. 2019; Sangelaji et al. 2017). Although it should be noted these issues are not exclusive to older people or people with disability, studies emphasise the need for social supports to ensure confidence in digital technology use (Christiansen et al. 2020). Concern about technology replacing social interaction with healthcare workers in disability care and management is a common theme raised in studies. Telehealth effectiveness tends to diminish with more extreme disabilities, which require increased complexity of in-person care (Rathnayake et al. 2019). Many studies are limited to assessing telehealth users who have the knowledge, means and ability to access telehealth services, potentially excluding the most vulnerable people. Community organisations and policymakers should consider the social limits of telehealth technologies and the extent to which they can replace in-person care.

While common uses of telehealth are ‘low tech’, using video- or audio-conferencing that is relatively easy to understand, newer technologies may present additional difficulties and unintended consequences. The ICT industry differs from clinical care in speed of development, testing methodology and regulation, with rapid adoption of newer technologies risking unintended harms (Cahn, Akirov & Raz 2018). For example, smartphone integration with hearing aids have raised raised issued of end-user frustration, data privacy and the potential to increase stigmatisation by making disabilities ‘increasingly discreet’ (Ng et al. 2017). Data-driven technologies may risk being perceived negatively by people with a disability due to the risk of stigmatisation, especially if personal datasets are exposed in cyber-attacks (Valdez et al. 2021).

However, new technologies can present useful novel treatments for people with a disability, such as the use of gamification and virtual reality headsets, to aid students with learning, physical and sensory abilities (Papanastasiou et al. 2018). While this approach yielded better outcomes through a patient-centred model, there were also some negative impacts of headsets on some students. Considerable investment in education, research and support may be important to address barriers, burdens and risks for people with disabilities, beyond what is needed for non-telehealth technology development.

5.5 Rural and Remote

In Australia, the distribution of population between rural areas and cities makes telehealth a logical option for service delivery, and Queensland hospitals lead the way in the adoption of telehealth services (Edirippulige et al. 2016). Studies find that most patients and their families in rural and remote areas have high satisfaction and acceptance towards telehealth and that telehealth generally plays a beneficial role in improving medical care in rural and remote NSW. By conducting search procedures on patients’ satisfaction with telehealth in rural areas, Loriana et al. (2020) found that rural residents are highly satisfied with rehabilitation services such as occupational therapy, physical therapy, and speech-language therapy provided by telehealth. Wiadji et al. (2021) found that some surgeons in remote areas consider that telehealth may cause some patients who can receive surgical treatment locally, to choose remote treatment instead, leading to a reduction in the number of visits to local hospitals, and threatening the viability of local hospitals. Kohlhoff et al. (2020) found that parent-child interaction therapy (PCIT) via telehealth, for children suffering from childhood disruptive behaviour disorders (DBDs), overall improves the quality of treatment for children. The children's parents also provided high evaluations for participating in treatment through telehealth, which they believe has saved them time and reduced the difficulty for them to obtain treatment.

Kohlhoff et al. (2020) found that although the Internet connection is still the biggest obstacle for families in remote and rural areas to receive remote treatment, the installation of a Telstra 4G internet 'dongle' helps to address the lack of stable internet connection for patients in remote areas. Chai et al. (2019) conducted medical interventions on families with obese children through telehealth, and found that almost every parent in the experiment had a high evaluation of the remote intervention, especially for families in remote areas.

Scholars agree that broadband internet is one of the key elements in deciding whether patients in rural and remote areas could use telehealth, and the stability of the broadband network is one of the key elements to whether the patients could get satisfactory experience (Katalinic et al. 2013; Sutherland et al. 2016; Kohlhoff et al. 2020). Robert et al. (2013) found that lower-bandwidth-requiring techniques used in bandwidth-constrained rural and remote areas, such as using smartphones for personal health record or remote video conferencing, can increase the accessibility of telehealth in remote areas. Fairweather et al. (2016) provided remote speech-language pathology services to 19 children from Western NSW Local Health District. They found that using low bandwidth telehealth through desktop computers in schools in remote areas, helped improve the quality of remote speech-language pathology.

5.6 Children

The flexibility afforded to parents, and the comfort offered to children, of clinical consultations held in areas familiar to young patients, is a significant advantage of telehealth (Langkamp, McManus & Blakemoore 2015). For example, a pilot study undertaken to determine the feasibility of parent training via telehealth by Bearss et al. (2018), showcased the efficacy of telehealth in providing parents with the skill sets necessary to appropriately manage the disruptive behaviours of children with Autism Spectrum Disorder. All 12 parents involved in the study either ‘agreed’ or ‘strongly agreed’ that they felt comfortable receiving training via telehealth and would recommend the service to other parents.

A retrospective analysis and survey study of 45 primary care practices revealed that, since the onset of the COVID-19 pandemic, the most frequent paediatric telehealth consultations concerned mental health, which accounted for between 28-36% of all surveyed weekly telehealth visits (Schweiberger et al. 2020). Alarmingly, differences in telehealth use based on child race and ethnicity raises significant concerns regarding the potential barriers to access faced by some children (Schweiberger et al. 2020). Furthermore Chai et al. (2019) identified that overseas family-oriented programs generating behaviour change to combat childhood obesity have been highly successful – yet no such programs exist in Australia.

6. Recommendations

Following this literature review, our key recommendation is to undertake a comprehensive study specifically targeting patient and consumer experiences of telehealth services. Particularly as due to the rapid uptake of telehealth services following the COVID-19 pandemic, there will be a wealth of new experiences of telehealth services in NSW and Australia. Community organisations should consider the secondary costs and burdens of technology adoption in areas such as digital education. They should also consider the risks to individual consumers, caregivers and service providers, of rapid adoption of new technologies without proper safeguards. Furthermore, as it was outside the scope and length of this literature review, a further review of service provider experiences could allow a holistic view of all aspects of patient and consumer experiences, and help ensure future services are fit-for-purpose.

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Comment from Academic Supervisor

The academic supervisor for this paper, Professor Alexandra Martiniuk, comments as follows:

> It is true that Australia has seen a rapid increase in the use of telehealth services since COVID emerged. The report by Brannon et al states that this increase in telehealth use was 'made possible through the prevalence of available online technology and pre-existing billing procedures' which is true in that telephones were of course, already prevalent and most telehealth consultations in 2020 and 2021 were occurring by phone. Regarding billing, it is true that health providers have existing pathways to bill Medicare however what was (and continues to be) unique is the policy change by government regarding increased funding for telehealth consultations. As part of the 2021-22 Budget, the Australian Government invested an additional $114 million for telehealth services in 2021.
>
> As well the swift increase in telehealth use during 2020 and 2021 is at least in part due to changes in human behaviour whereby health professionals are more willing to engage in telehealth consultations (for COVID safety, as well, now that they are able to be remunerated for this service type); as well clients/patients are more willing to engage in telehealth consultations – originally to remain more COVID safe but then also often realising its convenience.
>
> The report by Brannon et al states in Section 1 that there is limited data on patient and consumer experiences of telehealth in Australia. I do not fully agree with this statement. In MEDLINE alone, which indexes all peer-review medical and health publications, there are 256 peer-review publications about consumer experiences of telehealth in Australia. There are further grey literature reports on consumer experiences with telehealth in Australia, for instance the April 2021 Consumers NSW report '*Navigating Telehealth – the Patients' Perspective'*.
>
> The students searched for literature using key databases (listed in their full report). They could have also included CINAHL which records allied health literature – however there is often a fair amount of overlap with MEDLINE (which they have searched).
>
> I agree with the report in terms of a need for further research into specific sub-groups of the population. This will be useful in the future.
>
> In section 3.1 the report states that 'Through improving the collection and management of patient data, and by educating and equipping patients to involve them in their own treatment, telehealth can make healthcare far cheaper to administer'. The report also discusses time saving. While these are true – there is further important detail to these points which were not mentioned in the report. While telehealth consultations may be quicker (or not quicker – I don't

think we have sufficient research to say) – we do not know well the trade-off between time efficiencies and quality of care. So we cannot know (yet, given the research that exists) whether a quick telehealth consult leads to longer, additional, face-to-face (or further telehealth) services where these would otherwise not have been needed if an initial face-to-face consult was provided. I am deeply supportive of telehealth services, but it is important to know that the data on these features are still to fully emerge. The report does acknowledge that there has been a 9% increase in service use since the start of the pandemic – with unclear reasons (pandemic related or due to increased reliance on telehealth or other factors).

I agree with the report that while telehealth provides a very helpful service for many sub-populations there is always the risk that telehealth will replace face-to-face services, particularly in rural and remote regions – and this is not likely to be ideal in terms of delivery of high quality of care over time. Though certainly a mix of in-person and telehealth services may be the optimal model of care for many people / conditions. Studies on exactly what those models of care might look like are on-going in NSW, Australia and globally.

One specific comment: I am not clear what is meant by the line - In Brannon et al page 5: 'Snoswell et al. (2019) found that store-and-forward technology also reduces reliance on secondary care.'

Overall, I found this report to be a well written and useful summary regarding consumer experiences of telehealth.

If I can be of further assistance to NCOSS feel free to reach out – my contact details below.
Sincerely,
Alex

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