Beyond the planned and expected: the unintended consequences of telehealth in rural and remote Australia through a complexity lens

Studies and experience have identified that telehealth — the use of electronic means such as video or telephone to deliver health care remotely — has many benefits for patients, health care providers and health systems, including reduced costs,[1] improved health care access,[2] productivity gains,[3] and increased satisfaction, convenience and efficiency.[4,5] Beyond direct benefits, there is a widely held view that telehealth may potentially mitigate the negative impact of health workforce shortages many countries face, especially in rural areas.[2,6,7] Telehealth can help with access to health care professionals in rural areas by providing patients with an opportunity to seek expertise outside their local area and hence reduce the pressure on the local workfotce.[6] It can also decrease rural and remote practitioners' isolation and reinforce their confidence and sense of security by providing access to a second opinion from experienced practitioners.[2,6] Moreover, clinicians in rural areas can acquire skills through experiential learning, by observing experienced practitioners via telehealth; they then get the chance to apply these skills firsthand when needed.[2]

Conversely, international research has identified challenges in the implementation of telehealth, as well as unanticipated effects. Changes in workflows, roles and the blurring of professional boundaries as well as the increased workload on clinicians have been identified as unintended consequences of telehealth use.[8-10] Depersonalisation of the clinician–patient relationship and the erosion of non-verbal communication have been reported as challenges.[8,9] Concerns have been raised about privacy, data security, lack of rigorous laws and regulations governing the use of telehealth, and fears of malpractice lawsuits.[11,12]

In a rural context, internet availability and reliability can be hurdles,[11] together with the increased financial burden on patients and lack of government support in terms of broadband cost and telehealth equipment.[12] Some have raised concerns about potential overdependency on telehealth and how that could impede clinical innovation of local practitioners which could otherwise create fit-for-purpose solutions to the unique challenges their communities face.[9]

Telehealth in the context of the COVID-19 pandemic and policy changes in Australia

In March 2020, the World Health Organization declared COVID-19 as a global pandemic.[13] Governments around the world, including Australia, introduced measures to contain the spread of the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), including restrictions on social interactions and international travel, and stay-at-home orders.[14] To ensure continuity of care and to limit the spread of the disease, many countries rapidly introduced telehealth funding packages. The number of telehealth consultations rose sharply in Australia and internationally.[15]

Before the COVID-19 pandemic, telehealth use was limited in Australia. In some rural and remote areas, it was mainly used to access specialist care, overcoming long distance travel.[16] Before the pandemic, Queensland had the most extensive telehealth infrastructure, accounting for 40% of all telehealth services across Australia.[16] The COVID-19 pandemic acted as a strong catalyst to the adoption of telehealth across the whole country. An important contributing factor to rapid adoption was the addition of the temporary Medicare Benefits Schedule (MBS) telehealth items by the Australian Government in March 2020 to pay for services.[17] These items were available for a range of medical practitioners to provide their services via telehealth "where it is safe and clinically appropriate to do so".[17]

To facilitate the transition to telehealth, the Australian Government Department of Health and Aged Care arranged for Video Call — a telehealth platform — to be provided by Healthdirect Australia — a national publicly funded organisation providing free other online health information services to the public. Video Call is available at no cost to general practitioners (GPs) until 30 June 2024.[18] Whether the government will continue to subsidise the platform, and how to move forward from there, is uncertain.

Telehealth is being steadily used by many Australians when in-person consultations are unavailable, inaccessible or deemed inconvenient. In a recent Australian Bureau of Statistics survey, at least one in seven Australians used telehealth in the four-week period preceding the survey.[19] There was a 30% increase in the number of Australians who reported their preference for online health services compared with before the COVID-19 pandemic.[19] The government has committed to ongoing telehealth use at least in the medium term via a $106 million support package administered through the Department of Health and Aged Care. This initiative runs from December 2021 over the next four years.[20]

Complexity of rural and remote health and telehealth

People living in rural and remote areas of Australia have a poorer health status compared with their city counterparts.[21] Although not the only factor, access to health services is a significant contributor. Other factors affecting the health of rural and remote Australians include socio-economic disadvantage and prevalent occupations in rural areas, such as farming

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and fishing, which are associated with high relative risk of accidents, fatalities or life-changing injuries.[21] Rural and remote Australians often travel long distances to access services, increasing the possibility of an accident. Living in areas that are flood-, drought- and/or fire-prone can substantially contribute to injury, anxiety and depression.[21,22] Moreover, more than 60% of Indigenous Australians live outside major cities,[23] constituting a large portion of the rural and remote Australian population and with evidence of poorer health status compared with non-Indigenous counterparts due to an interplay of factors such as social determinants of health, health risk factors, and historical and cultural factors.[24,25]

Telehealth can help enhance the health status of rural and remote communities by improving accessibility and contribute to other factors, such as the reduction of road accidents due to decreased travel.[26] By cutting travel costs such as fuel, accommodation, and lost wages due to work disruption, telehealth contributes positively to socio-economic wellbeing and helps relieve some of the financial burden those communities face to access services.[1]

While providing tangible support to rural clinicians on the ground,[6,7] dependency on telehealth can mask the need to invest long term to improve rural health, such as direct investment in infrastructure and the rural health workforce. By relying on metropolitan centres to provide care to rural Australians, telehealth essentially redirects rural resources to these centres, reducing future rural health care funding. This deflection of resources could threaten the viability and existence of rural practice altogether,[27] eroding health services in rural areas and exacerbating the situation in a vicious cycle of overdependency and inaccessibility. Reliance on metropolitan doctors reduces opportunities for training in rural health, potentially deskilling clinicians, especially those early in their career, thereby undermining the quality of health care rural patients receive over time. Intermittent metropolitan telehealth service providers do not participate in local call rosters nor have an understanding of the complex and chronic conditions of local, and especially Indigenous, patients needing personalised care. And predatory providers seeking to expand their business model might not be in the best interest of local communities due to this lack of local and contextual knowledge.[27]

All in all, inherent limitations of telehealth, such as the inability to examine patients physically,[27] may leave staff in rural primary care and emergency settings less skilled, and hence more vulnerable to medicolegal liabilities and overstretched as telehealth adds to their workload by transferring examining patients on behalf of the consulting physician or performing other clinical tasks outside their scope of work. Other concerns include that medicolegal consequences may arise due to miscommunication, lack of local context by the physician providing care via telehealth, and the hesitation of nurses and junior doctors to raise any concerns to a remote clinician. This may make work environments less attractive, further increasing the challenge of recruiting and retaining junior clinicians to rural practice.

There may also be social and economic consequences on rural communities due to the missed opportunity of having clinicians relocate to rural areas, contribute to the rural economy, bring investments, and attract more businesses to rural areas. And if the converse occurs, and telehealth fuels migration of rural Australians to metropolitan centres seeking specialist care or clinicians to work in cities, this can exacerbate the metropolitan housing crisis and the economy.[28]

These actual and potential effects are largely unintended consequences of the implementation or telehealth in rural Australia and have not to date been subject to overt planning. They nonetheless can have considerable impact on rural and remote communities and their health status.

What is next?

The unique health and social challenges of rural and remote Australians we have discussed suggest that using telehealth to improve health care access for these communities is not a linear problem for which the solution is clear and straightforward, but rather, is complex and multifaceted. Research designs sensitive to the complexity inherent in these issues and tailored to identify emerging unintended consequences where the relationship between the cause and effect is neither linear nor singular are more suited to address problems of this type. With telehealth becoming integral to health care delivery within Australia, there is a strong need to investigate both intended and unintended consequences in order to offer a broader understanding of the situation. Randomised trials are of less importance than studies relying on complexity science and systems thinking.[29] Ultimately, we want to ensure that telehealth helps reduce disparities in health outcomes between rural and remote communities and their city counterparts, while adding to our ability to tackle the multifaceted nature of unanticipated outcomes.

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