SCOPING REVIEW

The Need for Better Digital Connectivity to Improve Health Care of Rural Australians

2022

1. Background

Approximately 28 per cent of Australia's population, or around seven million people, lives outside the major metropolitan areas.[1] Regional, rural and remote Australians often struggle to access health services that urban Australians would see as a basic right. The maldistribution of primary health services from metropolitan to remote areas leads to a range of difficulties in accessing health care such as access to primary health care appointments, access to general practitioners on continuity of care, high costs of primary health care, and issues of distance and transportation.[2] These inequalities have led to lower life expectancy, worse outcomes on leading indicators of health, and poorer access to care compared to people in major cities.[3]

The 2022 AMA Rural Health Issues Survey sought input from rural doctors across Australia to identify key solutions to improving regional, rural and remote health care. It identified access to high-speed broadband for medical practices as a key priority. This result reflects not only the increasing reliance by medical practices on the internet for day-to-day operations, but also the increasing opportunities for the provision of healthcare services to rural and remote communities via telehealth.

The current COVID-19 pandemic and frequent restrictions have escalated the demand for reliable digital connectivity for access to healthcare services through telehealth services via video and telephone among rural and remote communities. Since telehealth has been made permanent by the government, better coverage of broadband networks across the country for reliable connectivity is a necessity.

The AMA believes telehealth services can improve access to care and enhance efficiency in medical practice, but the need for affordable, reliable and high-quality digital telecommunications goes beyond supporting rural and remote health. In today's world, reliable digital telecommunications are essential to support communities in their daily activities, education, business, and to drive innovation and boost the rural economy.

2. Objective

This scoping review outlines the present state of technology telecommunications and digital connectivity across Australia, and their ability in supporting medical practices, other health care providers and institutions to improve regional, rural and remote service delivery. The review proposes key solutions to achieving effective telehealth across the country.

3. Methods

A scoping review was undertaken to meet the objective. A combination of literature research and survey were conducted to examine challenges in telehealth practices and digital connectivity in rural and remote settings. The 2022 AMA Rural Health Issues Survey was developed by the AMA Council of Rural Doctors. The survey questions were framed as policy proposals for rural and remote health issues.

4. Results

4.1. Patchwork connectivity and affordability

There has been much pressure recently on mobile and broadband networks which at first glance appears to be due to an increased number of people working and studying from home due to the COVID-19 pandemic. While the national broadband network (NBN) has been able to support city dwellers, regional Australians are still dealing with unreliable broadband to work from home, accessing internet, conducting videoconference or accessing telehealth. Two-thirds of NBN users in regional areas were having speed issues over the network.[4]

Broadband and mobile connectivity is an enduring concern across many communities and increasingly crucial to the economic and social wellbeing of Australia's regions.[5] The impacts of this gap are wide-ranging, with some remote communities suffering from social exclusion as a result of limited or non-existent telecommunications infrastructure. Internet services, particularly in more isolated areas, only make available relatively small download allowances and these come at a much higher cost and slower speed than those services available in metropolitan areas.

These connectivity challenges are also explored in detail through the Australian Government's 2021 Regional Telecommunications Review, informed by public consultation with people in regional, rural and remote areas.[6] The Review found that in more remote areas the internet connection is still very poor.[7] The high cost of infrastructure deployment and limited consumer demand often reduces commercial incentives for telecommunications providers to invest in new mobile and broadband infrastructure.

Despite government's $1.3 billion investment in response to the telecommunication issues in regional, rural, remote and peri-urban Australia, internet access is not distributed equally within the country.[8] The government's response to expand mobile coverage includes Connecting Regional Australia initiative, investments on upgrading the entire NBN fixed wireless network, and continuing the Regional Tech Hub expansion to provide better support for regional consumers.

The rapid adoption of telehealth service during COVID-19 pandemic appears to have led to health inequalities in the distribution of healthcare resources among different populations. Empirical evidence has identified specific vulnerable patient groups to telehealth are those who are older, living rurally, having less formal education, lower socioeconomic status (SES), from culturally and linguistically diverse backgrounds, living with multiple chronic conditions, and those who have less access to online resources.[9] The main reasons for health inequities caused by SES are increased income can improve living conditions and access to digital health technologies; and a good educational level provides advantages in the adoption of digital health technologies.[10]

4.2. Telehealth in rural areas: the need for better digital connectivity

Health was identified in the Regional Telecommunications Review report as one of the particular segments of the community requiring special consideration.[11] To effectively leverage information and communications technologies (ICTs) delivering better health outcomes at lower cost in regional, rural and remote areas and to implement telehealth, both mobile and broadband technology must be reliable, affordable, and supply adequate capacity.

Telehealth can reduce or minimise challenges and burdens patients encounter in accessing healthcare as well as in reducing the risk of community transmission of coronavirus during COVID-19 pandemic. It is about transmitting voice, data, images and information rather than moving care recipients, health professionals or educators. The government has made many of telehealth services permanent in Australia which will benefit patients who live far from the healthcare providers.[12] Data from the Department of Health shows significant increase on claimed MBS telehealth items from 0.05 million in 2019 to 36.96 million in 2020, and the number of face to face consultations decreased from 100.86 million in 2019 to 77.99 million in 2020.[13,14] This data proves that telehealth has effectively maintained

accessibility of health care during the COVID-19 pandemic when there has been a decrease in in-person-examinations due to reducing risks of transmission.

While telehealth has been an important lifeline for people in rural, regional and remote Australia during the pandemic, the utilisation of telehealth and telemedicine in rural and remote Australia remains patchy and is not used to full potential because of digital connectivity issue. In these settings, troubleshooting technical problems due to unreliable digital connectivity and technology literacy often reduce the success of telehealth services.[15] Telehealth has become as good as the bandwidth it occupies.

As noted in the Regional Telecommunications Review report, the ability of hospitals and clinics to support remotely located clinicians and patients via phone or a video call could be severely limited in areas serviced by satellite, which may not be able to consistently and reliably deliver the necessary capacity and technical capability.[16]

The 2022 AMA Rural Health Issues Survey received the following comments from rural doctors on the problems encountered with poor connectivity:

- *"At the moment, we need better internet throughout the region to improve efficiency and aid telehealth."*

- *"Please halt the assumption that video consults are practicable for a large number of our patients - many do not have a smart phone, let alone the internet and/or data availability and experience to segue to video consults."*

- *"What rural needs are reliable internet for doctors and the patients (often more remote) for good telehealth, education of older patients to use telehealth for free (as GPs do not have time for this), and the uptake of telehealth (phone only) is poor in this group."*

As mainstream healthcare provision becomes increasingly technology based and requires more and faster broadband services to operate, there is a real risk that regional, rural and remote areas of Australia will be left further and further behind in their ability to provide quality health services.

4.3. Economic benefit of telehealth

Telehealth practice will be one of the most important online services in the broadband future, enabling significant changes to work practices to drive greater efficiency and reduce costs.[17]

If sufficiently supported, telehealth services can complement local health services. They can expand specialty care to patients in areas with shortages of health care providers as well as extend primary care to remote areas, reduce the need to travel, and increase the frequency of patient and primary care provider interactions. By providing timely access to services and specialists, telehealth can improve the ability to identify developing conditions, and thereby reduce the cost of treatments and hospitalisations.

A CSIRO report on home monitoring of chronic disease shows that a modest investment in home monitoring technology, allied to risk stratification tools and remote monitoring, could save the healthcare system up to $3 billion a year in avoidable admissions to hospital, reduced length of stay and fewer demands on primary care.[18] The Australian Health Consumer Sentiment Survey shows that the use of telehealth and other virtual care services increased during the pandemic, and these services were highly rated with 71% respondents considered telehealth as good or better than face-to-face services.[19]

4.4. Remote patient monitoring

eHealth encompasses patient access to doctors via online consultation, remote patient monitoring, online tools and resources for patients and doctors, clinical communications between healthcare providers, and professional's access to information databases and electronic health record systems. If supported with affordable, high-speed broadband services, eHealth has potential to improve health outcomes at all levels, from preventative health, specialist and acute care and self-management of chronic conditions, through to home monitoring for people living with chronic disease.[20]

Remote monitoring can be performed through the combination between in-person consultations and telehealth services via video and/or telephone. Continuing remote monitoring can provide early detection and exacerbation managements which can prevent from hospital admission.[21]

Telehealth has transformed primary care in this country from face-to-face to virtual or audio models of care. The pandemic has also highlighted the importance of technology literacy, maturity and readiness in adapting telehealth to support integrated person-centred health care.[22] However, there is a need for policy and regulations by Australian Health Practitioner Regulation Agency (AHPRA) to ensure the quality of care and safety of telehealth practice for patients.

To improve telehealth practices, the 2022 New South Wales report on rural health services recommends the Department of Health to:

- provide health care practitioners with training on how to effectively use telehealth and other virtual models of care

- create a public information campaign specifically targeted to rural, regional and remote communities in order to assist patients to effectively engage with virtual care, including factsheets and checklists to set expectations and support positive interactions

- ensure that the use of virtual care is undertaken in consultation with community members, health providers and local governments in rural, regional and remote areas; acknowledging the significant cultural barriers that telehealth poses for rural communities and work to ensure face-to-face consultations are prioritised.[23]

4.5. Digital technologies in health professional education

COVID-19 pandemic has rapidly brought transition to entirely online teaching for junior medical students and doctor in training. Most clinical teaching and clinical training components (other than physical examination) had to proceed in this format.[24]

Technology telecommunications changes the way medical education, training and supervision is delivered in rural and remote areas.[25] As pressure on access to prevocational and vocational training places increases, harnessing this technology to support training is a viable strategy to create additional training places in rural and remote locations and ultimately improve access to specialist services for rural and remote patients.

The use of digital technology for remote supervision as an adjunct to face-to-face teaching allows doctors in training to remain in rural and remote settings to complete their training and enhance the likelihood that they will choose to work long term in a rural area. Improved telecommunications technology will enhance the learning experiences for trainees at rural sites and during rural rotations, provide exposure to innovative models of care, and improve supervisor capacity by allowing supervisors to transfer knowledge, supervise and mentor trainees remotely.[26]

Telecommunication technology has also enhanced professional collaboration between rural and remote medical generalist practitioners and other specialists in the provision of shared care, skills transfer and education. Availability of professional support is a factor in recruitment and retention of practitioners to work in rural and remote areas.

The requirement for doctors to maintain their skills is a fundamental component of medical registration. It is important that processes mandated by the Medical Board of Australia, including in revalidation proposals, do not discriminate against medical practitioners working in rural and remote Australia. Access to reliable technology telecommunications and highspeed broadband is an essential support for rural and remote practitioners who need to comply with these requirements.

5. Conclusion

To enhance health care services for rural and remote Australians through technology telecommunications, governments should focus on improving mobile coverage and performance, as well as broadband and enhancing the resilience of telecommunications infrastructure to natural disasters. The platforms must be able to accommodate developments in information and communications technologies and provide digital connectivity through suitable combinations of fibre, mobile phone, wireless, and satellite technologies.

The Government must ensure that broadband services are reliable and affordable for all communities, business and services throughout the country. Government policies play a tremendous role in bringing internet access to remote regions.

Some recommendations to achieving better healthcare through digital connectivity in rural and remote Australian are:

- Fully consider the recommendations of the 2021 Regional Telecommunications Review and adopt Recommendations 2, 6, 9, and 12:

  o Enhanced Connectivity Investments: that the Government continues, but significantly strengthens and enhances, its commitment to large-scale multi-year connectivity investments.

  o NBN Co regional delivery: that NBN Co commits to providing holistic upgrades to their regional fixed wireless network to allow users to access faster network speeds and minimize network congestion.

  o Mobile Services: that the Government ensures measures are undertaken to increase the accuracy and transparency of mobile network quality and coverage information, including network congestion.

  o Affordability: the removal of data charges for low income and income support recipient consumers in regional, rural and remote Australia accessing all Australian, state and territory government services, to improve the affordability of telecommunications for these users.

- Identify the black spots and marginal areas that are uncovered by broadband networks through mapping and prioritise those areas when expanding NBN infrastructures.

- Provide reasonable reparation time to any NBN infrastructure issues to minimise obstructions to the communities.

- Extend the boundaries of the NBN's fibre cable and fixed wireless footprints and mobile coverage wherever possible.

- Develop measures to prioritise or optimise the broadband capacity available by satellite for hospitals and medical practices, such as exempting or allocating higher data allowance quotas, or providing a separate data allowance (as is the case with distance education[27]).

- Provide free internet access and information technology training to support telehealth and telemedicine for low socioeconomic status communities in regional, rural and remote Australia.

- Create universal unmetered online access to government, hospital and health services for people and businesses in rural and remote areas.[28]

- Engage with state and local government and related stakeholders who wish to co-invest or coordinate planning to achieve the optimum overall infrastructure outcome for their area. This could involve public-private partnerships or the leveraging of philanthropic infrastructure funding through, for example, tax concessions.

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