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The role and potential of the National Broadband Network

Submission to the House of Representatives Standing Committee on Infrastructure and Communication

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This Submission is based on the views of the National Rural Health Alliance but may not reflect the full or particular views of all of its Member Bodies.

CONTENTS

About the National Rural Health Alliance (NRHA)	3
Introduction	3
Achieving health outcomes	4
Existing health networks are in place but not yet sufficient for the bush	5
Functionality for health.....	5
Principles.....	6
Universal access to services that already exist in some areas.....	6
<i>Emergency support</i>	6
<i>Primary care</i>	7
<i>Healthcare at home</i>	7
Ensuring that broadband is used to improve health services	8
Impacting regional economic growth and employment opportunities	9
Facilitating community and social benefits	10
Conclusions	11
Attachment 1 Terms of Reference	13
Attachment 2 Member Bodies of the National Rural Health Alliance	14

Submission to the House of Representatives Standing Committee on Infrastructure and Communication

Inquiry into the role and potential of the National Broadband Network

About the National Rural Health Alliance (NRHA)

The Alliance comprises 31 Member Bodies, each a national body in its own right, representing health professionals, service providers, consumers, educators and researchers with an interest in rural and remote health (see Appendix A).

The vision of the National Rural Health Alliance is good health and wellbeing in rural and remote Australia, with the specific goal of equal health for all Australians by 2020.

Introduction

One of the most fundamental issues for rural people is the sustainability of their communities, jobs and businesses. The Alliance's interest in the sustainability of rural communities is because of the strong connection to the social determinants of health and the fact that the level of services within a community is also a significant factor in health outcomes.

Currently some regions are growing so fast that the development of new infrastructure and services cannot keep pace and, as a result, the quality of life is adversely affected. Other regions are experiencing a gradual loss of businesses, asset values and life quality – with some having been in this situation for many decades.

Many policy instruments could be used for regional development, including remote zone tax allowances, rurally-weighted infrastructure investments, public transport and new industries related to the mitigation of climate change. However, the Alliance believes that, in Australia, universal high speed broadband access is the current top priority where sustainable rural and remote communities and nation building are concerned.

Public investment must ensure that all people, wherever they live, have access to the same broadband functionality as others in the nation, available to them at the same price and delivered by whatever means are most effective for each particular area.

The National Broadband Network (NBN) is fundamental to overcoming the divide that still remains in Australia between internet access in non-metropolitan areas (65 per cent of households) and metropolitan areas (76 per cent). In particular, broadband internet outside metropolitan areas (53 per cent of households), which is a key enabler for home internet use, continues to lag behind metropolitan areas (66 per cent).¹

¹ Pink, B. Household use of Information Technology. Australia. 2008-09. ABS Catalogue No. 8146.0, Australian Bureau of Statistics, Canberra, 2009. (Table 2.2; Table 4.2)
[http://www.ausstats.abs.gov.au/Ausstats/subscriber.nsf/0/9B44779BD8AF6A9CCA25768D0021EEC3/\\$File/81460_2008-09.pdf](http://www.ausstats.abs.gov.au/Ausstats/subscriber.nsf/0/9B44779BD8AF6A9CCA25768D0021EEC3/$File/81460_2008-09.pdf)

Fast and affordable broadband will be expected and required by future generations of citizens as an important natural right. More importantly for rural health, health professionals will be reluctant to go to rural and remote areas where there is inadequate broadband access. The considerations here include access to professional support, ongoing professional education and e-health technologies, as well as maintaining social links. Broadband will form one of the bases of productive and competitive industries - in rural and remote areas in particular - and of improved delivery of services in the health, education, justice, local government and recreational sectors. In the health sector, fast, effective and affordable broadband will be critical in making the benefits of e-health available to rural and remote patients, clinicians and researchers.

The main focus of this submission is on achieving improvements in health outcomes for the people who live in rural and remote communities – criterion (b) for the current NBN Inquiry (Attachment 1).

Extreme health workforce shortages and poor access to health care are key barriers to good health outcomes in rural and remote communities. This submission comments on the role of broadband in health workforce development, including in education and training, the recruitment and retention of health professionals and ongoing continuing professional development.

However, the broader contribution of the NBN to improving the sustainability of rural and remote communities and thereby the social determinants of health means that all the other terms of reference of the inquiry are relevant to health as well.

Achieving health outcomes

There is no better overall proxy of health status than life expectancy. It has been estimated that overall life expectancy is up to four years lower in rural, regional and remote areas than in Australia's major cities. Put another way, this results in 4,600 premature deaths per year in rural and remote Australia.²

The more remote the location, the higher is the proportion of the population which is Aboriginal and Torres Strait Islander. This demographic reality contributes to the gradient in life expectancy from major cities to a very remote areas but it does not of itself account for the differences. There is no inherent reason why living in more remote areas in Australia should itself be a health risk factor – but it has become one.

The National Healthcare Agreement sets the following objective for social inclusion and Indigenous health:

“that Indigenous Australians and those living in rural and remote communities or on low incomes achieve health outcomes comparable to the broader population.”

One of the progress measures towards this objective is ‘Access to services by type of service compared to need’.

² National Rural Health Alliance. Fact Sheet 23. Measuring the metropolitan-rural inequity. November 2010. <http://nrha.ruralhealth.org.au/cms/uploads/factsheets/Fact-Sheet-23-rural-inequity.pdf>

Innovative means of service delivery, particularly telehealth, have significant potential for improving access to necessary health care services in rural and remote areas – but many such communities are under-served by telecommunications compared with Major Cities.

The people of rural and remote areas, and the health professionals who work with them, are therefore expecting the NBN to provide the telecommunications platform for better access to a range of health services – including preventive, emergency, acute, primary, transition, rehabilitation and aged care.

Existing health networks are in place but not yet sufficient for the bush

The State and Territory jurisdictions have taken steps to improve connectivity across their public health systems, for example through jurisdiction-wide public hospital intranet links or similar. This is a start, but it does not support the provision of health care to many of the people who need it most.

When someone in a rural or remote community encounters an emergency or an acute illness, the nearest public hospital may be some distance away and, even when it is reached, may not have the specialised services needed by that individual.

Many GPs, nurses, allied health and aged care providers work outside the hospital or public health system and its telecommunications infrastructure. This can result in isolation from the networks, advice and support they need to provide the best health care possible, wherever people live. The NBN will enable rural and remote health practitioners to access necessary support, advice and continuing education to improve services and health outcomes for people in the bush.

For individual patients, effective health promotion and illness prevention rely on knowledge, awareness and health literacy – most often obtained and applied at home and in the community, not in a hospital. Research shows that more than 80 per cent of people surveyed accessed health information via the internet from home, 42 per cent for data about a specific illness and 40 per cent for a medicine³. As people with chronic conditions increasingly manage their health care at home, especially as they age, access to high speed internet will become more and more important wherever they live.

Mental health services are increasingly being provided via the internet and have been found to be effective, particularly for young people. In Australia, suicide rates have consistently been found to be higher in rural than in metropolitan areas. Adolescent and young adult males, especially those in rural or remote areas, have particularly high suicide rates⁴. The availability of the NBN will enable people living in rural and remote areas to have the same access to online mental health support as people in metropolitan areas.

Functionality for health

The focus for the Alliance is the functionality that health service providers and users will need the NBN to deliver. The technical experts developing the applications and connections, as well as the Government and business negotiators developing the contracts and agreements,

³ Consumer access to health information on the internet: health policy implications, W Guy Scott, Helen M Scott and Terry S Auld, *Australia and New Zealand Health Policy* 2005, 2:13doi:10.1186/1743-8462-2-13.

⁴ Tanya M Caldwell, Anthony F Jorm and Keith B G Dear, Suicide and mental health in rural, remote and metropolitan areas in Australia, *Medical Journal of Australia*, Volume 181 Number 7, October 2004.

must ensure that the NBN delivers functionality that meets the current expectations of health service providers and consumers.

To meet those expectations, a number of design, construction, governance and ongoing operations of the NBN will need to be considered, based on knowledge of current and future health usage of communications infrastructure. However, it will be critical for the success of the NBN roll-out to adopt a change management approach to constructing, commissioning and connecting the infrastructure in consultation with rural and remote health service providers and consumers.

The NBN will be judged as inadequate if it perpetuates the problems that health system users are concerned about now with communications in rural and remote communities. Once the NBN is in place, applications will broaden and users' knowledge and awareness of how it can benefit health outcomes will expand.

Principles

People living in rural and remote communities have the right to expect the NBN to provide them with the best high speed connection practicable, whether fibre, high speed wireless or commercial grade satellite, for equity with other Australians.

They will expect the broadband system available to them to be characterised by a number of key principles:

- sufficient bandwidth to deliver high upload and download speed, plus the latency characteristics, to provide the basis for reliable exchange of high quality images, detailed data and real time interactions;
- universally available – the people who are in most need of remote health care and support are those who live most remotely or are isolated by poor health and/or inadequate communications;
- reliable and efficient technical interfaces with minimal downtime or delays;
- practical and affordable for end users to connect to the NBN and maintain and upgrade their connections over time; and
- applications and opportunities for NBN for health should be widely promoted and accessible.

Universal access to services that already exist in some areas

Many valuable applications for telehealth and e-health more broadly are already technically feasible but available only where there is fibre connection. Real time videoconferencing, the transfer of digital images such as x-rays and CAT scans (including by what is known as 'store and forward' systems) and the transfer of other information is already here and making a difference where it can occur. High-speed broadband will provide the platform for making these proven modalities (as well as those yet to be developed) available *everywhere*.

These ready-made systems include some in emergency care, primary care and healthcare in the home.

Emergency support

A real time interactive videoconference consultation between a remote outpost where there are, for example, several burns patients following a serious accident, must be able to go ahead

with the acute burns treatment specialist team at a major urban centre – possibly in another State.

If the remote outpost is not part of the State public hospital intranet or similar, the connection will rely on the internet. The connection to and from the outpost should sustain a two-way, real time conversation with good visualisation of the patients and their injuries.

Primary care

Where tertiary hospitals are at a distance and GP and allied health services are in short supply, quality local health care may involve local health professionals working in effective but physically separated multidisciplinary teams.

One example is the current telehealth initiative being developed for local GPs, practice nurses and nurse practitioners to host and support remote consultations with specialists under Medicare. This initiative provides a further stimulus to modernise both the technological and the clinical connectivity between specialists and rural and remote health care professionals, including remote area nurses and Aboriginal Health Workers.

Mental health websites are also important and well-regarded parts of the primary care and preventive system, particularly for young people who value this medium and the confidentiality it provides.

There is considerable potential to utilise the skills of specialists who for a range of reasons are largely located in major cities and regional centres. In such applications as psychiatry and psychology, diagnostics such as skin cancer assessments, eye health and in some areas of rehabilitation, there are major opportunities to make the best use of scarce specialist time while improving the timeliness and accessibility for the patient to both diagnosis and treatment. While some such telehealth interactions may be possible with current connections in some of the better served rural areas, more and more specialist consultations will require improvements in speed and bandwidth. The specialist needs a high quality image, not just an idea of the patient's face. It must be possible to zoom in and visualise a wound or skin rash in sufficient detail to advise on management. More and more, the practitioner with the patient will also need this same quality of image for detailed, interactive advice from the specialist on what can be done locally and at home.

Without affordable high-speed broadband to all parts of Australia, the establishment of Medicare item numbers for telehealth carries the risk of further enshrining those elements of rural and remote disadvantage that are based on poor communications.

Healthcare at home

More and more health applications that have the potential to help overcome isolation and improve access to health care for people in rural and remote communities are becoming available.

Home monitoring (of such things as blood pressure, heart health and blood glucose) is emerging as a technology with enormous potential to assist and support elderly, disabled and isolated people to stay safely at home in their own communities, while retaining social and health contacts. This is an option which should be made available to people living in rural

and remote communities. Video monitoring in the home can provide added safety and support in more isolated situations, for example for people with early dementia.

A range of information is available to help people stay in their own homes and communities. It includes online support programs for chronic conditions and mental health, social media and networking that provides opportunities for sharing of experiences and strategies for coping with health challenges or disabilities, and new approaches to health promotion. The availability of these applications will need to be widely promoted to health professionals as well as to people living in rural and remote areas.

Ensuring that broadband is used to improve health services

The various stages of development and implementation of the NBN for health purposes must be considered and shored up to guarantee reliable access and quality. Strategies may include, for example, service level agreements (SLAs), standards and requirements for connections between the NBN, the ISPs and the health service users, education and training requirements and so on.

A number of specific concerns that have already come up through rural networks need to be addressed.

- Outposts and clinics must have a suitable arrangement with their ISP(s) for a high speed internet connection that is sufficient to support the consultation. For example, some standards could be set around the level of service that ISPs must provide for health services.
- The arrangements with Internet Service Providers (ISPs) need to be affordable. This is over and above a guaranteed wholesale price, as market forces among ISPs are unlikely to be sufficient to drive affordability outside Major Cities and regional centres. Measures such as incentives or loadings to provide high speed broadband for health purposes and/or rebates on commercial access costs, will be needed to ensure health coverage at an affordable price to the people and health services in rural and remote communities.
- The ISP connection and the technology must be installed to function correctly with the correct settings with the ISP. Health services cannot afford such risks as dropping out when put to the test, or of frustrating waits for technical support. Measures such as SLAs between the NBN and the ISP should be required to include testing of the installation and of the ongoing service to maintain 24/7 functionality for health usage. Priority assist options must be available.
- Staff at the outpost or clinic must be funded and equipped to know how to work the technology and obtain support when required. There are onsite training and capacity requirements, which may be part of accreditation standards for a health service, recognising that such requirements must be pragmatic and supportive of the health service rather than being an incentive for its closure.
- Ongoing monitoring to ensure that health access is available, affordable and effective must be designed into the system, with meaningful penalties for service failures.

While this approach should complement complaints processes, it must be recognised that complaints resolution after the event is too late for many health emergencies.

For urgent health connections in rural and remote communities, the remote ISPs must be able to deliver the capacity required when they are called upon. People's lives and wellbeing will depend on certain exchanges of health data not getting clogged up with too much internet traffic at particular times of day, for example, at the close of day in the CBD in Major Cities. Information exchanges must be designed so that point-congestion and resultant delay does not occur. Data connections between the internet and the State hospital intranets must be designed to be efficient and secure. While commercial ventures in the Major Cities are likely to be able to rent capacity from several ISPs to provide back-up when one of them is 'down', a remote outpost or a community health provider may need some other contingency cover for reliability in an emergency as this option may not be available – let alone affordable.

To be effective in improving health outcomes, the NBN and its availability and applicability will need to be actively publicised to both health professionals and consumers.

Impacting regional economic growth and employment opportunities

Regional development should aim to improve the social determinants that impact on health and wellbeing for people in the bush and to promote rural areas as viable and attractive places in which a future health workforce will live and work.

Locations with adequate infrastructure and services to meet their lifestyle needs will underpin the health workforce of the future.

There is a continuing struggle to secure more health professionals for rural and remote areas: doctors, nurses, allied health professionals, dentists and other oral health workers, paramedics as well as aged care workers. Major change is needed to the models of education and training for students of health professions. Every effort should be made to provide this training close to where students live and the NBN is critical to this.

In addition, rural and remote placements and other programs to consolidate and expand the rural health workforce rely on the support of the NBN to keep students and new health professionals in touch with their peers, able to access professional advice and continuing professional development, and to work with current technology. And good telecommunications are not just vital for professional work and support; they also enable people to maintain their social networks and links with their families.

While new approaches to service delivery, such as the example given of the telehealth initiative for specialist consultations, have the potential to minimise unnecessary travel and the associated health and cost impacts for consumers, the enduring policy aim must be to improve local access to quality health care through additional services targeted to those in need.

Improvements in telehealth or remote monitoring at home must not be at the expense of the interpersonal interactions with health professionals that are proven to be necessary to support good health. Other policy approaches to improving access to health care in rural and remote communities include increased recruitment of health professionals, regular clinics through specialist outreach services, assistance with transport for those who need to travel for their

health care, and follow up care after discharge from urban hospitals, including rehabilitation services and step down care.

Facilitating community and social benefits

Despite many social, environmental, work and cultural advantages of living in rural and remote Australia, there are a number of significant issues constraining rural development and sustainability of communities. One of these is poor access to telecommunications.

The prospects for business success and quality of life in rural Australia are influenced by global markets and financial change, global climate change, the choices of domestic governments and the perceptions of urban Australians. The capacity of people in the bush to influence these and remain informed about them depends, among other things, on their access to broadband.

Yet in 2008-09, outside metropolitan areas only 69 per cent of people over 15 years were users of the internet at any location (home, work, library etc). This compares with 77 per cent of people over 15 years in metropolitan areas and even higher proportions, over 90%, for people in younger age groups (15-17, 18-24, 25-34), with higher incomes (\$80,000 and over) and with higher educational qualifications (Bachelor degree or above) when considered across all locations.⁵

International studies have linked the superior economic performance of certain regions to high levels of social capital and to the concept of the 'learning region'. The fields of economics and regional development recognise that learning regions, where businesses and other organisations interact in a process of collective learning, will create new knowledge and ways of working that give the region a competitive advantage. Investment in infrastructure, IT, schooling and tertiary education, and the health sector are all parts of what it takes for regional growth and high quality of life. And they are all supported by fast broadband.

Communities and individuals in rural and remote Australia should have priority in the development of the Governments broadband network to give them ICT infrastructure that includes them in the world-class speed, connectivity and coverage at affordable prices that will enable them to embrace the future.

Younger generations of rural, regional and remote Australians will expect fast broadband and will develop 'services' based on it that are not yet dreamed of.

Having first class local schools is a basic human right and is essential for the sustainability of communities. Chief among the challenges in rural education are attracting and retaining qualified staff, improving school transport services and maintaining smaller schools. Access to new technology is critical. Currently people living in rural and remote Australia comprise 32 per cent of Australia's population but rural young people comprise only 17 per cent of tertiary students.

⁵ Pink, B. Household use of Information Technology. Australia. 2008-09. ABS Catalogue No. 8146.0, Australian Bureau of Statistics, Canberra, 2009. (Table 3.1)
[http://www.ausstats.abs.gov.au/Ausstats/subscriber.nsf/0/9B44779BD8AF6A9CCA25768D0021EEC3/\\$File/81460_2008-09.pdf](http://www.ausstats.abs.gov.au/Ausstats/subscriber.nsf/0/9B44779BD8AF6A9CCA25768D0021EEC3/$File/81460_2008-09.pdf)

There is compelling evidence of the success of the ‘rural pipeline’ (rural student recruitment and rurally-based education and professional training) in increasing the rural workforce.⁶ However, people from rural and remote Australia are under-represented in tertiary education courses, including those for the health professions. In part this under-representation can be attributed to lower high school completion rates but it also affected by lower academic results which may preclude rural and remote students from admission to various universities. The advent of the NBN can help address the long term undersupply of health professionals in rural and remote Australia.

Completion of high school is also an important marker for health literacy and ultimately for better health outcomes.

The Australian Government is moving to meet such expectations in a wide variety of ways, at a time when there is a unique focus on regional affairs. The new Department of Regional Australia has the responsibility for Government-wide coordination of these efforts and, to do that, will have to be a strong advocate for fast broadband at the same prices as in the major cities.

Regional development in Australia must move away from crisis-framed responses to drought and other natural disasters to long-term approaches to investment in the wellbeing of rural families, businesses and communities, and in their capacity for adjustment. Broadband is an essential part of the platform for this.

Conclusions

People living and working in rural and remote Australia have justifiably high expectations of the NBN. It has the capacity to support intricate health consultations from remote areas as well as regional development on a broad front. They have the right to expect high quality, real time video and image exchange with minimal latency. The connections between health posts in rural areas and specialists in central places must be robust, reliable and responsive in order to deliver to their full potential for health.

Rural and remote communities have a special case for reliable access to health services that delivers to the promised specifications and does not fail in times of need.

Timeliness, speed and reliability are of the essence for many health care situations. The burns consultation between a remote outpost and a major city hospital should not fail. Primary care may not always have the same urgency, but people cannot be turned away to come back another day. While home access requirements may fluctuate, emergencies occur and reliability is paramount for health and safety, for example when home monitoring is in use. Priority assistance must be available for health along with back-up options for system failures must be considered.

While many of these factors could arguably be partitioned as outside the remit of the NBN, the public will measure its success by how well it delivers, and will not be sympathetic to blame shifting when something goes wrong.

⁶ Richard B Murray and Ian Wronski, When the tide goes out: health workforce in rural, remote and Indigenous communities, *Medical Journal of Australia* 2006; 185 (1): 37-38

Investment in improved access to healthcare for people who live in rural and remote communities through the NBN will go some way towards reducing the higher hospital costs, longer hospital stays and the current increased rates of avoidable hospitalisations due to poor access to primary health care close to home. Improved health outcomes and a stronger local health workforce will help build stronger rural and remote communities.

Attachment 1

Terms of Reference

Inquiry into the role and potential of the National Broadband Network

The Committee will examine the capacity of the National Broadband Network to contribute to:

- a) the delivery of government services and programs;
- b) achieving health outcomes;
- c) improving the educational resources and training available for teachers and students;
- d) the management of Australia's built and natural resources and environmental sustainability;
- e) impacting regional economic growth and employment opportunities;
- f) impacting business efficiencies and revenues, particularly for small and medium business, and Australia's export market;
- g) interaction with research and development and related innovation investments;
- h) facilitating community and social benefits; and
- i) the optimal capacity and technological requirements of a network to deliver these outcomes.

Attachment 2

Member Bodies of the National Rural Health Alliance

PA (RRSIG)	Paramedics Australia (Rural and Remote Special Interest Group)
ACHSM	Australasian College of Health Service Management
ACRRM	Australian College of Rural and Remote Medicine
AGPN	Australian General Practice Network
AHHA	Australian Healthcare & Hospitals Association
AHPARR	Allied Health Professions Australia Rural and Remote
AIDA	Australian Indigenous Doctors' Association
ANF	Australian Nursing Federation (rural members)
APA (RMN)	Australian Physiotherapy Association Rural Member Network
APS	Australian Paediatric Society
ARHEN	Australian Rural Health Education Network Limited
CAA (RRG)	Council of Ambulance Authorities (Rural and Remote Group)
CHA	Catholic Health Australia (rural members)
CRANaplus	CRANaplus – the professional body for all remote health
CWAA	Country Women's Association of Australia
FS	Frontier Services of the Uniting Church in Australia
HCRRRA	Health Consumers of Rural and Remote Australia
ICPA	Isolated Children's Parents' Association
NACCHO	National Aboriginal Community Controlled Health Organisation
NRHSN	National Rural Health Students' Network
RACGP (NRF)	National Rural Faculty of the Royal Australian College of General Practitioners
RDAA	Rural Doctors' Association of Australia
RDN	Rural Dentists Network
RHWA	Rural Health Workforce Australia
RFDS	Royal Flying Doctor Service of Australia
RHEF	Rural Health Education Foundation
RIHG (CAA)	Rural Indigenous and Health-interest Group of the Chiropractors' Association of Australia
RNMF (RCNA)	Rural Nursing and Midwifery Faculty of the Royal College of Nursing Australia
ROG (OAA)	Rural Optometry Group of the Australian Optometrists Association
RPA	Rural Pharmacists Australia—Rural Interest Group of the Pharmacy Guild of Australia, the Pharmaceutical Society of Australia and the Society of Hospital Pharmacists of Australia
SARRAH	Services for Australian Rural and Remote Allied Health