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Mr Andrew McGowan  
Secretary  
House Standing Committee on Infrastructure and Communications  
PO Box 6201, Parliament House  
Canberra ACT 2600

Dear Mr McGowan,

**RE: Submission for the Inquiry into the Role and Potential of the National Broadband Network.**

I refer to the above Inquiry and offer this commentary addressing several points listed in the Terms of Reference, as requested by the House of Representatives Standing Committee on Infrastructure and Communications. Attached please find the paper prepared by NSW Health in relation to a number of the aforementioned points.

I trust the attached comments are of assistance to the Committee in undertaking the Inquiry. Please contact Ms Kathy Meleady, Director, Statewide Services Development Branch on \_\_\_\_\_ for further information.

Yours sincerely

*for* Dr Richard Matthews AM  
25/2/11

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**Inquiry into the Role and Potential of the National Broadband Network Discussion Paper –  
Submission from NSW Health**

Multidisciplinary conferencing and collaboration is a critical component of clinical care, particularly in relation to the provision of clinical services, remote clinical diagnosis, case conferences and education and peer support, for a range of disciplines, including mental health, critical and emergency care, and chronic disease management. Teleconferencing is being used as a key mechanism to minimise travel, and its associated costs – including time for patients and clinicians, and improve communication between NSW Health, Local Health Networks (LHNs) and other government agencies.

The delivery of government services and programs

It is expected that the NBN will play a critical role in the creation of a national framework for infrastructure to allow defined pathways for deployment to be planned and implemented. Many of the states have moved, or are in the process of moving, to an electronic platform as part of effective healthcare delivery. Most clinical tools can now be supported electronically, and these include electronic health records, digital imaging, electronic discharge and referral, electronic medication management, clinical care plans and pathways, laboratory information and telemetry. Most of the service delivery models that Telehealth in NSW supports would benefit significantly if greater reliability, quality, safety and consistency – all critical elements in a clinical setting – could be guaranteed. Additionally, given that one of the oft-mentioned concerns of clinical users of Telehealth is that it is unreliable; the provision of 100 Mbps bandwidth, to most of the population, should encourage such users to utilise the technology more readily<sup>1</sup>.

NSW Health is focused on providing services for rural and remote populations closer to home, and Telehealth a key enabler here. These communities are among the most disadvantaged in terms of healthcare, as limited access to specialist services and loss of productivity when having to travel to metropolitan areas to receive such services is a frequent complaint. Having a network capable of delivering these services online, either via the web or via videoconference would substantially improve equity of access, promote earlier diagnosis, and reduce the burden of travel costs for the patient. With the rise of chronic disease expected to account for almost three quarters of all deaths by the year 2020<sup>2</sup>, and chronic disease already accounting for more than 80% of the burden of disease and injury in Australia<sup>3</sup>, establishment of a national telecommunications network which would support delivery of services via Telehealth is critical to minimise the influence that chronic health has on health budgets.

The Commonwealth would be aware that NSW Health has an extensive Telehealth network, with more than 600 videoconferencing units, delivering a range of services, to rural, regional and remote health care facilities across NSW. At present the network infrastructure varies considerably from one LHN to another, with some of the (now former) Areas investing more heavily than others in the purchase of such infrastructure, with a resultant mismatch in capacity and capability, particularly across local jurisdictions.

Statewide Services Development Branch (SSDB), NSW Health, recently completed an evaluation of the Connecting Critical Care (CCC) Telehealth Research Project, which was introduced as a pilot project to

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<sup>1</sup> NICTA, 2010, Telemedicine in the Context of the National Broadband Network, Report for the Department of Broadband, Communications and the Digital Economy, Australia

<sup>2</sup> WHO Geneva, 2005, Preventing Chronic Disease - A Vital Investment: World Health Organisation Global Report

<sup>3</sup> Australian Institute of Health and Welfare, 2006, Chronic Diseases and Associated Risk Factors in Australia

investigate the potential impact of Telehealth in the areas of emergency and critical care. The project was initially established across seven critical care sites in metropolitan, regional and rural NSW in 2005, and then extended to seven Emergency Departments on the NSW North Coast in 2009. The project links the hospitals and the Aeromedical and Medical Retrieval Service (AMRS) via videoconference, utilising a hub and spoke model, and enables clinicians to engage in live patient consultations to augment stabilisation, promote earlier intervention and provide remote clinicians with peer support and education. The system also utilises digital imaging and telemetry. Uptake has been significant, and clinicians have become strong advocates for the system, which they believe has provided greater support to rural clinicians and thus made patient care safer<sup>4</sup>.

The evaluation of the Project offered a number of key recommendations, principally the expansion of the program across NSW. The recommendation is consistent with the current SSDB Telehealth strategy, looking at a range of initiatives to expand Telehealth services across NSW. These include plans to extend videoconferencing technology to Emergency Departments, supporting the Newborn and Paediatric Emergency Transport Service (NETS). This project will build on the CCC hub and spoke model, with an integrated and scalable approach.

NSW Health plans to examine the potential for Telehealth to support primary care providers when patients at Residential Aged Care Facilities (RACF) may require escalation to acute care. Telehealth could support the facilitation of assessments at RACFs to promote earlier intervention, with a potential resultant impact on transfers to emergency departments or alternate care locations. This is consistent with the recognition to improve the patient journey, by providing the right care at the right time in the right place and by the right provider.

The NBN will also support the implementation of Recommendation 51 of the Garling Report, for the establishment of "a high speed broadband network....securely linking all public hospitals in NSW so as to enable the provision of specialist clinical services and support via the network from metropolitan-based clinicians and hospitals to regional, rural and remote clinicians and hospitals"<sup>5</sup>.

#### Achieving improved health outcomes

The services to be offered by the NBN have the potential to make the following available at a wider range of healthcare facilities than is currently the case:

- Facilitating the deployment of high definition videoconferencing systems for Telehealth applications;
- Providing the connectivity to support the holding of remote consultations by doctors and access to specialist support;
- Providing the potential for group/ education support, e.g. self management , chronic disease management and education (health coaching), for patients, their families and clinicians;
- Enhancing the ability of health organisations to provide videoconferencing services that will facilitate mental health assessments and care for rural and remote patients;
- Providing for real time transfer and management of clinical information, diagnostics etc;
- Improving both the collection and transfer of accurate and valuable information between clinicians to improve health outcomes for patients.

Broadband and data communications services provide essential communications and information access for the healthcare sector. NSW Health needs high-speed broadband and data communications services that are reliable, available in all parts of the State and reasonably priced. The NBN will contribute to improved healthcare outcomes by providing such services.

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<sup>4</sup>Eager, K, 2010, Evaluation of the NSW Health Connecting Critical Care Telehealth Project

<sup>5</sup>Garling, P, 2008, Final Report of the Special Commission of Inquiry, Acute Care Services in NSW Public Hospitals

While NSW Health currently has extensive broadband and data communications networks, its current program of healthcare applications requires that these be significantly enhanced. The key healthcare applications that are driving the increased utilisation of broadband and data communications services across the NSW Health system and which will potentially benefit from the connectivity to be offered by the NBN are:

- **The Electronic Medical Record (eMR):** The electronic medical record (eMR) is an online record which tracks and details a patient's care during the time spent in hospital. The eMR is replacing paper-based records and integrating patient information into a consolidated electronic record. The eMR allows authorised clinicians to access a patient's records from any location, at any time, to make assessments and coordinate care. The eMR will improve the quality, safety and efficiency of care, by providing an integrated view of patient information to their clinicians.
- **Medical Imaging:** This program enables diagnostic images, such as x-rays, magnetic resonance images (MRI), ultrasounds and computerised tomography (CT) scans to be captured, transmitted and stored digitally, and made available to clinicians regardless of where they are located or where the test was conducted.
- **Community Health:** This initiative will establish a community health and outpatient care system that will enable health professionals to access electronic patient records from different locations. The application will include electronic discharge summaries and health assessments, test results and medical images.
- **Corporate Services:** These applications will provide a statewide integrated suite of corporate information systems to be accessible across NSW Health and include human resource information systems and a new rostering program to support clinical managers.
- The NSW Health Community Health and Outpatient Care Program includes the delivery of services and ICT systems into remote community centres, mobile clinics and ultimately to patients homes. This is especially important for the community nurses. Good reliable Broadband is required to support real time connections to the Electronic Medical Record and the PCEHR.
- The PCEHR (Patient Controlled Electronic Health Record) includes plans for a Patient portal component. This will require the patient to have suitable reliable broadband connection, to be able to update their record and modify or provide consent for service providers to access their health record. In addition, remote patient monitoring has been discussed as future functionality within the scope of the PCEHR and chronic disease management.
- The NBN can also support connectivity to the Patient and Provider registers and the Enterprise Medical Image archive from the patient's home, or remote and rural service delivery points.
- Nursing and allied health practitioners, who provide "billable" services to patients in their home and remote areas are becoming more widely deployed. The NBN will assist these practitioners for patient care as well as reporting and billing connectivity.
- There will also be an opportunity for application and telecommunication support services to remotely support the clinical, reporting and billing Software itself from remote locations if suitable connections are available, without the need for technical support "on the ground".

#### **NBN Telehealth Trials: Armidale and Kiama**

In December 2010, the Australian Government announced it would make funds available to NSW Health over two years to undertake Telehealth trials to homes in Armidale and Kiama, where a number of the NBNs 'first release sites' are located.

This project will enhance the work already being done by the Hunter New England Chronic Disease Management project and will focus on healthcare solutions for aged people with chronic disease and others with mental illness.

The key stakeholders for this project are the Chronic Disease Management Office in the NSW Department of Health, the Hunter New England Local Health Network, the New England Division of General Practitioners, the Illawarra Shoalhaven Local Health Network and the Illawarra Division of General Practitioners.

#### Improving the educational resources and training available for teachers and students

The NBN will provide the opportunity to improve the educational resources and training not just for teachers and students, but for health care providers and health care consumers alike. The NSW Health Telehealth Program already delivers a wide range of education, training, peer support and professional development to regional, rural and remote health facilities across NSW. The education program was formally evaluated in 2010 as part of the CCC/Telehealth Research Project, which found that it has been very well received by all participants, and that the anticipated benefits, as outlined below, have been realised. Access to a wider variety of education resources and sharing of professional experiences with a larger network of rural and metropolitan colleagues is promising, and has been reported in comparative education models specific to Emergency Medicine.<sup>6</sup>

Furthermore, the purported advantage of removing the requirement to travel to venues for education has potential cost savings and may in turn address the financial barriers to accessing education in rural areas.<sup>7</sup> In addition, a recent review undertaken by NSW Health found the literature did indicate that tele-learning can be as effective as, or equivalent to, face to face learning in terms of outcomes.<sup>8</sup> Studies (including the CCC Evaluation) do note however the challenges of maintaining good audiovisual quality in relation to the presentations, and a lack of familiarity with the mode of technology and associated etiquette during the sessions have also been highlighted as concerns.<sup>9</sup>

It will be imperative that appropriate education and support is factored into any model to enable clinicians to make the most of the available resources. This includes sustainable technical support and a “rolling approach” to training in emerging telehealth technologies.

#### Impacting regional economic growth and employment opportunities

Health workers have always tended to move in search of better living and working conditions, improved salaries and opportunities for professional development, from rural to urban areas, or from public to private sector. The effect of these movements can be significant in settings where there is a shortage of health workers.<sup>10</sup>

Recruitment and retention of the rural health workforce remains a significant issue nationally, and impacts upon the ability to expand service provision in rural and remote areas. Since 2002, a broad range of initiatives have been implemented, aimed at addressing rural workforce issues, including the provision of some services closer to home, and the provision of initiatives targeting allied health professionals in particular. These initiatives would be enhanced with the NBN, as one of the major inhibitors of retaining rural staff is a perceived lack of education and training options, and the ability to work more closely with peers. The NBN would enable access to a suite of applications that are currently restricted due to a lack of bandwidth. The NBN will also facilitate the promulgation of existing connections and provide much-needed clinical and professional support to clinicians in isolated areas. Certainly this has been seen with the CCC Project, and forms part of the evaluation.

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<sup>6</sup> Sweetman G, Brazil V, 2007, Education links between the Australian Rural and Tertiary Emergency Departments: Videoconference can support a virtual learning community. *Emergency Medicine Australasia*; 19:176-178

<sup>7</sup> Vernon R, Curran LF, Kirby F, 2006, Factors influencing rural health care professionals' access to continuing professional education. *Australian Journal of Rural Health*; 14:51-55

<sup>8</sup> Shaw T, Tomlinson J, 2010, Tele-learning for Health Professionals: A Literature Review, Workforce Education and Development Group, University of Sydney

<sup>9</sup> Klein D, Davis P, Hickey L, 2005, Videoconferences for Rural Physicians' Continuing Health Education, *Journal of Telemedicine and Telecare*; 11: S1:97-99.

<sup>10</sup> Dolea C et al, 2009, WHO Bulletin: Health Workforce Retention in Remote and Rural Areas

Distribution and efficient utilisation of limited resources is an ongoing challenge for health services. Telehealth allows for better informed decision-making and thus better resource utilisation in situations such as retrieval. Retrieval is an expensive and intensive process for hospitals and for patients so ensuring that these resources are utilised to maximum benefit and that patients receive optimal care throughout the journey is vital.

The optimal capacity and technological requirements of a network to deliver these outcomes

A number of recent reports highlight the importance of user engagement as early as the design phase, including a report by Deloitte Australia which stated that the current top-down approach to technical planning should make way for more open discussion about applications; in particular, the report suggests that end-users should now 'be more heavily factored into the public debate and planning of Australia's NBN. Above all else, these groups will drive the success or failure of the NBN. They need to be considered from the outset and not at the conclusion of the building of the NBNs infrastructure'<sup>11</sup>. This is also emphasised by commentary from the United States which suggests that 'The first rule of technology investment is you spend time understanding the end user, what they need and the conditions under which they will use the technology...'<sup>12</sup>.

Another important issue to consider is information security, particularly as the NBN is intended to be operated on a commercial basis with private sector investment. Sound privacy and security models around health information will need to be built and agreed upon, and consultation with a wide range of stakeholders will need to be undertaken.

NSW Health  
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<sup>11</sup> Deloitte Australia, 2009 National Broadband Network: A User's Perspective

<sup>12</sup> Watkins, J, 2010, Intermediaries and End-users in Telehealth and Education, Communication, Politics and Culture, Vol 43; 1: 108 - 119