

DIGITAL HEALTH STRATEGY



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Wentworth Healthcare, provider of the Nepean Blue Mountains PHN, is a not-for-profit organisation that works to improve health for the communities of the Blue Mountains, Hawkesbury, Lithgow and Penrith.

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Wentworth Healthcare Limited (ABN 88 155 904 975) provider of the Nepean Blue Mountains PHN.
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Executive Summary

Wentworth Healthcare Limited, provider of the Nepean Blue Mountains Primary Health Network (NBMPHN) has been at the forefront of digital adoption within primary care, being one of two sites in Australia trialling My Health Record opt-out in 2016-2017 and one of ten PHNs trialling the Health Care Homes initiative.

With the aim of leveraging the momentum from these trials, enabling improved delivery and access to care through digital adoption, NBMPHN has developed a Digital Health Strategy for the region, spanning 2018-2021. The Strategy has been developed in response to the need to provide a more patient centric, connected care ecosystem across the region, and the opportunity to leverage digital solutions to facilitate greater healthcare access, continuity of care, and collaboration between providers and patients.

The approach to development of the Strategy acknowledged the region as a network of healthcare professionals, with the remit to extend stewardship to a region, empowering individual healthcare business providers with the knowledge and capability they need to provide more connected care. The Strategy acknowledges the variation across the region, in digital health literacy, maturity of digital adoption, appetite for change, and other challenges presented by location, service provision, and patient need. The strategy seeks to reflect the immense opportunity for the region to leverage digital solutions to facilitate better care for patients.

The strategy includes a digital health vision and set of strategic goals that align with the needs of the primary care workforce to respond to the health and care needs of their consumers. This includes the provision of guidance and advice on digital health decisions, support in adoption preparedness and readiness, facilitation of improved confidence in using technology to deliver care, and partnership with key sector, industry and representative bodies to drive improved digital health maturity in the region. A key element of the strategy includes eight guiding principles which articulate the values and priorities NBMPHN holds in regards to the use of digital technologies to support health and care.

The digital health vision and strategic goals deliver more than a standalone set of actions for the organisation. They will be incorporated across initiatives and provide a lens by which NBMPHN can focus efforts, align priorities with others and innovate. The scope of the strategy is not limited by immediately available resourcing but provides a platform to leverage and harness future opportunities and partnerships.

This document presents our digital strategy overview on a page followed by more detailed descriptions of our current digital landscape, the digital strategy itself, and key strategic road map initiatives.

Digital Health Strategy 2018-2021 OVERVIEW

Organisational Context

WENTWORTH HEALTHCARE VISION
Improved health for the people in our community.

WENTWORTH HEALTHCARE MISSION
Empower general practice and other healthcare professionals to deliver high quality, accessible and integrated primary healthcare that meets the needs of our community.

WENTWORTH HEALTHCARE STRATEGIC OBJECTIVES

Increased capacity and influence of Primary Care

A culture of quality improvement and outcome focus established

Coordinated services within and across sectors

Consumers engaged in all we do and a demonstrated focus on communities with greatest need

Excellence in governance, systems and staff

Growth in organisational sustainability and impact

Digital Health Strategy

DIGITAL HEALTH STRATEGIC VISION
A connected region enabled by digital health solutions to support better health.

1.
Guide and advise the region on digital health decisions



Development of fit-for-purpose frameworks for **digital procurement**

Support healthcare professionals to **navigate** and **understand** the digital health environment

Build awareness of the digital health **requirements** and **needs** specific to the NBM region

2.
Optimise the region's digital maturity through sector, industry and representative body partnerships



Manage and develop working **relationships** with **key groups** and organisations

Act as an **advocate** on behalf of the region's **digital needs** and technology **requirements**

Work with partners towards **connecting information** across providers and consumers securely and clearly

3.
Enhance preparedness and readiness for digital adoption with stakeholders and consumers



Foster an environment that supports **readiness for adoption** of digital health initiatives and solutions

Network **champions of change** within the region and dissemination of **shared learnings**

Establish fit-for-purpose **change and adoption approaches** for provider use

Co-design **models of care**: new and existing to **leverage** digital technologies

4.
Improve the confidence of the healthcare workforce in using digital technology to deliver care



Facilitate targeted provider **education**

Build regional **understanding** on relevant policies, strategies, and reform programs

Build relationships with and between **providers** and the greater healthcare industry

GUIDING PRINCIPLES FOR OUR DIGITAL VISION

Fosters provider and patient confidence in digital health

Provides privacy and security of patient data

Drives towards digital integration and interoperability

Facilitates a patient-centric view of care

Leads the way and promotes sharing learnings

Considers how digital can optimise new models of care

Improves data quality and completeness

Removes fragmentation and silos

Digital Health Environment

DIGITAL TRENDS



REFORM ENVIRONMENT

Data sharing and interoperability:

My Health Record (MHR) will become opt-out as a national standard, driving the further maturation of MHR compliant software

Integrated care: The Health Care Homes initiative aims to create a patient-centred integrated care plan with bundled payments for complex care

National and State digital strategies:

Digital health strategies developed by the Australian Digital Health Agency and eHealth NSW will drive policies and initiatives

PIPs: Practice Incentives Program aims to support general practice activities and is a driver for the implementation of new federal initiatives, including those relating to digital health

1.1 Nepean Blue Mountains PHN Context (January 2018)

Overview of the region

The Nepean Blue Mountains Primary Health Network (NBMPHN) provides primary care support to the communities within the Blue Mountains, Hawkesbury, Lithgow and Penrith Local Government Areas (LGA). The region spans 9,100 km² with an estimated population of 366,765, which is expected to reach just over 500,000 by 2025. Future developments such as Sydney's second airport at Badgerys Creek may mean the catchment population for the region will be double this however.

Our region has similar health needs to other communities in Australia including population growth, increasing complexity of chronic disease, mental health and an ageing population. The region is home to Aboriginal and Torres Strait Islander, and culturally and linguistically diverse communities.

Following are some of the specific consumer cohorts within our region, and their specific health challenges and needs. Digital health, in particular increased digital integration and information sharing, will play a vital role in addressing the needs and challenges experienced by these patient groups.

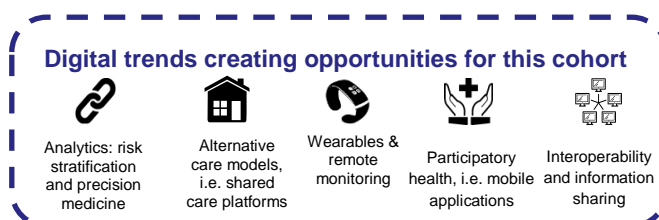
Notable patient cohorts

Chronic Disease

The 2016/17 NBMPHN Needs Assessment indicates the chronic and preventable conditions with the highest prevalence in the Nepean Blue Mountains (NBM) region include chronic obstructive pulmonary disease

(COPD), diabetes, cardiovascular disease, and obesity. Chronic disease rates in this region, are slightly above national averages and represent a significant challenge to the health of our community.

There is a growing need for chronic disease patients to more effectively and efficiently manage their chronic disease and co-morbidities, particularly patients living in remote locations. This includes coordinating treatment from a multi-disciplinary care team, keeping track of and ensuring compliance to treatment plans, and helping to facilitate data sharing between health care providers.



Mental Health

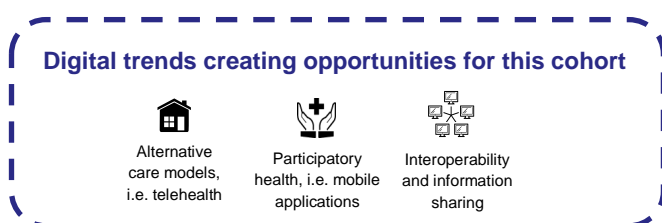
NBMPHN has very high mental health hospitalisation rates, particularly for self-harm. In 2010-11, the rate of mental health disorder deaths was the second highest among the eight NSW metropolitan Local Health Districts (LHDs)¹. There are high rates of psychological distress within the Aboriginal and Torres Strait Islander communities, however there is relatively low uptake of psychological and psychiatric services. There are limited low intensity mental health services in the region for children and youth.

In addition to these challenges, there is a lack of referral pathways, case management, and care coordination

¹ Wentworth Healthcare, 2016/2017 Needs Assessment

between the various service providers and healthcare professionals involved in delivering treatment to these patients. Discharge planning is inconsistent and workforce shortages are contributing to long wait lists for public psychiatric services.

Considering the combination of high prevalence of mental health issues and a shortage of skills and workforce, our region could benefit from digital health enablers that could help health professionals reach out to more people in our community or help support patient flow into services. Patients experiencing mental illness will also benefit from the use of digital solutions that are already available, such as telehealth psychiatric consults.

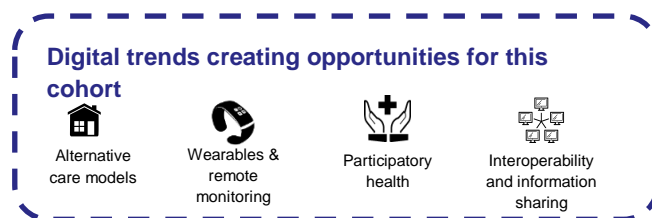


Older Persons

Some areas within the NBMPHN region will experience almost double the state average of growth of the older person population between 2011 and 2026. The 2016/2017 NBMPHN Needs Assessment highlights inadequate support and a lack of services for older people and carers.

NBMPHN must address the current shortcoming of care provision for this patient cohort, as well as future proof for the growth of this population that will occur in the coming decades. This will need to involve innovative methods of delivering care more efficiently, improving ease of access to services, and allowing for the effective coordination between services.

Innovative uses of digital health technologies could help modify and improve the current models of care for older persons by increasing the accessibility and coordination for their complex needs. This includes models within primary care, but also the interface that primary care has with secondary and tertiary care, as well as other care services such as Residential Aged Care Facilities (of which there are 33 in the NBMPHN region), Ambulance, and other ancillary services.



Aboriginal and Torres Strait Islander Communities

3.6% of the population in the NBMPHN region are Aboriginal and Torres Strait Islander peoples. The NBMPHN 2016/17 Needs Assessment highlights the need to increase primary care cultural competency and capacity to support the region's Aboriginal and Torres Strait Islander population, including addressing health literacy across the region. Furthermore, a need for culturally appropriate psychiatric and psychological services have been identified for these communities which impacts access to these services.

Digital health resources can help improve cultural safety, by connecting staff to resources and tools that may help them better tailor their service offerings for the Aboriginal and Torres Strait Islander community. Technology could also help establish better communication channels with hard to reach groups in this patient cohort.



Culturally and Linguistically Diverse (CALD) Communities

The 2016/17 Needs Assessment identified that the percentage of new arrivals who do not speak English well or at all is increasing, especially in Penrith LGA. Our region has also experienced an increase in the representation of residents born overseas in hospital re-admissions compared with the Australian born population. Particular health concerns affecting these communities includes the low participation of breast cancer screening within the CALD communities as the Blue Mountains, Lithgow and Penrith report rates lower than state averages. At 32.1% for women aged 50-69, Blue Mountains LGA compares poorly to the state average of 44.8%².

² Wentworth Healthcare, 2016/2017 Needs Assessment

Using digital health technologies can help bridge the cultural and language gap within the CALD community. It could help facilitate tailored communication to raise awareness of population health preventive measures such as cancer screening.



Rural Communities

The NBMPHN region includes some areas that are classified as rural and semi-rural. There are service gaps for people living in these areas, including psychological therapies². A further problem is the lack of coordination and access to health services with over 10,000 people in the region reporting they find it difficult or are unable to access transportation to health services³. Currently, there is a Health Transport Initiative in place that helps the community access local health services. This initiative could be further supported through digital health services that reduce the transportation burden within our community. Providing a second avenue for the community to interact with their healthcare professionals could help reduce the burden on this service.

Specific population health issues: The communities of Lithgow and Hawkesbury have higher rates of unhealthy levels of alcohol consumption when compared to the State average³. Digital technologies could support healthcare professionals to more accurately record and monitor their patients' management of alcohol consumption, and support patients to self-manage their condition and access technology-enabled peer support services.



Current NBMPHN Digital Health Environment (January 2018)

NBMPHN has been at the forefront of digital adoption within primary care, being one of two sites in Australia trialling My Health Record opt-out and one of ten PHNs trialling the Health Care Homes initiative.

Many of NBMPHN's current initiatives and activities are aligned to the strategic priorities and initiatives that are earmarked for implementation by the Australian Digital Health Agency (the Agency) by 2022. Key roles that NBMPHN has played in line with the activities outlined by the Agency Digital Strategy are outlined in Appendix B.

General Practice Digital Landscape

NBMPHN has 130 general practices, with 11% of general practitioners (GPs) working in solo practices. This is higher than the national average of 9% reported in the 2013–15 BEACH data⁴. 88% of general practices in our region are currently computerised. Of these practices, 92% use either MedicalDirector or Best Practice as their clinical information system vendors. The remaining practices use ZedMed, Stat Health, Monet, Genie and GP Complete. 62 practices provide monthly de-identified data to NBMPHN via the Pen CS Clinical Audit Tool (CAT) and participate in the PHN quality improvement program (this represents 48% of total practices and 54% of computerised practices). 85% of general practices are registered with My Health Record.

Allied Health Providers Digital Landscape

There are approximately 1190 allied health providers located in 487 practices. Approximately 2% allied health providers are registered for My Health Record. This low level of adoption is due in part to limited availability of allied health specific software that is compliant with My Health Record.

³ Wentworth Healthcare, *Annual Report 2016*

⁴ Britt H, Graeme M et al., *The changing face of Australian general practice across the decades*, 2016

Pharmacy Landscape

Of the 80 pharmacies in our region, 27 (34% of all pharmacies) are registered for My Health Record⁵. Another 16 have registration applications in process (April 2018) with 6 considering the application and 31 other pharmacies although computerised, utilise non-conformant My Health Record software and are therefore not registered. This is expected to increase as more pharmacy software vendors become conformant.

My Health Record Opt-Out Trial Site

During the trial, NBMPHN worked with GPs, pharmacists, specialists, allied health professionals and aged care facilities to enable access and information uploading to My Health Record. This was promoted through forums, online training and practice visits. There was also a phased community education campaign to raise awareness of My Health Record, particularly among selected population groups such as older people, people with chronic disease and new parents.

85% of accredited general practices in our region are now registered with the My Health Record system. There is significantly lower uptake from allied health professionals, including pharmacists, due to the lack of commercially available clinical software that is conformant to My Health Record.

We are aiming to maintain a leading role in the rollout and adoption of My Health Record, through continuing to drive meaningful use of the system by providers and consumers in the region.

Health Care Homes Trial Site

Selected general practices and Aboriginal Community Controlled Health Services are being trialled as Health Care Homes within NBMPHN. Each Health Care Home site will coordinate comprehensive care for eligible patients with chronic and complex conditions. The funding model behind the Health Care Home initiative will allow for new models of care, as monthly bundled payments will replace reimbursement for individual consultations. This will create an incentive for a greater focus on preventative care and the provision of alternative modes of access for patients.

Digital technologies and enablers will feature heavily in new care models, including shared care platforms,

systems for improved data quality, data analytics and patient cohort identification. A central element of the Health Care Home model is a tailored and dynamic shared care plan. During the stage one trial, each Health Care Home patient must have a shared care plan which is accessible electronically by all providers within and external to the Health Care Home by the end of 2018.

At present the NBMPHN region has examined and not yet trialled any electronic shared care planning solutions.

HealthPathways

HealthPathways is an online manual used by healthcare professionals to help make assessment, management, and specialist referral or alternative pathway decisions for over 550 conditions. Each health region tailors the HealthPathways content as appropriate for the local context. Each condition pathway is an agreement between primary and specialist services within the region on how patients with particular conditions will be managed. NBMPHN commenced our HealthPathways journey in February 2017 and went live in November 2017.

The 2016/17 Needs Assessment outlines that HealthPathways “will enable linkages and collaboration between local clinicians for the development of consistent, local guidelines for use by local clinicians.” The software will provide clearly defined pathways for local services and care management and has been designed with Nepean Blue Mountains Local Health District (NBMLHD), and primary care providers.

Secure Messaging

In 2015, NBMPHN launched a Secure Messaging Delivery (SMD) Project in the Hawkesbury and Blue Mountains LGAs. The pilot project was to facilitate communication and chronic conditions management between GPs and Allied Health Providers. The aim was to dynamically utilise GP Management Plans and Team Care Arrangements initiated by GPs to improve the care coordination of chronically ill patients (with a particular focus on diabetes patients)⁶. Current uptake and benefits realisation has yet to be determined.

The benefit of secure messaging is the ability to transmit patient data in a timely and secure manner, such that it is available for other multi-disciplinary

5 Department of Health, *My Health Record Statistics by PHN*

6 Wentworth Healthcare, <http://www.nbmpnh.com.au/Allied-Health/Programs-Services/Secure-Messaging-Project.aspx>

providers in a patient's care team. Without secure messaging, providers often have to use inefficient methods of data transmittal such as faxing and mailing, or insecure methods such as unencrypted email. In other cases, healthcare providers are making decisions without the full patient record available,

Telehealth

Much of the NBMPHN region is not telehealth eligible and as a result these areas are currently excluded from accessing Medicare funding for telehealth services. The funding model behind Health Care Homes will provide options for alternative models of care and practices may adopt telehealth as a component.

At the state level, a formal NSW Health Telehealth Framework and Implementation Strategy for 2016-2021 has been developed to outline key actions, timeframes and responsibilities to embed telehealth in the core business of NSW Health. The strategy includes the establishment of a NSW Telehealth Strategic Advisory Group established by the NSW Agency for Clinical Innovation. Part of the responsibilities of the LHDs and Specialty Health Networks (SHNs) is to continue to identify and build effective partnerships with stakeholders to deliver patient-centred models of care.

Opportunities

For NBMPHN to maintain the position as a leading primary care organisation in digital health, there are a number of opportunities to consider pursuing. An indicative list of these are included below.

Many of these opportunities can be mapped to the 7 strategic priorities that the Australian Digital Health Agency has outlined in their Digital Strategy, and this analysis is shown in Appendix B.

- Continue the promotion and uptake of My Health Record particularly with a focus on allied health providers and pharmacies
- Continue to work with General Practices to embed into their daily work flow, the uploading into and viewing of documents for their patients' My Health Record. Continue to focus on building the secure messaging capacity of healthcare providers in the region. Monitor progress, advocate and provide feedback on the evolving interoperability between secure messaging providers. The aim is for providers being able to securely and seamlessly

exchange information regardless of their chosen system

- Monitor progress on patients' ability to securely communicate with healthcare providers
- Monitor and feedback on interoperability standards and adoption
- Continue to assist healthcare providers with assessing their level of digital maturity.
- Continue to assist healthcare providers with data quality and the implementation of healthcare identifiers
- Continue to promote the addition of the Medicines Information view to My Health Record. Increase the number of GPs doing electronic prescribing and the number of pharmacies providing dispensing information to My Health Record
- Monitor and promote paper free options for medicines management
- Monitor and assist providers seeking to implement new models of care which incorporate a digital component particularly in the context of Health Care Homes and the care of patients in RACFs
- Monitor and inform healthcare providers in the region of available resources to enhance their knowledge and confidence in digital services and technologies
- Identify and use clinical digital health champions to help in the uptake of digital solutions
- Monitor and promote quality health applications and tools to the NBMPHN population
- Promote opportunities for NBMPHN clinicians to work with researchers and entrepreneurs to collaboratively design digital health solutions
- Monitor and feedback to the Australian Digital Health Agency on digital inclusion for all groups of the NBMPHN population
- Work closely with the Local Health District to share clinical documents electronically to improve the transfer of care between primary and acute care

1.2 Future of Healthcare - Australia and NSW

National Digital Health Reform Environment

Australia's National Digital Health Strategy

The Agency has outlined the strategy for the national digital health agenda in "Australia's National Digital Health Strategy". The strategy includes guiding principles which underpin seven strategic priorities:

1. Health information that is available whenever and wherever it is needed
2. Health information that can be exchanged securely
3. High-quality data with a commonly understood meaning that can be used with confidence
4. Better availability and access to prescriptions and medicines information
5. Digitally-enabled models of care that improve accessibility, quality, safety and efficiency
6. A workforce confidently using digital health technologies to deliver health and care
7. A thriving digital health industry delivering world-class innovation

Underpinning each strategic priority is a set of activities to be delivered by 2022. A summary of these activities, with an assessment of NBMPHN's current and future engagement against these, is located in Appendix B.

Health Care Homes

As described in section 1.1, NBMPHN are one of ten PHN trial sites for Health Care Homes.

The application of different models of care will underpin the success of the Health Care Home initiative. For instance the Patient Centred Medical Home (PCMH) model is an integrated health system that adopts a team-based approach to meet a patient's care needs. The team includes the patient and their GP, but may also include nurses, allied health providers and specialists.

My Health Record

My Health Record now (April 2018) has over 11,000 healthcare provider registrations nationally. After the success of the recent opt-out trial, opting out will become the national standard for Australians by December 2018. Being one of only two opt-out trial

sites, we have laid the foundations for the continued promotion and expansion of My Health Record

nationally and will continue to work towards increasing the meaningful use of this initiative.

Practice Incentive Payments (PIP)

The Practice Incentives Payments Program aims to support general practice activities and is a driver for the implementation of new federal initiatives. Recent changes to the PIP required practices registered for the eHealth PIP to upload a defined number of Health Summaries in order to continue receiving the payment. This has been a driving factor in the uptake of My Health Record in general practice. Although details are yet to be defined, the addition of the Quality Improvement PIP in May 2019 will require registered practices to agree to undertake quality improvement activities and share de-identified patient data.

National Cancer Screening Register

The Australian Government in partnership with Telstra Health is building a National Cancer Screening Register that will create a single view for Australians participating in cervical and bowel cancer screening. It will integrate with GP clinical information systems and assist GPs to identify a patient's screening eligibility and history to support real-time clinical decision making. The Register will include the ability for healthcare providers to send information to the Register directly through their clinical information systems, using the same standards and transmission protocols already used to share information with the My Health Record system.

My Aged Care

My Aged Care is a national digital service that provides an online portal for consumers and carers to access information on aged care services such as Commonwealth Home Support packages, end of life care and aged care homes.

State Digital Health Reform Environment

There are a number of state level initiatives that could be beneficial for the PHN to leverage and partner with key state organisations. The NSW Health Telehealth Framework and Implementation Strategy is one of many examples of such initiatives that the PHN can utilise to build on the existing telehealth capabilities of primary care in the region.

The eHealth Strategy for NSW Health 2016–2026 outlines a direction for NSW investment for the next decade. The strategy takes into account recent Whole-of-Government ICT strategies, the latest advances in health technology, policy directions including Integrated Care and ongoing enhancements to performance, quality and safety in the health system. Relevant areas of the strategy are detailed as follows:

- Alignment of HealtheNet with the My Health Record information sharing standards for clinical document types providing better clinical information sharing between My Health Record and available state data
- Developing and enhancing communication and information systems to support increasingly integrated care for patients through initiatives such as Shared Care Plans, Remote Patient Monitoring, Patient Reported Measures and Telehealth
- Developing and enhancing health analytics to improve decision making, insights and organisational performance. A number of initiatives including Standardised Data Structure & Reporting, Data Mobilisation, Population Health Intelligence, Enhanced Research & Continuous Learning, will progress the analytics agenda in NSW Health
- Developing and enhancing the coordination and integration of core information systems including electronic Medical Records (eMRs), Pathology and Digital Imaging Systems with HealtheNet and My Health Record
- Working with the Australian Digital Health Agency on national standards, integration with a state and national provider directory and secure messaging endpoint solutions. This aims to increase the maturity among LHDs and primary care providers in terms of eHealth enabling systems with respect to implementing and supporting secure messaging and eReferral management

Nepean Blue Mountains Local Health District

Relevant strategies and initiatives currently underway in NBMLHD include:

- The NBMPHN and NBMLHD are jointly rolling out the HealthPathways Program. The HealthPathways platform will act as a link to support integration and development of consistent clinical guidelines
- NBMPHN initiated a Chronic Obstructive Pulmonary Disease (COPD) collaborative project with the LHD to address the high rate of hospitalisations and bed days for this condition in our region. This also leverages the work we are undertaking in HealthPathways
- The NBMPHN and NBMLHD are also working to increase uptake and meaningful use of the My Health Record and on regional planning for mental health. These priorities have been jointly agreed by both Boards as part of the joint annual board planning day and are monitored throughout the year by the Boards
- Further development and rollout out of Checkpoint which is an integrated and intensive case management service for patients under the age of 70, who have presented in ED multiple times in the last 12 months. The program intends to work more closely with primary care to help develop models of care that are tailored to the individual
- In addition to a state-wide videoconferencing initiative, NBMLHD is working in partnership with the Institute of Biomedical Engineering and Technology (BMET) to innovate Telehealth technologies in areas such as orthopaedics, antenatal and mental health

There is an opportunity for us to partner with NBMLHD on further initiatives such as the ones listed above, and to leverage the outcomes of these efforts for the benefit of the primary healthcare sector in the region.

Existing collaborations with the LHD such as our joint Community Advisory Committee can be used to further identify what digital health opportunities exist for us and the LHD to work together for the benefit of the region.

1.3 Emerging Digital Trends



Data Linkage and Analytics: Data collection and analysis is an important tool in primary care as it helps to monitor progress and achieving better patient outcomes. Quality data in particular can be used for more functions than care delivery. De-identified data can be used for population health planning to identify service gaps and needs. There are also many opportunities when data from the primary care setting is linked to other sectors in health such as acute and tertiary care.



Alternative Care Models: Technology enabled models of care, such as telehealth will address challenges experienced by patients and their healthcare providers with traditional care models (i.e. face to face, and fee for service). These include access issues, treatment compliance, and information siloes. Bundled payments (e.g. through Health Care Homes) enable providers to think outside of the traditional fee for service model.



Wearables and Remote Monitoring: Future wearables and home-based sensors connected to smart phones will track a growing range of patient health measures that can be incorporated into the patient record and utilised by the care team. Mobile Health applications can also be used in conjunction with these devices to help manage and monitor a person's health.



Participatory Health: Central to participatory health is the emergence of the patient or healthcare consumer as an equal and responsible partner. Consumers are shifting from 'just paying the bills' to digitally empowered patients who are participating in and taking charge of their own health and care. Technologies such as apps and health information websites play a big role in this new paradigm of health delivery as consumers become more informed and are enabled to make better decisions with managing their health. These applications trigger a particular level of patient engagement referred to as patient activation. Four specific levels of patient activation have been identified⁷: Disengaged, Building Awareness, Taking Action and Taking Ownership. The last two levels of

this scale in particular highlight the behaviour of patients to more proactively self-manage their care.



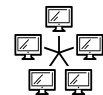
Contemporary Technologies: Newer technologies such as block chain, the internet of things and robotic process automation introduce potential efficiencies and other benefits to healthcare delivery.



Increased Cyber Risks: The health sector is at an increased risk of cyberattacks as the volume of structured and sensitive data entering the healthcare system continues to grow, and the rate of malicious attacks on health data becomes more commonplace. This emphasises the need to initiate network security activities to protect the useability, reliability, integrity and safety of health systems.



Cloud: Storage of data through the cloud provides many advantages such as being able to provide remote access to data to enable health providers to work in alternate locations. It can also be an important aspect of contingency planning by having a backup source of data that can still be accessed if an emergency arises at the physical location. Vendors in the commercial market for digital health are moving towards cloud based solutions.



Interoperability: At present, there is little interoperability between the various systems used within primary care. Exchanging data between general practice and the wider health community, including hospitals, ambulance services and residential aged care facilities is still largely driven by fax, or in some cases care is provided without the relevant data at hand. Interoperability is a key priority for the Australian Digital Health Agency



Clinical Artificial Intelligence: Learning health systems driven by machine learning will enable greater decision support and personalised care, and precision medicine.

⁷ Hibbard and Greene, *What the evidence shows about patient activation: Better health outcomes and care experiences; fewer on data costs*, 2013

2.1 Introduction to the Digital Health Strategy

Purpose

The Digital Health Strategy 2018-2021 provides a strategic direction for digital health at NBMPHN, that:

- Provides a digital health strategic vision that aligns with our organisational mission and objectives
- Sets the strategic direction and priority focus areas for digital health in our region over the 3 year period 2018-2021
- Outlines the digital health related principles that support the delivery of our strategy

An overview of the Strategy is shown overleaf.

We are leading the way in terms of digital adoption within primary care. This is in part driven by our role as a trial site for the My Health Record opt-out and the intention to maintain meaningful use of this tool; and the opportunity to develop new technology-enabled models of care to optimise the Health Care Homes trial. In addition, key needs of our region create immense opportunity for us to leverage digital solutions to facilitate better care for patients, leading to an appetite for a greater focus on digital health.

Digital Health Strategic Vision

The overarching Digital Health Strategic Vision of the Strategy is **“A connected region enabled by digital health solutions to support better health”**.

This digital vision supports our organisational vision, mission and strategic objectives. It emphasises the intent of the use of digital technology is to achieve integrated care for consumers across the continuum of care for better health outcomes.

Strategic Directions

The Digital Health Strategic Framework outlines four strategic directions that support the digital health strategic vision, each which contain priority focus areas for the strategic period. These strategic directions are shown below, and described in detail over the following pages.



Guiding Principles

There are eight principles that underpin the Digital Health Strategy, which articulate the values and priorities that we hold in regards to the use of digital technologies to support health and care. These are listed below and described further in Section 2.6

Fosters provider and patient confidence in digital health	Provides privacy and security of patient data	Drives toward digital integration and interoperability	Facilitates a patient-centric view of care
Leads the way and promotes sharing learnings	Considers how digital can optimise new models of care	Improves data quality and completeness	Removes fragmentation and silos

2 Strategic Direction 1:



**Guide and advise the region
on digital health decisions**

1

Core to enabling our community to make smarter digital decisions is guiding and advising healthcare professionals as they navigate the digital health environment and support their patients in doing the same. Achieving this will involve building our role as a central source of support, providing advice and information on digital health, and directing healthcare professionals to other sources.

Currently, there is a lack of clarity for healthcare professionals and consumers in how to determine what information they need, where to access this, and at what time. There are many sources of this information, and in some cases the messages that are being communicated are unclear. There is also a significant volume of mis-information, as well as notable gaps in available knowledge. This has contributed to an environment of lower digital literacy, and confusion as to the credible sources of information.

Our role in guiding and advising the region on digital health decisions will include assisting the community and providers to navigate and understand the reform environment, make informed decisions about the adoption of new systems and applications, and build relationships with other stakeholders.

Key focus areas over the next three years

Development of fit-for-purpose frameworks for digital procurement

The benefits of adopting digital health systems and technologies are known to many healthcare providers, with gains in efficiency, increased data quality, and the potential for data analytics as example motivators for adoption. However the process of selecting and implementing digital health solutions lacks clarity. While there are resources available to those who know where to find them, there is currently no clear source of truth that guides healthcare providers about the minimum standards and requirements that should be offered by a digital health solution, or how to determine

the actual capabilities of a solution and whether these will be compatible with particular clinical workflows and other organisational needs.

Developing frameworks of standards and requirements that are fit-for-purpose to the types of digital solutions sought in the primary care environment will assist providers in their digital procurement process. These frameworks will provide greater clarity of choice from the diverse array of medical software and technologies available in the commercial market. It will also elevate the importance of procuring solutions that allow interoperability and information sharing between different providers and to central systems such as My Health Record. This is particularly important for facilitating improved communication and sharing between multi-disciplinary care teams, such as those that will be enabled by the Health Care Homes trial.

Fit for purpose frameworks for digital procurement may assist healthcare professionals in assessing:

- What are the applicable minimum standards and requirements and which solutions meet these
- What is the benefit of certain functionality and which solutions provide these (i.e. compatibility with My Health Record, secure messaging, analytics)
- What adjustments to clinical and organisational workflow will be required by the adoption of various solutions
- What will be the initial and ongoing financial commitment of various solutions
- What capabilities will be required of the healthcare professionals or practices to implement and maintain various solutions
- What solutions are regarded by peers as useful and usable
- What solutions support high quality of data and meaningful use of information

Support healthcare professionals to navigate and understand the digital health environment

As an opt-out trial site for My Health record, NBMPHN is already in a trusted position to support providers, and by extension consumers, in navigating the current digital health environment. Our role will be to leverage this position of trust with providers and practices in the region to better support them in understanding the digital health environment, including the available tools and resources, but also the reform agenda and emerging opportunities.

As an extension of this, we can assist providers and practices to support their patients to navigate the digital health opportunities that exist for them, such as meaningful use of the My Health Record and adoption of applications and other technologies that may aid in their care.

Due to the multi-layers of change occurring at both the State and Federal level, with initiatives being undertaken by eHealth NSW and the Agency, it is important for both patients and providers to understand and prepare for the changes that are coming, and the associated decisions that will need to be made by healthcare professionals in response to these changes.

Furthermore, as emerging technologies develop and applications for these in the healthcare sector become commercially available, providers and patients will benefit from support to understand and consider the opportunities presented by these. This includes technologies such as remote sensors and wearables, advanced analytics and personalised medicine.

NBMPHN can provide this support via engagement and consultation with healthcare professionals, directing stakeholders toward available resources and shared learnings for input into digital health decision-making.

Build awareness of the digital health requirements and needs specific to the NBM region

Healthcare professionals and consumers within our region have specific digital health requirements based on location, characteristics of the region, needs of specific patient populations and emerging trends. For effective investment in digital health, these requirements need to be known to the healthcare professionals in the region who are making decisions about the adoption of digital solutions, to the stakeholders developing policies and programs that affect the region, and also to vendors in the commercial market that are developing tools for use.

There will be a need to explore flexible solutions for each of the Local Government areas who all have different digital environments and challenges. An overview of key characteristics, digital maturity indicators and specific needs and challenges of the region, assessed at the LGA level, is included in Appendix C.

NBMPHN can play a key role in building a greater awareness of these requirements by working with the healthcare providers and consumer representatives to better understand the needs of the region, and disseminate this knowledge to the relevant stakeholders.

Digital opportunities presented by this strategic direction:

- Guiding healthcare professionals in making digital decisions that facilitate **interoperability** and **shared care**, and support **participatory health**
- Advising healthcare professionals to facilitate **decreased cyber risks** and awareness of **cloud computing**

Progress measures to determine the achievement of this strategic direction:

- Fit-for-purpose frameworks are utilised by healthcare professionals and practices to make decisions about digital health procurement
- Engagement and Communications tools are developed
- Professionals in the region actively seek advice from NBMPHN
- Decisions made mirror the guiding principles
- Informed decisions have improved and appropriate uptake of technology in the region

2.3 Strategic Direction 2:



Optimise the region's digital maturity through sector, industry and representative body partnerships

2

Effective working partnerships between the many stakeholders that exist in the digital health ecosystem will be key in enabling smarter digital decisions to be made at an individual healthcare provider or consumer level. For a truly intelligent digital health environment to exist at the regional level, effective collaboration must exist between representative bodies, PHNs, LHDs, and government groups to further the priorities that exist for healthcare professionals and consumers in primary care. Utilising these partnerships to create drivers and reduce barriers for adoption will encourage increased digital maturity in the region for both consumers and healthcare providers.

NBMPHN has many established partnerships with relevant stakeholders. This digital strategy presents an opportunity to further develop existing relationships, as well as forge new ones.

Key focus areas over the next three years

Manage and develop working relationships with key groups and organisation

NBMPHN can leverage existing capabilities and knowledge, via partnerships with key professional bodies and other stakeholders. Effective management of these partnerships can lead to bridging the gap between transfer and application of digital health knowledge, positioning NBMPHN as an enabler of digital change for the region's healthcare providers and consumers.

As an indicative list, working relationships may be pursued or further developed with:

- Australian Digital Health Agency
- Royal Australian College of General Practitioners
- eHealth NSW
- Pharmacy Guild
- Nepean Blue Mountains Local Health District
- Consumer representative groups
- Medical Software Industry Association

- Other professional associations

The benefits in collaborative partnerships between our organisation and key health bodies is further emphasised through a learnings based model. Lessons learned via national health initiatives such as the My Health Record Program and the Health Care Homes trial can serve as vital tools in informing future digital health strategies and initiatives. Through a joint approach, learnings realised from these programs as captured by the various health bodies can aid in bringing the needs of the region to the attention of the stakeholders.

Act as an advocate on behalf of the region's digital needs and technology requirements

Industry and sector partnerships will provide a mechanism by which we can advocate for the region's digital needs. NBMPHN has the opportunity to participate and initiate governance forums with key representative bodies and other industry groups to help inform and develop their digital health agenda. This will be particularly effective once the region's digital needs and priorities are assessed.

Further to this, NBMPHN can use these forums to communicate feedback to relevant groups about the digital health initiatives and solutions that are in use within our region. This is a continuation of the role NBMPHN has played as one of two sites for the My Health Record opt-out trial, and as a current Health Care Homes trial member.

Our region's digital needs and technology requirements may include those which relate to:

- The healthcare needs of particular patient cohorts
- Barriers to healthcare access and digital uptake
- Improvements in connectivity and enabling technology infrastructure
- Discipline-specific clinical and operational workflows
- Constraints with data storage and transmission
- Cultural preferences
- Financial barriers

It is important for us to be aware of these needs and requirements, and how digital solutions and emerging technologies can be leveraged to support these. For instance this may include telemedicine and other

mobile health solutions, cloud solutions, population healthcare driven by analytics, enterprise licensing. Partnerships with representative bodies and industry groups are key to driving appropriate action for the region.

Work with partners toward connecting information across providers and consumers securely and clearly

The current state of information in the healthcare sector, including primary care, involves significant fragmentation. There is a dearth of interoperability between information systems between providers, disciplines, and other modes of care such as hospitals and specialists. As a result, healthcare professionals are required to treat patients without full visibility of the patient record, use inefficient methods of sharing information such as faxing or couriering, and at times may utilise insecure methods of information sharing such as unencrypted emails. At the core of the technical capability to connect is that of provider and sector and industry partnerships that place the patient back at the centre of their care journey.

While work is underway at a national and state level to improve interoperability, most providers are still burdened by the challenges presented by the information silos. Available platforms (such as My Health Record) may provide a solution for some of these challenges, however many healthcare professionals are not able to access or contribute to this due to a lack of compliant software (e.g. in allied health and some pharmacy providers). Meanwhile, the healthcare sector is moving toward more integrated care models, such that will be enabled by the Health Care Homes trial.

The key to the success of integrated care is the ability to share information in the planning, coordination and delivery of care. As a result, further resolutions to these interoperability challenges will be required to drive the success of Health Care Homes and similar integrated care initiatives.

NBMPHN can assist in this regard by utilising partnerships with industry and other representative bodies to continue to connect expertise to local solutions that promote and progress the development of solutions for the sharing of information between providers and patients. This may include identifying potential technologies, solutions and approaches that can be leveraged to facilitate improved interoperability.

Digital opportunities presented by this strategic direction:

- Leveraging partnerships to develop practical solutions to the lack of **interoperability** across the patient care journey
- Advocating for development of, and funding for, digital solutions that meet patient needs, such as **mobile solutions** to relieve healthcare access issues and solutions that support **patient-generated health data**

Progress measures to determine the achievement of this strategic direction:

- Formalised and documented governance between relevant stakeholder groups including:
 - Operationalisation of appropriate working groups and other governance forums
 - Establishment of key contact points at industry and representative groups
- Measurement of partnership effectiveness via governance assessment, joint outcomes achieved and stakeholder feedback
- Improved integration of care – digitally enabled across the region as a result of partnerships

2.4 Strategic Direction 3:



Enhance preparedness and readiness for digital adoption with stakeholders and consumers

3

Realising the benefits of the adoption of digital health solutions will depend on healthcare providers and consumers being informed, prepared and ready for change. NBMPHN is well-placed to enhance the awareness, preparedness and readiness of stakeholders in their region, due to our relationships and engagement channels that are already established.

Readiness for digital adoption comes well before the change in question. It begins much earlier, with planning and preparing being key elements of successful change. It involves being fully informed of what the change will entail, for instance how it will impact a provider in terms of workflow, financials, time, as well as the impact to patients.

Given the nature of primary care, digital health adoption is not simply about preparing individuals for change, but preparing and mobilising our entire community to work toward successful change.

Key focus areas over the next three years

Foster an environment that supports readiness for adoption of digital health initiatives and solutions

Resistance to change can be common in the healthcare sector, due to the financial and time constraints that are already posed on many of our healthcare providers. The industry also suffers from change fatigue in regards to digital health, due to the plethora of initiatives, programs, strategies that are in play. However, due to the many benefits available to those who adopt digital solutions wisely, it is vital that an environment is fostered that promotes readiness for adoption.

An important part of creating a change environment is having a central figure that supports and shares learnings with its health providers. NBMPHN is in a position to do this through our current knowledge of the digital maturity within the region, and our ability to gain a more specific view on this maturity. Assessing the readiness of each practice more specifically, through

the use of a digital maturity model will help us understand the level of support and planning required by each practice in terms of preparedness and adoption.

Below is an example of a model that determines the level of preparedness and readiness for digital adoption⁸:

1. Awareness: do providers have appropriate information and understanding about the available digital service(s)?
2. Readiness: are providers able to plan and deploy the digital service(s)?
3. Capabilities: do providers have staff with the digital skills they need?
4. Infrastructure: do providers have the right technology in place?

Network champions of change within the region and dissemination of shared learnings

Peer support is a successful tool for promotion of preparedness and readiness for change. There are already a number of healthcare providers in our region who informally champion change through early adoption and support of digital health technologies. Formalising and developing this network of change champions will enable greater readiness for change amongst their peers. Particularly in healthcare, trust and credibility is important currency when promoting change. Fellow healthcare providers are a trusted source of advice and encouragement, and can speak to specific concerns and queries about the impact of digital solutions in the healthcare practice setting.

These networks can act as sounding boards for new digital solutions and approaches that can work for better healthcare delivery within our community. It can also act as a point of contact between our organisation and the health providers as to additional support they might require to fully implement digital adoption plans.

Establish fit-for-purpose change and adoption approaches for provider use

The various disciplines of healthcare providers within our region will have a different approach to digital health adoption, due to the difference in workflow, funding incentives, available systems and applications,

⁸ Adapted from the NHS England Digital Maturity Index:
<https://www.england.nhs.uk/digitaltechnology/info-revolution/maturity-index/>

and models of care. Likewise, providers in metropolitan areas will have a different approach to rural providers or those that deliver mobile care. As such, fit-for-purpose models of change and adoption will be required by the region for effective preparation for change.

NBMPHN can support a more cohesive digital adoption approach in the region by establishing tailored change and adoption approaches. These may include:

- Change leadership coaching
- Change planning and governance
- Assisting with the development of change communications
- Outlining preparatory steps, such as required upgrades, procurement of hardware, etc.
- Recommending training programs
- Connection to change champions or other practices/professionals that have experienced similar change
- Supporting adoption and evaluation

Co-design models of care: new and existing to leverage digital technologies

Recent changes to the reform environment at a national and state level has meant that models of care are evolving to accommodate new approaches, such as integrated care. The Health Care Homes trial is an example initiative that involves a multi-disciplinary team delivering care with a patient-focused approach. Emerging technologies present the opportunity to re-design models of care to gain efficiencies and other benefits. For instance, improvements in connectivity and videoconferencing solutions has improved the

effectiveness of telehealth, which is a solution that introduces efficiencies to the healthcare provider and can reduce access barriers for patients.

For healthcare providers and consumers to gain the most benefit from digital health, the model of care must be adjusted to fully leverage the technology environment. This may not always be supported by financial incentives (for instance, telehealth consultations are only reimbursable in certain jurisdictions), and thus support will be required by healthcare providers to adjust their model of care in a way that makes sense for them and their patients. This includes the consideration of new, disruptive models of care with a participatory care focus. These may include:

- The incorporation of patient-generated data into the patient record and diagnostic process
- Advanced analytics driving a population management approach
- Use of mobile devices and applications to drive treatment compliance and health status reporting by patients
- New methods of communication between patient and clinicians, such as social media
- Wearables and remote sensors that send push notifications to the care team as needed

As NBMPHN has a view across the entire region, we can effectively assist with the co-design of new models of care, and the roll-out of these across the region as appropriate.

Digital opportunities presented by this strategic direction:

- Healthcare providers in the region benefiting from shared learnings and peer support
- An increased appetite for change, leading to and adoption of new platforms such as **cloud** and **participatory health** technologies
- Optimisation of digital solutions through the co-design of **new models of care** that leverage technology

Progress measures to determine the achievement of this strategic direction:

- Development of fit-for-purpose change and adoption models
- Recruitment and training of change champions
- Establishment of a shared network of shared learnings for digital adoption
- Completion of maturity assessment across the region
- Effectiveness of new models of care utilising emerging digital technologies

2.5 Strategic Direction 4:



Improve the confidence of the healthcare workforce in using digital technology to deliver care

4

Digital literacy and digital capability are key to making informed decisions about the adoption of digital health technologies. Digital literacy encompasses knowledge of specific tools and technology solutions and the benefits and risks associated with these technologies, as well as awareness of the greater reform agenda and the impacts and opportunities that this presents. Digital literacy extends beyond the knowledge of an individual practice's digital environment, to how this fits into the larger healthcare environment and interfaces with other providers and patients themselves. Digital capability is the confidence and ability to implement, maintain, and meaningfully use digital health technologies.

There are varying levels of confidence across the region, in using digital technology to deliver care. This is in part due to the rapid changes that have been occurring in the digital health environment, including the introduction of new technologies, changes in policies and strategic direction at a national and state level, and also due to the volume of contradicting information and opinions that exists.

NBMPHN can play a vital role to increase digital health literacy for the community and providers in the region. A significant barrier to the adoption of digital health technologies for both patients and healthcare professionals is a limited understanding of the benefits, risks, available options, methods of implementing digital health solutions and effective monitoring of adoption challenges and appropriate support requirements. As a central body to the community and providers in the region, we are well-placed to be a principal source of reliable advice and guidance regarding digital health.

Key focus areas over the next three years

Facilitate targeted provider education

There is currently a lack of structured educational programs and resources available to healthcare providers regarding digital health. In primary care, much of the information that is disseminated about digital health comes directly from the commercial

market, which healthcare professionals may not regard as a trusted source.

NBMPHN can leverage their role as a central body and the established relationships it has with providers, to provide targeted digital health education, which may include the following topics:

- Specific tools and technologies
- The capabilities required to implement and maintain digital solutions
- How to support patients to adopt digital health solutions, such as My Health Record, applications and wearable technology
- How to work with consumer technologies in a practice
- How to optimise a digital workflow
- How to leverage digital systems as part of new models of care
- Cybersecurity and the Cloud
- Privacy and interoperability
- Procurement of fit-for-purpose technology
- Software data standards
- The use of analytics to benchmark and guide clinical and operational decisions
- Data cleaning and linkage

The delivery of education should be developed based on a maturity assessment of the region and the current reform environment, and reviewed annually to accommodate shifts in these areas.

Build regional understanding on relevant policies, strategies and reform programs

There is significant movement in the digital health policy and reform environment currently, with the recent publication of national and state digital health strategies, as well as the introduction of local reform initiatives (see sections 1.1 and 1.2 for more details on these).

For the region to gain optimal value from these policies, strategies and initiatives, healthcare professionals and providers must be aware of the requirements, benefits and impacts of these. In particular, healthcare professionals must be versed on

how these will impact their patients, their businesses and care delivery.

NBMPHN can assist by extending the role played in increasing awareness of relevant policies and strategies amongst providers in their region, and placing the region as an early adopter for change (e.g. as with the My Health Record opt-out trial). As evidenced with the opt-out trial, this will in turn enhance the level of preparedness in the region of key health initiatives developed at the state and national level. This will subsequently facilitate greater engagement with providers overall, and a richer feedback mechanism as to the success of reform initiatives at the provider level.

It is also important for NBMPHN to enable healthcare professionals to engage the consumer base regarding the digital health initiatives that impact them. By increasing the awareness that the community has on key projects and reform programs being undertaken across the state and nationally, the PHN can help them better prepare and support providers to inform consumers in their care. Consumers will also be able to have a more active role in co-managing their health with providers through feedback channels.

Build relationships with and between providers and the greater healthcare industry

Strong relationships between players in the healthcare environment provides a mechanism for shared learnings, including those relating to digital health adoption and implementation. Communication and collaboration with healthcare professionals who have successfully implemented digital solutions or technology-enabled models of care can enhance digital confidence and literacy of healthcare professionals and practices with a lower awareness of the digital health environment.

Digital opportunities presented by this strategic direction:

- Educating healthcare providers on the methods by which they can **adopt emerging digital health trends** in their practices
- Enabling healthcare providers to support their patients in adopting digital health solutions, including **mobile health applications, wearables, remote sensors**, and My Health Record

The need for these relationships is becoming greater as the reform environment moves toward a model of integrated care. As the Health Care Homes trial is rolled out, there will be a benefit to adopting a patient-centred medical homes model, which will see multi-disciplinary teams across primary, secondary and tertiary care settings working together and with the patient for the needs of that patient. Technology is a key enabler for this model of care, as the efficient and secure sharing of patient information is vital for the effective functioning of the care team. In order for multi-disciplinary teams to move towards technology-enabled models of care, digital literacy and capability of the healthcare professionals involved must be sufficient. Working with each other to explore options and share learnings is an important step to achieving this.

Furthermore, relationships between healthcare professionals and the greater healthcare industry can build digital confidence and capability by broadening the points of contact and information available.

NBMPHN already plays a key part in developing better partnerships with and between the professionals and practices within the region. An extension of this role is helping to establish and strengthen relationships to the broader healthcare industry both within and external to the primary care environment, such as the LHD, private care providers, and representative bodies.

Progress measures to determine the achievement of this strategic direction:

- Training attendance and self-reported improvement/confidence
- Observed confidence in use across region provider related to training provided
- Improvement in self-assessment of provider digital literacy compared to baseline measure
- Improvement in self-assessment of provider ability to support patients with digital health

2.6 Guiding Principles

There are eight principles that underpin NBMPHN's Digital Health Strategy. These principles articulate the values and priorities that NBMPHN holds in regards to the use of digital technologies to support health and care. They describe the way in which NBMPHN will approach the four strategic directions outlined in this document, to deliver on the vision of "a connected region enabled by digital health solutions to support better health".

Fosters provider and patient confidence in digital health

Building the digital literacy of providers and patients is an important step in building a better digital environment, such that they can make smarter digital decisions and support each other through change. This principle will guide the actions taken by NBMPHN in the digital health space, so that learning and sharing opportunities can be maximised amongst the region.

Provides privacy and security of patient data

Transparent prioritisation of patient privacy and security protections is essential to build and maintain the necessary level of trust among patients, health care providers and other stakeholders. Consideration and promotion of privacy and security will play an important element within each of the strategic directions.

Drives toward digital integration and interoperability

Barriers to interoperability have made it difficult for health practitioners to fully embrace digital technologies. The implementation of new systems and solutions can contribute to further fragmentation if information sharing isn't a consideration up front. NBMPHN believes in approaches that move toward integration rather than building silos.

Facilitates a patient-centric view of care

As the reform environment changes, there has been an increased focus on placing the patient at the centre of their care. The digital environment for many providers does not adequately support a patient-centric view of care, and a core principle for NBMPHN as they advise, advocate for and educate healthcare professionals is to optimise the patient-centred view.

Leads the way and promotes shared learnings

As a trial site for Health Care Homes and opt-out option for My Health Record, NBMPHN is at the forefront of digital health of all PHNs nationally. NBMPHN intends to maintain the momentum of this recent change, and sharing best practices and learnings with other organisations.

Considers how digital can optimise new models of care

Digital technologies offer opportunities to rethink and redesign existing models of care, and in fact it is an important step in any digital health implementation to consider if a new model of care will further leverage the technology environment. NBMPHN intends to support their healthcare providers to explore suitable models of care and share the learnings of this across the region.

Improves data quality and completeness

Access to reliable and high quality data is a core element to delivering better care, reducing inefficiencies and curating a complete and accurate record of a patient's health. As such, encouraging uptake in uploading high quality data to clinical repositories that can be shared securely is an underlying principle of this strategy.

Removes digital fragmentation and silos

The primary healthcare sector must address the fragmentation and silos that prevent an integrated patient care journey across the health ecosystem. For instance these silos exist between primary care and other care levels (e.g. secondary and tertiary), and between public and private healthcare. As such, NBMPHN will seek practical ways to identify and break down these silos.

2.7 Implementation Considerations

NBMPHN's Digital Health Strategy is setting an innovative and ambitious direction in digital health for primary care. To optimise the success of this strategy over the next 3 years, the following implementation considerations must be taken into account.

- Incorporating a digital health component within all key programs, services and projects, rather than as a separate program of work. Funding and resourcing allocations that reflect this integrated approach across the PHN
- PHN multiyear commitment to supporting digital health strategy execution – integrated within available program funding
- Establishing a team with the right mix of skill and experience, including collaboration with staff from existing teams, to carry and ensure the continuity of longer term initiatives
- A detailed multiyear phased planning approach for implementation that fits within priorities and is refreshed annually
- Establishing strong knowledge management approaches that ensure digital health learnings, research and trends are able to be retained beyond individuals or roles for continuity
- An understanding of the limitations that are present within our LGAs such as limited internet connectivity within more rural regions
- Consideration to available capabilities in the market to assist with strategy delivery (i.e. presentation of education session, facilitation of relationship building, digital maturity analysis)
- The identification of key contacts within each organisation that can help support key initiatives in a co-design/collaborative facility – customer relationship management/account management approach
- The identification of in-flight initiatives and programs coordinated by other stakeholders that NBMPHN can contribute to or need to consider as competing demands when implementing
- The importance of connecting with our partners to utilise existing resources that can be shared and distributed to our community – establishment of joint communication planning and approaches
- Sensitivity to the perception from healthcare providers and partners that they are being given additional work or responsibilities
- Ability to identify the capacity and appetite of potential partners to engage in joint planning and initiatives
- Completion of operational planning for the Strategy implementation within 3 months of endorsement

is contained in section 3.2.

Glossary

Table 1 below defines the key terms used in the digital health strategy document.

Table 1: Glossary of Terms

Term	Description
Digital Health	Changes in the healthcare, preventive medicine and public health environment that is driven by the use of new and existing medical and health-related technologies ⁹
Electronic Referrals	Use of an electronic platform that enables the transfer of patient information
eMR	Electronic Medical Record: an electronic platform containing patient data and may also facilitate functions such as ordering, which is accessible to all treating clinicians with authorised access.
eReferral	Electronic based referral system used in NSW health
Health Care Homes	A Health Care Home is an existing general practice or Aboriginal Community Controlled Health Service (ACCHS) that provides primary health care in the one place, for people with chronic conditions ¹⁰
HealtheNet	An eHealth NSW program that connects the different systems within health and gives NSW health clinicians access to a patient's medical history from across all NSW LHDs and their My Health Record ¹¹
HealthPathways	An established model within the Australian health care setting that supports the development of integrated clinical care and referral pathways ¹²
Interoperability	It is the ability of independent systems to exchange meaningful information and initiate actions from each other in order to operate together for mutual benefit ¹³
My Health Record	A federal platform that gives health providers a secure online summary of a patient's health information
Telehealth	The use of telecommunication techniques for the purpose of providing telemedicine, medical education, and health education over a distance ¹⁴

⁹ Adapted definition from *The digitally engaged patient: Self-monitoring and self-care in the digital health era* by Deborah Lupton, 2006

¹⁰ Australian Department of Health, *Patient Brochure- Coordinated care for people with chronic conditions*

¹¹ Taken from eHealth NSW: <http://www.ehealth.nsw.gov.au/programs/clinical/healthenet>

¹² Taken from *Updated Activity Work Plan 2016-2018: Core Funding* by NBMPPH

¹³ Taken from *Cloud Computing Applications for Quality Health Care Delivery* by Anastasios Moutzoglou and Anastasia Kastania, 2014

¹⁴ Taken from Australian Government Department of Health: <http://www.health.gov.au/internet/main/publishing.nsf/content/e-health-telehealth>

Appendix A

Approach to Strategy Development

The development of the digital health strategy for Nepean Blue Mountains PHN involved the following high-level activities:

1. An analysis of the recurring and high priority digital health themes in the 3-5 year horizon
2. A current state assessment of digital health maturity of NBMPHN, with findings compared against future requirements by conducting a literature scan of the digital health environment in Australia and internationally
3. Stakeholder consultations with a varied group of individuals to inform the development of the strategy (See table below)
4. Development of a draft roadmap of initiatives based on stakeholder input and literature scan

To capture the complex and multi-faceted environment of primary care, a range of consultations with key stakeholders were conducted to inform the development of the digital health strategy. Their valuable insights and perspectives have helped to inform the guiding principles and key strategic initiatives that can be taken forward to enhance the digital health environment in the PHN in the next 3 years.

Name	Organisation	Title	Key Highlights
Dr. Kean-Seng Lim	General Practitioner in Western Sydney PHN	Member of Australian Medical Association Council	<ul style="list-style-type: none"> Dr Lim's practice has high digital maturity, including adoption of wearable technology and incorporation of patient-generated data into the patient record
Helen Purdy	Australian Digital Health Agency	National PHN Support Coordinator	<ul style="list-style-type: none"> The Agency is establishing a program to support PHN's with achieving My Health Record KPIs. 1 FTE will be assigned to work with NBMPHN
Julie Cashin	eHealth NSW	Program Director	<ul style="list-style-type: none"> eHealth NSW are open to partnering with other groups including NBMPHN Potential outcomes of partnerships discussed including enterprise licensing agreements and agreed list of recommended vendors Interested in enabling relationships between LHD and PHN
John Plahn	eHealth NSW	Program Manager	
Paul Sorial	eHealth NSW	Program Manager	
Dinah Graham	Medical Software Industry Association	Director	<ul style="list-style-type: none"> MSIA interested in collaborating further with the healthcare sector, particularly on workforce development, clarity on vendor capabilities Suggested NBMPHN to work with the PHN representative at Department of Health to bring PHNs together
Emma Hossack	Medical Software Industry Association	President	
Dianna O'Halloran	WentWest Limited	Chairperson of WentWest Limited, Member of the RACGP	<ul style="list-style-type: none"> Discussed market trend toward cloud solutions and the potential impacts this may have on PHN's receiving practice data
Belinda Hill	Belinda Hill & Associates-Speech Pathology & Occupational Therapy	Senior Speech Pathologist and Clinical Director, Member of the NBMPHN Allied Health Advisory Committee	<ul style="list-style-type: none"> Challenges for providers who are in private/public clinics – different platforms and systems to integrate Connectivity issues prevent even basic online platforms in certain areas of the region

Bronwyn Reed	St John of God Health Care	Allied Health Manager, Member of the NBMPHN Allied Health Advisory Committee	<ul style="list-style-type: none"> Some allied health providers utilising telehealth without funding to allow patients with distance and mobility barriers to access care Would like to see more support given to allied health workforce – perception is that GP adoption is the main concern
Diana Aspinall	Wentworth Healthcare	Board member of Wentworth Healthcare, Chairperson for the joint NBMPHN and NBMLHD Community Advisory Committee	<ul style="list-style-type: none"> Patient barriers to digital health are access, cost, connectivity, lack of consistency between care locations, user experience and product reliability, lack of mechanisms for patients/consumers to give feedback, computer literacy
Matt Ryan	Pharmacy Guild of Australia	Program Development Manager	<ul style="list-style-type: none"> The Guild is very interested in collaboration with NBMPHN and other stakeholder groups Have a structured digital health program and agenda, working with the Agency to fund a greater number of pharmacy software vendors to be compliant with My Health Record
Dr Michael Crampton	GP in Nepean Blue Mountains PHN	Clinical Lead, Western Sydney Integrated Care Program Director of Training, GP Pathway, Blacktown Hospital	<ul style="list-style-type: none"> Supportive of the PHN's role as an enabler for digital health decision-making rather than developing or promoting specific digital health solutions
Jennifer Craze	Dougherty's Pharmacy	Community Pharmacist	<ul style="list-style-type: none"> Pharmacies have a higher level of maturity due to the digitisation of medication dispensing and reporting to
Sheryn Phillips	Dougherty's Pharmacy	Pharmacist	
Lynne Paine	Nepean Blue Mountains LHD	Director of Information Management and Organisational Performance	<ul style="list-style-type: none"> NBMLHD is in foundational year of establishing digital environment and programs Currently refreshing strategic plan Interested in future collaboration Digital health initiatives are not coordinated by a single team, are instead distributed across various operational teams
Ashley Cooper	Nepean Blue Mountains LHD	ADirector, Information Communication Technology	

Appendix B

Localising the National Digital Health Strategy

The Australian Digital Health Agency (ADHA) have outlined the strategy for the national digital health agenda in “Australia’s National Digital Health Strategy”. The strategy includes guiding principles which underpin seven strategic priorities:

1. Health information that is available whenever and wherever it is needed
2. Health information that can be exchanged securely
3. High-quality data with a commonly understood meaning that can be used with confidence
4. Better availability and access to prescriptions and medicines information
5. Digitally-enabled models of care that improve accessibility, quality, safety and efficiency
6. A workforce confidently using digital health technologies to deliver health and care
7. A thriving digital health industry delivering world-class innovation

Each strategic priority is associated with activities to be delivered by 2022. The below table shows selected relevant strategies and activities with the ticks representing the current state of activity by NBMPHN.

Strategies and activities to be delivered by 2022	Current NBMPHN Role			
	Monitor and inform	Advocate and provide feedback	Provide Trusted Facilitation	Directly Implement
1. Health information that is available whenever and wherever it is needed				
- Every Australian will have a My Health Record, unless they choose not to have one, by the end of 2018.	✓	✓	✓	✓
- All healthcare providers will be able to contribute to and use health information in the My Health Record on behalf of their patients	✓	✓	✓	✓
2. Health information that can be exchanged securely				
- Every healthcare provider will have the ability to communicate with other professionals and their patients via secure digital channels if they so choose	✓	✓	✓	
- From within their chosen system healthcare providers will be able to search for other healthcare providers in a single directory, and easily and securely share clinical correspondence				
- Patients will be able to communicate with their healthcare providers using these digital channels				
- Patients’ health data will be safeguarded and able to be shared securely at their discretion	✓	✓		
3. High-quality data with a commonly understood meaning that can be used with confidence				
- Base-level requirements for using digital technology when providing care in Australia agreed with governments, peak clinical bodies and other key stakeholders.				
- Health services will be able to assess their level of digital maturity (the extent to which they are supported by the effective use of digital technology) and be supported in improving their level of digital maturity.	✓	✓	✓	✓
- Improvements in data quality and interoperability through the adoption of clinical terminologies, unique identifiers and data standards	✓	✓	✓	✓
- The safety and the quality of patient care will be improved by ensuring we have a connected health system that seamlessly shares high-quality data with the right people at the right time.	✓	✓	✓	✓
4. Better availability and access to prescriptions and medicines information				
- By the end of 2018, all consumers and their healthcare providers will have access to comprehensive views of their prescribed and dispensed medications through the My	✓	✓	✓	✓

Health Record system, irrespective of who prescribed and dispensed the medicine				
5. Digitally-enabled models of care that improve accessibility, quality, safety and efficiency				
- A number of pioneering initiatives – co-produced between consumers, governments, providers and entrepreneurs – to test evidence-based digital empowerment of key health priorities and then, where appropriate, to promote them nationally.				
- Priority health reform areas such as Health Care Homes chronic disease management, telehealth, babies' and children's health, residential aged care, end of life care, and emergency care will be a focus.	✓	✓	✓	✓
- By 2022, six test bed projects will have been launched, each of two years' duration. Four of these test bed projects will have been evaluated and the learning from two test bed projects will have been rolled out across Australia	✓	✓	✓	✓
6. A workforce confidently using digital health technologies to deliver health and care				
- The Agency will collaborate with governments, care providers and partners in workforce education to develop comprehensive proposals so that by 2022, all healthcare professionals will have access to resources that will support them in confident and efficient use of digital services.				
- Resources and curricula will be developed to ensure all healthcare practitioners are exposed to and trained in digital technologies and their use during training and upskilling.				
- A comprehensive set of clinical resources which clearly outline the evidence for how, when and where digital health should be used in everyday clinical practice.				
- Promotion of a network of chief clinical information champions to drive cultural change and awareness of digital health within the health sector.	✓	✓	✓	✓
7. A thriving digital health industry delivering world-class innovation				
- Australians will have better and more informed access to safe, quality health applications, tools and content, through a digital services endorsement framework that will be co-produced with clinical, design and innovation leaders.				
- A new health innovation exchange will be established, where clinicians, researchers and entrepreneurs use data to identify opportunities to work collaboratively on designing digital health solutions				
- The Agency will work with industry to evolve the developer support program to reduce barriers to innovation and enable opportunities for better integration with the My Health Record system and other digital services.				
- The Agency will consult with the community on development of a comprehensive approach to digital inclusion, to ensure new innovations do not leave anyone behind.				
- Adoption will be accelerated by providing best practice design principles and guidelines to improve usability and user experience.				

In addition to the activities currently being undertaken by NBMPHN, elements of the National Digital Health Strategy relevant for NBMPHN to maintain its status as a leading digital health PHN are outlined following:

1. Health information that is available whenever and wherever it is needed

NBMPHN Direction

- Continue the promotion and uptake of My Health Record particularly with a focus on allied health providers and pharmacies

2. Health information that can be exchanged securely

NBMPHN Direction

- Continue to focus on building the secure messaging capacity of healthcare providers in the region. Monitor progress, advocate and provide feedback on the evolving interoperability between secure messaging providers. The aim is for providers being able to securely and seamlessly exchange information regardless of their chosen system
- Monitor progress on patients' ability to securely communicate with healthcare providers

3. High-quality data with a commonly understood meaning that can be used with confidence

NBMPHN Direction

- Monitor and feedback on interoperability standards and adoption.
- Continue to assist healthcare providers with assessing their level of digital maturity.
- Continue to assist healthcare providers with data quality and the implementation of healthcare identifiers

4. Better availability and access to prescriptions and medicines information

NBMPHN Direction

- Continue to promote the addition of the Medicines Information view to My Health Record. Increase the number of GPs doing electronic prescribing and the number of pharmacies providing dispensing information to My Health Record.
- Monitor and promote paper free options for medicines management

5. Digitally-enabled models of care that improve accessibility, quality, safety and efficiency

NBMPHN Direction

- Monitor and assist providers seeking to implement new models of care which incorporate a digital component particularly in the context of Health Care Homes and the care of patients in RACFs

6. A workforce confidently using digital health technologies to deliver health and care

NBMPHN Direction

- Monitor and inform healthcare providers in the region of available resources to enhance their knowledge and confidence in digital services and technologies.
- Identify and use clinical digital health champions to help in the uptake of digital initiatives within the region

7. A thriving digital health industry delivering world-class innovation

NBMPHN Direction

- Monitor and promote quality health applications and tools to the NBMPHN population.
- Promote opportunities for NBMPHN clinicians to work with researchers and entrepreneurs to collaboratively design digital health solutions.
- Monitor and feedback to the ADHA on digital inclusion for all groups of the NBMPHN population

Appendix C

LGA Digital Maturity Indicators

The table below provides summary information of the digital maturity and specific needs and challenges at an LGA level.

LGA region	Sample population characteristics	Digital maturity indicators	Particular needs/challenges
Blue Mountains	<ul style="list-style-type: none"> • Second highest percentage in the region of people aged 70 years and over • Population projection for those 70 years or older are predicted to be higher than NSW state average • Rates of suicide and self-inflicted death are higher than state average 	<ul style="list-style-type: none"> • Lower digital health maturity relative to region, however higher than other remote areas due to My Health Record opt-out trial 	<ul style="list-style-type: none"> • Access to specialist care is limited due to health workforce shortages • Difficulties accessing After Hours General Practice • Connectivity constraints
Hawkesbury	<ul style="list-style-type: none"> • Unhealthy levels of alcohol consumption are higher than State average • Population projection for those 70 years or older are predicted to be higher than NSW state average 	<ul style="list-style-type: none"> • Limited infrastructure for electronic communications in the region between primary and secondary care • Connectivity issues prevent use of some technologies such as telehealth 	<ul style="list-style-type: none"> • Connectivity constraints
Lithgow	<ul style="list-style-type: none"> • Unhealthy levels of alcohol consumption are higher than State average • Highest percentage of people in the region aged 70 years and over • Highest proportion of Aboriginal and Torres Strait Islander population compared to other LGAs 	<ul style="list-style-type: none"> • Lower digital health maturity relative to region, however higher than other remote areas due to My Health Record opt-out trial 	<ul style="list-style-type: none"> • Access to specialist care is limited due to health workforce shortages • Difficulties accessing After Hours General Practice
Penrith	<ul style="list-style-type: none"> • Most populated LGA in the region • Rapid population growth expected in future years • High incidence of domestic violence (difficulties in accessing services) 	<ul style="list-style-type: none"> • Highest digital maturity of the NBMPHN region • Allied health practices utilising telehealth 	<ul style="list-style-type: none"> • High demand for primary care services

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Secure Messaging Telehealth Wearables Remote Health Monitoring HealthPathways My Health Record Mobile Health Applications Digital Data Sharing Electronic Prescribing

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