Digital Health Strategy 2019–2029

Enabling exemplary person-centred care through digital innovation

ACT Government | ACT Health

health.act.gov.au/digital

ACKNOWLEDGMENT OF COUNTRY

ACT Health Directorate acknowledges the Traditional Custodians of the land, the Ngunnawal people. The Directorate respects their continuing culture and connections to the land and the unique contributions they make to the life of this area. It also acknowledges and welcomes Aboriginal and Torres Strait Islander peoples who are part of the community we serve.

ACCESSIBILITY

The ACT Government is committed to making its information, services, events and venues as accessible as possible.

If you have difficulty reading a standard printed document and would like to receive this publication in an alternative format such as large print, please phone 13 22 81 or email HealthACT@act.gov.au

If English is not your first language and you require a translating and interpreting service, please phone Canberra Connect on 13 22 81.

If you are deaf, or have a speech or hearing impairment and need the teletypewriter service, please phone 13 36 77 and ask for 13 22 81.

For speak and listen users, please phone 1300 555 727 and ask for 13 22 81. For more information on these services visit www.relayservice.com.au

© Australian Capital Territory, Canberra, MAY 2019.

This work is copyright. Apart from any use as permitted under the Copyright Act 1968, no part may be reproduced by any process without written permission from the Territory Records Office, ACT Government, GPO Box 158, Canberra City ACT 2601.

Enquiries about this publication should be directed to the ACT Health Directorate, Communications and Government Relations, GPO Box 825, Canberra City ACT 2601.

www.health.act.gov.au | www.act.gov.au

Enquiries: Canberra 13ACT1 or 13 22 81
Publication No. 19/0362

Contents

5 FOREWORD

6 INTRODUCTION

8 CONTEXT

9 The Global Context
10 The Local Context
12 ACT Health Territory Wide Health Service Strategy
13 ACT Health Quality Strategy 2018–2028

14 VISION

16 Digital Health Strategic Themes
17 Digital Future Ready Technology

18 DRIVERS AND ENABLERS

21 STRATEGIC RESPONSE

21 Guiding Principles
23 Priority Areas for Investment
25 High-Level Roadmap
26 Realising the Strategy

27 MEASURING SUCCESS

28 Performance Measures

29 WHAT THIS MIGHT LOOK LIKE

Digital Health vision

Enabling exemplary person-centred care through digital innovation

Foreword

I am delighted to present the ACT Health Directorate Digital Health Strategy 2019-2029.

This document outlines ACT Health Directorate's strategic vision for enabling and delivering exemplary person-centred care through digital innovation.

We live in an increasingly digital world, and this provides exciting opportunities to improve the way healthcare services are delivered to our community through new innovative ideas. Investing in modern technology across the ACT's health system is critical to supporting healthcare professionals to providing contemporary, holistic care. Equally important to this is empowering people receiving healthcare, with ease of access to and the ability to manage their own healthcare information through appropriate systems.

This strategy sets a strong vision for ensuring delivery of world-class, contemporary healthcare. In conjunction with stakeholders across the ACT, Australia and internationally, the strategy aims to learn from the experiences faced by others and deliver the most advanced and highly acclaimed technology solutions.

This strategy is integrally linked with the ACT Health Quality Strategy 2018-2028. Both of these strategies ensure that the ACT Health Directorate is striving to facilitate the highest standards of quality care that is person-centred, safe and effective. The Digital Health Strategy also strongly supports the ACT Health Territory Wide Health Strategy 2019-2029, outlining opportunities to integrate new technology and innovation directly into patient care to improve the quality and safety of healthcare delivery.

The development of the Digital Health Strategy has been completed in consultation with ACT Health Directorate, Canberra Health Services and Calvary Public Hospital Bruce staff, health professional organisations, colleges, societies and health consumer representative groups. This strategy is essential in the vision it provides for change in the delivery of care and access to critically important information.

I look forward to seeing the innovation that can be delivered across our public health services that the ACT Health Directorate delivers through this strategy. This will lead to improved health outcomes for our community as a result of the ability to improve access to information and provision of continuity of healthcare in the ACT.

Meegan Fitzharris MLA
Minister for Health and Wellbeing

May 2019

Introduction

The Digital Health Strategy presents a vision and direction to guide future activities and investments in technology across the Territory. It outlines the direction for the ACT public health system in building the digital capabilities needed to support a sustainable, innovative and world-class health system for the ACT. The strategy also sets principles to guide the design and development of digital health capabilities to support the delivery of safe and high-quality person-centred care. Most of all, the strategy illustrates a desired future state for the ACT with regard to digital health.

The following three strategic themes set the foundations for the ACT Health Directorate's Digital Health Strategy:

Assemble all information about a patient (care plan, progress, therapies, medications, etc.) relevant to the patient's physical and mental health and overall wellbeing. These details, coupled with relevant external data, will provide a holistic patient-centred view that will be accessible in a way that will suit them.

Provide a technologically advanced health system that is secure, consistent across services and accessible—that is capable of ensuring that up to date patient information is available when required. Automated administrative tasks and investment in robust infrastructure will ensure future demands are met.

Enable an effective, efficient, and collaborative environment for multi-disciplinary stakeholders across the care continuum to focus on what matters most: patient care.

Context

In planning for the future, the ACT Health Directorate has developed a set of key strategic priorities and objectives to guide the development of future health services across the public healthcare system in the ACT. The Directorate is also investing in a range of important strategies to operationalise these objectives and support reform priorities.

HIGH PERFORMING AND SAFE HEALTH SYSTEM

PERSON-CENTRED SERVICES; SAFE EFFECTIVE CARE

Strategic Goal 1: ACCESS	Strategic Goal 2: ACCOUNTABILITY	Strategic Goal 3: SUSTAINABILITY
Providing the right service, at the right time, in the right place, and by the right team — every time	**Robust and transparent decision making that supports the health system**	**Strategic investment to support health services now and into the future**
Key strategies: • Territory Wide Health Services Strategy • Building Health Services Program • ACT Regional Mental Health and Suicide Prevention Plan	**Key strategies:** • Workforce Strategy • Quality Strategy • Performance, Reporting and Data Management Strategy	**Key strategies:** • Digital Health Strategy • Research Strategy • ACT Preventive Health and Wellbeing Plan

This strategy was developed taking into account the strategic context in which person-centred care is delivered in the ACT. Global, national, and regional considerations were taken into account to ensure the ACT is well positioned to meet future demands and challenges.

The Global Context

External forces are shaping the nature of health services delivery, these include an increasing focus on population health, changing models of care, advances in Health IT, and evolving fiscal landscape.

1. Population health and community expectations

Increasing recognition of the benefits of preventative health and early intervention

2. Models of care

- Person-centred care
- Delivery of care closer to people's homes
- Precision and personalised medicine
- Telehealth and virtual care delivery

3. Advances in health technology

- Rapid technical advancements, along with growth and availability of data
- Substantial State and Commonwealth Government investments (for example, My Health Record)
- Large investments in electronic medical record systems internationally
- Commercial application of technologies such as Artificial Intelligence, Internet of Things, Robotics

4. Rising medical costs

More expensive medical services per person coupled with more frequent access

- Quality of treatment with advancements in technologies, facilities, and medical training
- Increasing percentage of state and territory budgets

5. Dynamic funding environment devoted to healthcare

- Continued focus on standardised hospital pricing through activity-based funding
- Emerging focus on accountable care by governments and private health insurers

The Local Context

The ACT community has access to an extensive range of health services – from intensive care to pathology to mental health – delivered from the Canberra, Calvary Public and University of Canberra Hospitals, Walk-in Centres, community-based venues, as well as in peoples' homes. In addition, Canberra Health Services provides health services to residents of NSW, particularly those located in the southern region of the state.

Population growth and demographic change will have a significant impact on the demand for health services in the ACT in the coming years. The ACT Government population forecasts (March 2017) predict the ACT's population will increase from 402,549 persons in 2017 to 470,839 persons in 2027 (16.9% growth). This is projected to be coupled with an increase in the proportion of the population aged over 65 years.

The ACT Government Digital Strategy outlines three strategic principles:

- Growing the Digital Economy,
- Delivering Digital Services, and
- Building Digital Foundations.

These strategic principles aim to ensure we continue to build on the digital foundations already available to deliver more integrated and efficient digital solutions for all healthcare providers, health consumers, families and carers.

The ACT Health Directorate works closely with the Australian Digital Health Agency. As the operator of the first public hospital to send discharge summaries to the My Health Record, the ACT Government remains committed to increasing the number and types of documents fed to and received from the My Health Record, to increase access to information for healthcare organisations nationally.

The Healthcare Information and Management Systems Society (HIMSS) have an Analytics Electronic Medical Record Adoption Model (EMRAM). This model incorporates methodology and algorithms which automatically score hospitals around the world relative to their Electronic Medical Records capability. The score scale range is between 0 – 7. Canberra Health Services have been rated as 1.5. This strategy outlines how the ACT will work towards increasing our rating and adopt a Digital Health Record.

The overall investment in health by the ACT Government today stands at $1.7 billion annually. Included in this are investments in technology and digital-enabled solutions to assist in delivering safe, effective and efficient services.

PATIENT-CENTRED

Achievements to date

Smart patient meal system, Health Services Directory, NICU webcam, Public Wi-Fi, ACT Health website refresh, improvements to patient entertainment and information.

Current activities

Expansion of queue management, electronic wayfinding, replacement of the Laboratory Information System and release of an acute care information mobile app.

COLLABORATION AND RESEARCH

Achievements to date

Single Patient Administrative System, Master Patient Index, alerts management, pathology and radiology reports sent to My Health Record.

Current activities

Patient information exchange with primary care, standardised clinical terminology, single patient Digital Health Record.

CONTEMPORARY TECHNOLOGY

Achievements to date

Electronic ordering for pathology and imaging, deteriorating patient system, medication management, referrals and the build and launch of new facilities.

Current activities

Electronic patient journey boards for clinical planning, mobile clinical communications and digital record access.

Pictured below:
Imaging results via Clinical Portal (RIS-PACS)

Figure: Some of the technological achievements made across the ACT public health system.

While there has been progress in technology, there remains significant areas for improvement, primarily as a result of:

- The implementation of multiple service-specific systems (a best-of-breed approach) that has led to pockets of excellence but also fragmentation and siloing of information within individual systems
- Proliferation of systems making change difficult, due to complex integration requirements (currently more than 250 systems)
- Decentralised system management
- Multiple sources of patient information
- Reliance on paper-based records (currently "hybrid records")
- Many demands for resource allocation in a difficult fiscal environment
- Ageing infrastructure that requires investment to meet the demands of contemporary health service.

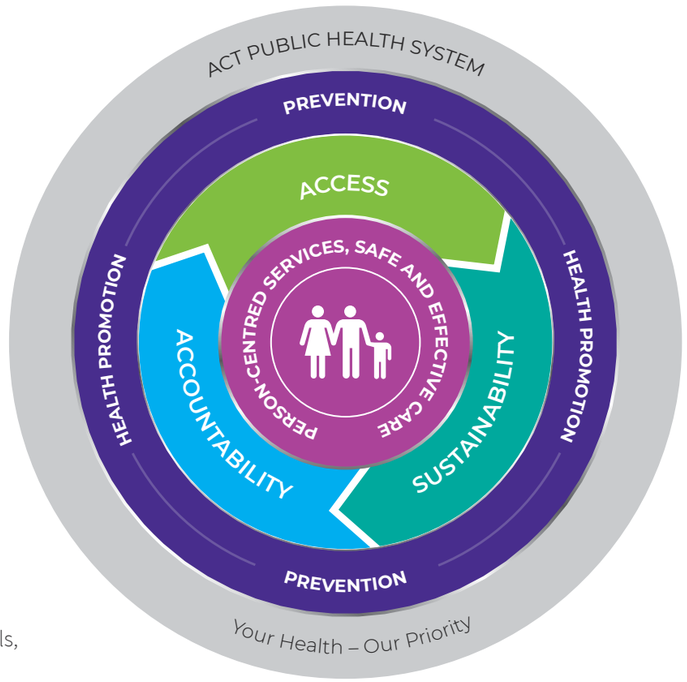
To continue building for the future, the Digital Health Strategy identifies capability focus areas over the next 10 years. It aims to address the issues highlighted above, whilst minimising risks associated with delivering on healthcare needs.

Territory Wide Health Services Strategy

Providing the right service, at the right time, in the right place, and by the right team—every time.

The Directorate has developed a Territory Wide Health Services Strategy. This strategy is a high-level strategic plan that establishes the overarching principles to guide the development and redesign of healthcare services across the Territory from 2019-2029.

This strategy is a key aspect of the Directorate's ongoing commitment to making "Your Health – Our Priority" for all Canberrans and is aligned with the organisation's vision, values, strategic goals, and objectives.



ACT Health Quality Strategy 2018 – 2028

Person-centred, safe and effective care

The ACT Health Quality Strategy 2018-2028 provides a framework through which improvement in the services offered to people can be focused and measured. The Quality Strategy sets out how quality will be improved across the the public health system and will build on work already achieved. It presents a shared understanding of quality, with a commitment to place safety, quality and people at the centre of everything ACT Health Directorate does.

ACT Health Directorate's ambition is to be a high performing public health system that provides person-centred, safe and effective care.

ACT Health Directorate will need to work across health services to ensure integration of quality in the delivery of person-centred, safe, effective and high-quality care. It will achieve this by focusing on three strategic priorities in relation to quality:

STRATEGIC PRIORITY 1: **Person-centred – Improve the experience of care.**

Person-centred care is a way of thinking and doing things that sees healthcare users as equal partners in planning, delivering and monitoring the improvement of safe, quality care that meets their needs. This means putting people and their families at the centre of decisions and seeing them as experts, working alongside health professionals to achieve the best outcomes.

STRATEGIC PRIORITY 2: **Patient Safety – Proactively seek a reduction in patient harm.**

ACT Health Directorate's first obligation is to ensure that by coming into any ACT healthcare service, every effort is made to keep patients safe and the risk of harm is reduced.

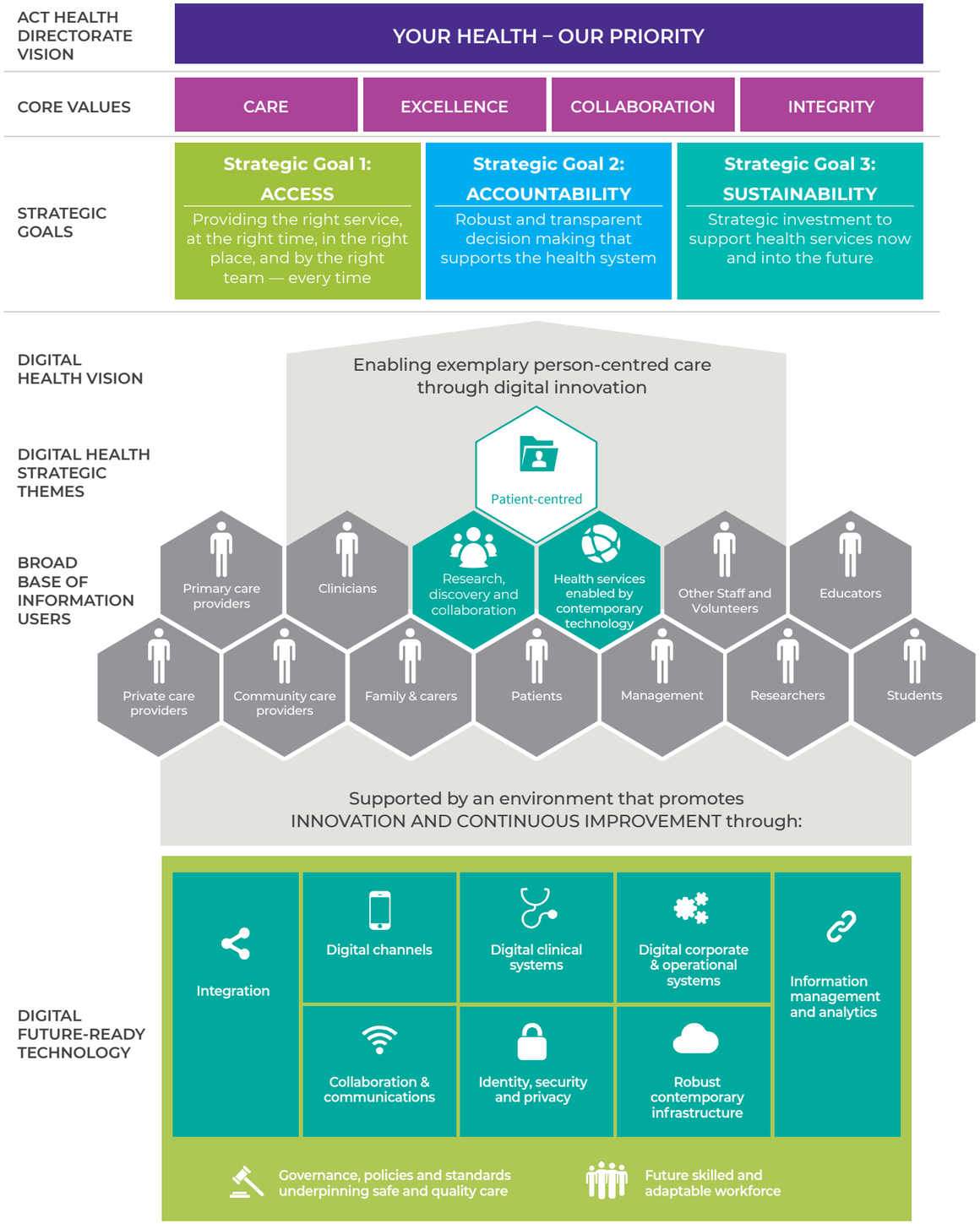
STRATEGIC PRIORITY 3: **Effective Care – Best evidence for every person, every time.**

An effective healthcare system is one that promotes and supports evidence-based, effective and reliable care provision. There should be no variation in the quality of care, which should be provided in an atmosphere of mutual trust where staff members can talk freely about safety problems and how to solve them.

Vision

Enabling exemplary person-centred care through digital innovation.

The ACT Health Directorate's Digital Health Strategy is based on a Digital Health vision that describes a foundational and future ready Digital Health environment that is aligned to the Territory Wide Health Services Strategy's vision, core values and strategic goals.



Digital Health Strategic Themes

Three strategic themes support the vision for the ACT Health's Directorates Digital Health Strategy. The desired future state relevant to each of these strategic themes is outlined below.

PATIENT-CENTRED

The Directorate aims to develop a patient-centred digital health environment that delivers on the principle of "One Person, One Record".

This digital health environment will provide intuitive tools that enable clinicians to access and interact with the record to support their models of care, clinical workflows and other clinical guidelines and practices across disciplines, physical locations and organisations.

A digital health environment that delivers a single, trusted health record for every person engaging with ACT Government publicly funded health services will help to enable the delivery of safe and high quality patient centred care. This will facilitate greater engagement and empowerment of the person receiving care, supporting integrated and networked models of care and service delivery, achieving the integration of research and education, and delivering a productive and efficient health workforce.

ACT Government publicly funded health services form only one part of a person's journey, with the majority of their care received from primary and community care providers. This is particularly true of individuals with complex and chronic conditions which are increasingly prevalent across much of the Australian population.

A modern technology system would ensure that national and cross-jurisdictional initiatives such as the My Health Record could be integrated with and available to clinicians in conjunction with live up to date data from an ACT perspective. The Directorate's digital health environment must enable it to operate effectively as part of this broader network that delivers care to residents of the ACT and southern NSW.

HEALTH SERVICES ENABLED BY CONTEMPORARY TECHNOLOGY

Contemporary technology will enable healthcare providers seamless access to a person's clinical information at the point of care. Availability of up to date information on patients is integral for clinical staff to ensure the delivery of safe and high-quality person-centred care.

A Digital Health Record would enable clinical staff to have access to their patient's information on any device at any place. The technology would be the same across service providers and ensure that clinical staff had access to the right information at the right time to facilitate the best form of patient centred care.

Robust infrastructure will ensure ongoing seamless and secure access to clinical information and systems in a more economically sustainable manner. Automation of core administrative tasks and communication will free staff up to focus on clinical care.

RESEARCH, DISCOVERY AND COLLABORATION

Achieving the vision of integrated clinical care, research and education requires effective multidisciplinary teamwork, collaboration and knowledge sharing across Canberra Health Services, as well as with academic and research partners, and other clinical, research and educational institutions in ACT, across Australia, and internationally. The objective is for technology to enable multi-disciplinary and multi-institutional teams to share knowledge, collaborate and communicate across traditional physical, geographic, organisational and technological barriers and make continuous quality improvements. This includes the ability to share research data assets and other forms of information in a secure manner within the context of ethics, privacy and organisational intellectual property controls.

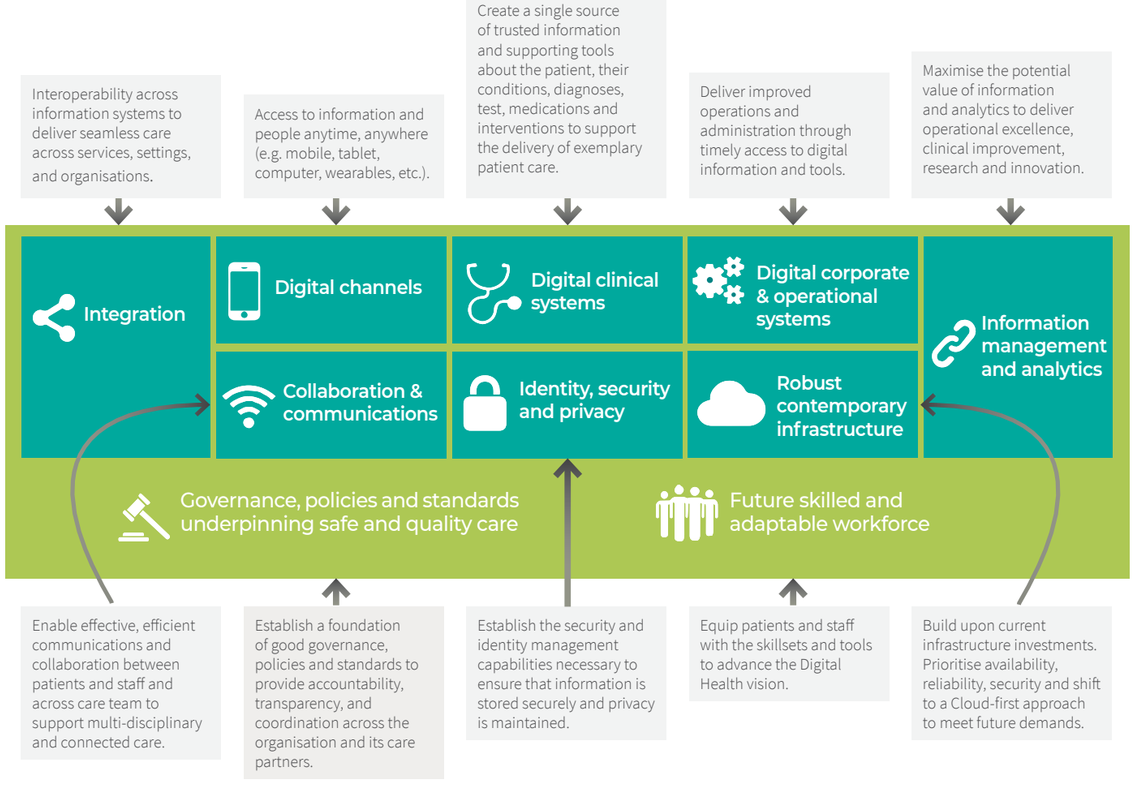
The digital health environment will support staff in discovering and connecting with other people that have the skills, knowledge and expertise to make a positive contributions, be that related to patient care, research, or education and training.

The digital heath environment will support access to technology that:

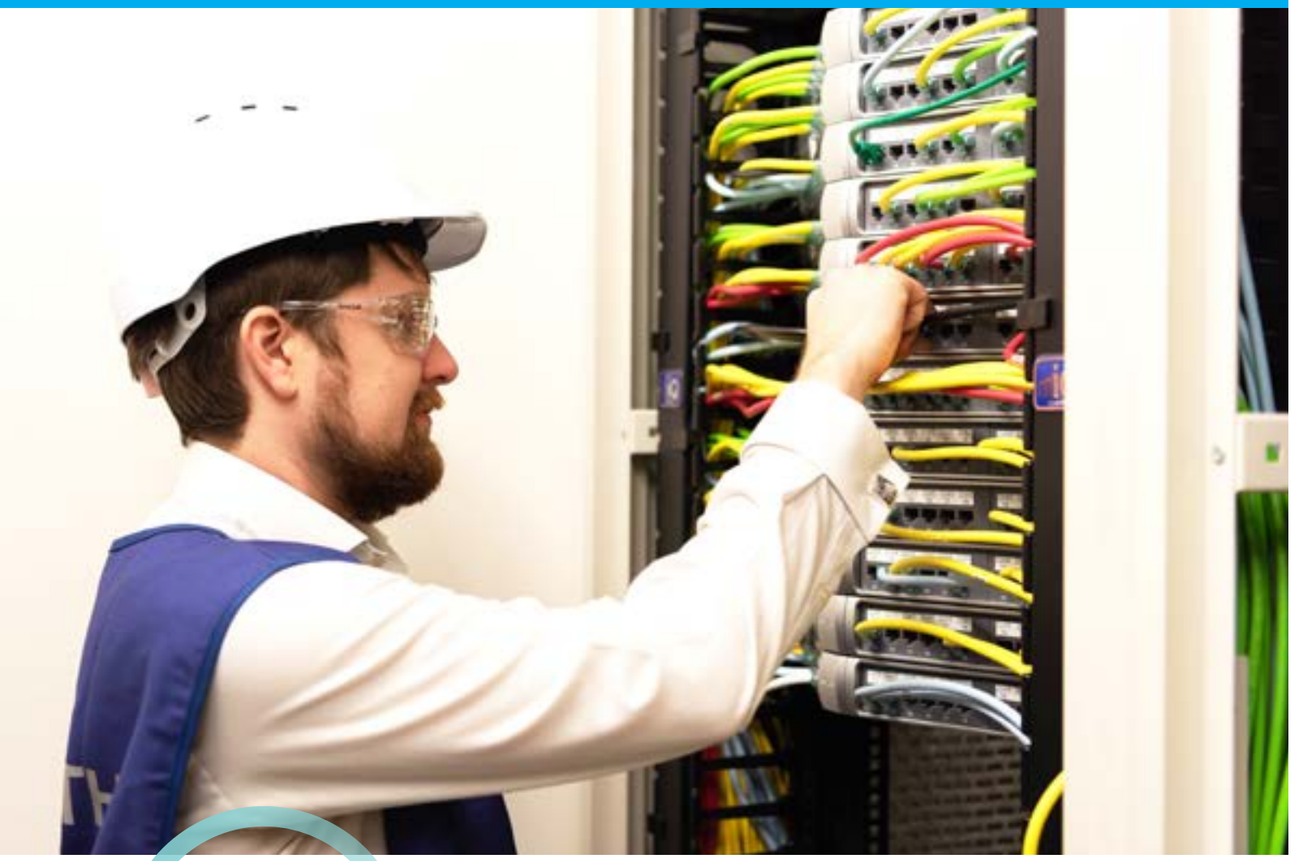
- Enables learning from every patient encounter and from every piece of electronic data
- Adapts to the increasing quantity and complexity of data
- Provides intuitive and flexible research and analysis tools that are accessible to a wide range of users
- Supports continual improvement in clinical care, research, education and health service management
- Balances accessibility and protection of data
- Increases the effectiveness and efficiency of clinical trials as well as other research and improvement activities.

Digital Future Ready Technology

The ACT Health Directorate's Digital Future Ready Technology will support the vision and promote innovation and continuous learning through:



Drivers and enablers



To deliver the Digital Health vision and the three strategic themes, the Directorate will establish a broad set of Digital Health drivers and enablers across ACT Government publicly funded health services and facilities. These Digital Health capabilities can be categorised according to the Digital Future Ready Technology domains identified in the diagram overleaf.

Digital Future Ready Technology Domain	Digital Health Capability
Integration	**Clinical information integration** Ensures that clinical information is shared across systems to provide clinicians with a single view of all available patient information to inform clinical decision-making.
	Organisational integration and workflow Secure, effective and timely information sharing between Canberra Health Services, Calvary Public Hospital Bruce, partner organisations and the national My Health Record to enable collaborative and team based care across the care landscape.
Digital Channels	**Digital channels and devices** Enables patients, carers, families, staff and partners to access information wherever and whenever they need it on the digital device of their choice.
Digital Clinical Systems	**Person-centred clinical record** A single point of trusted information about the person, their conditions, diagnoses, tests, medications and interventions.
	Clinical decision support Clinically focused digital analytics capabilities that use clinical rules, limits and best practice to guide clinical decision making.
	Clinical treatment services Supporting assessments, tests, treatments and clinical decision making for specialist clinical disciplines.
	Clinical diagnostic and medication services Delivery of clinical diagnostic and medication services including medical imaging, pathology and pharmacy.
	Patient administration Supporting the administration and management of patient services as well as clinical coding, activity reporting, billing and claiming.
	Patient flow and bed management Digital capabilities that support the flow of patients through the clinical services as well as the management of beds to ensure timely patient treatment.

Digital Future Ready Technology Domain	Digital Health Capability
Digital corporate and operational systems	**Operational support services** Streamlining the requesting, scheduling and management of operational services such as linen, cleaning, meals, and patient transport services to ensure the efficient delivery of patient care and support.
	Facility management services Efficient management of facilities such as hospitals and clinics including building and environmental management, security, maintenance, emergency management and medical gasses.
	Corporate support services Supporting the corporate functions including financial management, human resource management, supply chain management and government reporting.
Collaboration and communications	**Collaboration and networking** Improving communication between clinical and research staff to enhance team based and collaborative care as well supporting clinical research.
Identity, security and privacy	**Identity and access management** Ensures that digital information is secure and is only accessible by those who have the right to access and use that information.
Robust, contemporary infrastructure	**Technology infrastructure** Contemporary and robust technology infrastructure that supports the digital health capabilities required to realise the Digital Health vision.
Information management and analytics	**Information management, analytics and reporting** Advanced information management, data analytics, forecasting and reporting capabilities that allow staff to draw insights and intelligence from the vast array of data collected by the organisation to inform clinical, operational, planning and organisational decision making to deliver more effective, efficient and sustainable health services to the people of the ACT.
	Medical research Information services and tools that support the delivery of impactful medical and translational research within health facilities and with research partners.
	Quality and safety improvement Easily identify quality and safety improvements in care delivery and operations across the ACT and with care partners.

Strategic Response

Guiding Principles

Investment in ACT public health system's future digital health environment will be guided by a set of architectural principles to ensure a consistent and structured approach to the delivery of digital health capabilities.

Principle	Meaning
People first	Puts people receiving healthcare first in terms of maximising the quality and safety of care they receive from an organisation and its partners.
Use integrated solution suites	Makes maximum use of integrated solution suites to ensure the delivery of integrated clinical, operational and business systems that avoid the siloing of information that exists today. Best of breed solutions will only be considered where a compelling case can be made for their implementation—with consideration of the integration impacts along with the more obvious functional, technical, cost and risk considerations.
Single source of truth for critical information	Delivers a single digital source of truth for critical clinical information such as medications, conditions, allergies, and alerts. This information is used to support clinical decision making across various care settings, drive electronic decision support and other automated care delivery tools, and enable high impact research through integrated data sets. A single source of truth should be available to all members of the care team, whether they are employed by or students with ACT Government publicly funded health service organisations or are community based clinicians such as GPs, nurses and allied health professionals, to support the quality and safety of healthcare delivery.
Shared enterprise services	Minimises the diversity of solutions, medical technologies, supporting platforms and technologies across the organisation by adopting an enterprise approach to their delivery and usage. This will provide access to higher economies of scale as well as reducing operational spend through enabling shared support resourcing and making staff transfers easier.
Leverage existing investments	Leverages existing solutions where the solution: • aligns with and contributes towards realising the future vision for the digital health environment • does not present risk for the organisation, from either a functional or technical perspective • will not introduce additional unsustainable integration complexity.
Support integrated workflows	Integrates clinical workflows to minimise the number of separate solutions that staff are required to use to support integrated clinical workflows in order to diminish clinical safety risks and workforce inefficiencies. This will also streamline on-boarding of new staff and training effort.
Support a mobile workforce	Supports staff in accessing clinical information and clinical services when and where it is needed to support care delivery.
Contemporary integration approaches	Promotes contemporary approaches to integration in order to minimise point-to-point interfaces , deliver greater agility and reusability, facilitate faster and more efficient auditing, and improve the ability to maintain systems integration.
National Digital Health integration	Implements national Digital Health standards with a particular focus on interoperability and integration with the national My Health Record system and other national Digital Health services to support the sharing of information with patients and other providers across the continuum of care.
Ensure security and privacy	Ensures the security and privacy of information in accordance with ACT Government privacy and security policies and legislation.

Priority Areas for Investment

Achieving the future state outlined in this strategy will require significant investment in technology. Four priority areas for investment are outlined below.

Digital Clinical Systems

Canberra Health Services currently operates on a hybrid model, with both paper and electronic record keeping systems in place. Of the electronic systems there are a number that perform medical record functions. These include Emergency Medicine (EDIS), ICU (Metavision), radiation oncology (ARIA), cancer (CHARM), Renal (Cv5), Mental Health (MAJICeR), Cardiology Systems (Cardiobase, Synapse, and a number of other systems). This environment makes it challenging to deliver a seamless experience for patients and staff. Providing the right care, at the right time, hinges on ensuring that complete and timely information can be accessed by care-givers when and where required to inform clinical decision making.

Investment will provide a single, comprehensive, contemporary, trusted, real-time person-centred clinical record that can be accessed by all members of the treating team regardless of physical location. This single record will capture all clinical interactions, performed in one central repository, which will provide a consistent and accurate information based on which to deliver improved clinical decision support with advanced tools and a more complete view of patient information.

Investment will also allow improved patient scheduling and administration as well as building the foundations for patient self-service. An integrated Digital Health Record will also provide a platform to support future directions in person-centred care such as the use of genomics in precise and personalised medicine as well as providing an information base from which to drive a focus on population and preventative healthcare.

Patient-centred

Health services enabled by contemporary technology

Research, discovery and collaboration

Diagnostic and medication services

Pathology plays a critical role in the diagnosis of patient conditions and informing clinical treatment design and decision-making. The computer systems that support the pathology service play a significant role in tracking pathology requests, recording and managing pathology test specimens and test results and providing test results to clinicians.

Investment in a new laboratory information system (LIS) has now been made a priority with funding provided in the 2018-19 ACT Government Budget. The ability to now provide a contemporary digital platform for pathology will provide clinicians with timely and efficient access to patient test results.

Patient-centred

Health services enabled by contemporary technology

Research, discovery and collaboration

Digital corporate and operational systems

The Purchasing and Inventory Control System (PICS) is part of the critical infrastructure that supports the operations of Canberra Health Services. PICS is the IT system used by over 3,000 staff to order the clinical and non-clinical goods and services that support operations and the delivery of healthcare services. The system processes all purchase orders and supply chain activities. Surgery relies heavily on PICS for the surgeon preference cards that are used to set up an operating room for each procedure that will be performed. PICS is also the main system across hospitals for clinical goods.

Investment for the replacement of PICS was provided in the ACT Government 2018-19 Budget and will ensure critical systems and infrastructure are replaced to support the continued effective delivery of services. The investment from the 2018-19 Budget will ensure delivery of a modern procurement and supply chain management solution which will deliver new capabilities to support the tracking and management of inventory. These new capabilities will deliver new benefits in the form of reductions in over ordering, better management of inventory-on-hand and reduced wastage of perishable supplies.

Patient-centred

Health services enabled by contemporary technology

Research, discovery and collaboration

Collaboration and communications

Switchboard and Paging systems serve as a critical messaging infrastructure for Canberra Health Services. These systems are responsible for communicating emergency situations within the hospitals such as Code Blue (Medical Emergency) and Code Black (Security Emergency such as bomb threats). Medical emergencies (Code Blue) that necessitate an urgent response from a Medical Emergency Team are presently communicated through the paging service. Investment was provided for a new communication solution and clinical devices in the ACT Government 2018-19 Budget.

This funding will replace Switchboard and Paging systems and enable significant improvement to messaging and communication across Canberra Health Service, including notifications when a message has been received and actioned, simpler integration with other systems, data to support monitoring to enable workflow improvements and allocation of resources. Another advantage is that the communication system will able to be implemented territory wide, contributing to the seamless care of patients regardless of location.

Patient-centred

Health services enabled by contemporary technology

Research, discovery and collaboration

High-Level Roadmap

The following is a high-level roadmap that describes the logical sequencing of work to move towards the future environment.

	Horizon 1 0-2 Years	Horizon 2 2-5 Years	Horizon 3 5-10 Years
Our vision Enabling exemplary person-centred care through digital innovation.			
Our patients, carers and families Engaged and connected to the health services in achieving their health objectives.	Patients have consistent interactions that address their health and wellbeing.	Patients experience, consistent, coordinated and integrated health services across all their care providers.	All people are proactively engaged in the management of their care and early intervention outside the hospital environment to improve health and wellbeing.
Our people Our people are provided with the information they need to make effective decisions in delivering and managing care.	Our people have access to accurate, trusted and complete information to improve clinical, operational and management decision-making	Our people efficiently deliver care and manage our operations using data, systems and processes integrated across the care landscape.	Our people use information and analytics to personalise the delivery of care, target early interventions and manage the delivery of services in an efficient and sustainable manner.
Our health system Enabling exemplary person-centred care through digital innovation.	The organisation has access to consistent corporate and operational systems underpinned by robust infrastructure, governance, policies and standards.	The organisation has access to integrated information across the care landscape to more effectively plan and manage service demand and delivery.	The organisation has access to sophisticated information and analytics to manage citizen health and target early interventions.
Our partners We share information with our partners to enable them to participate in integrated care delivery.	Information can be shared with key partners to improve system efficiency, patient safety and the delivery of coordinated care.	First responders and emergency clinicians are able to share information in real-time. Digital health enables new integrated models of care, co-designed with appropriate stakeholders.	We work seamlessly with care partners to provide integrated care to patients
Priority Areas for Investment To realise Digital Health vision.	• Clinical communications • Digital Patient Flow • Clinical Command Centre • Diagnostic imaging system • Data repository/analytics • Enhanced patient and community information and support • Consumer app	• Integrated Digital Health Record including booking and scheduling and patient administration functions • Contemporary laboratory information system and robotics	• Augmented reality • Machine learning

Realising the Digital Health Strategy

Realising the Digital Health Strategy for the ACT requires the ACT Government, including ACT Health and Digital Solutions Division (as part of the Directorate) to play key roles in the delivery of the Digital Health work program.

ACT GOVERNMENT
Is responsible for funding and ensuring accountability.

Policy, funding and strategic oversight

The ACT Government is responsible for setting health policy, providing funding for the provision of health services as well as the delivery of policy outcomes.

The ACT Government will be responsible for funding the Digital Health work program and ensuring that the ACT Health Directorate is accountable for delivering digital health capabilities that support health policies and desired outcomes.

ACT HEALTH DIRECTORATE
Is responsible for oversight of the Digital Health Strategy and alignment with government health priorities.

Strategic direction and delivery of outcomes

The ACT Health Directorate is responsible for the stewardship of the health system in the ACT. It is responsible for ensuring that the Digital Health Strategy and related programs of work are aligned with the Directorate's strategic objectives and outcomes. The Directorate is also responsible for the workforce development and change management necessary to ensure that staff are prepared for and have the necessary skills to use the Digital Health capabilities.

DIGITAL SOLUTIONS DIVISION
Is responsible for the delivery of the Digital Health Strategy.

Digital Health Strategy definition and delivery

The Digital Solutions Division is responsible for the delivery of the Digital Health work program to deliver the required digital health capabilities. The Digital Solutions Division will ensure that there is strong clinical engagement in the delivery of the strategy and will appoint a Chief Medical Information Officer and Chief Nursing Information Officer to focus on this.

Measuring Success

The ACT Health Directorate is committed to exemplary person-centred care through digital innovation. In order to deliver a world class healthcare system we must continuously analyse the work we are doing to understand if we are realising our strategic priorities and meeting the needs of the healthcare sector.

PERFORMANCE MEASURES

The Directorate will use a wide range of measures to analyse and understand the effectiveness of the strategy's implementation. These measures will include analysing the amount that paper based records have reduced, including in what areas and for what reasons a reduction has or hasn't occurred. This will give insight to and a better understanding of barriers to reducing paper based records. Based on outcomes, it will also provide an opportunity to explore and and use best practice from other areas to work towards a paper-free environment.

The Directorate will measure the ability of all healthcare professionals' increased ability to access clinical information and provide informed care to their patients through feedback mechanisms and recorded statistics. Outcomes will further support the implementation of a comprehensive Digital Health Record, for clinical staff to log into the one system for all the up to date relevant information on their patient, reducing need for clinical staff to access information from so many systems.

System User Feedback

Feedback from all stakeholders across the system will be strongly welcomed during the implementation of this strategy.

The success of this strategy will be incumbent on listening to those to whom the Digital Health Record will make the most impact on. Feedback will be proactively and passively gathered in a wide range of ways, such as through subject matter experts, workshops, user groups, formal surveys, governance committees and community engagement. Feedback, received in any format, will be considered during each phase of the strategy's implementation.

What this might look like

The Digital Health vision is best understood through the eyes of our stakeholders.

Personas provide a creative mechanism to step into the shoes of key stakeholders and understand what their journey may look like in the future once the ACT Health Directorate's Digital Health vision has been realised. Through the following personas it is possible to explore how the future digital technology environment outlined in this Digital Health Strategy will support the needs of key stakeholders.

Personas

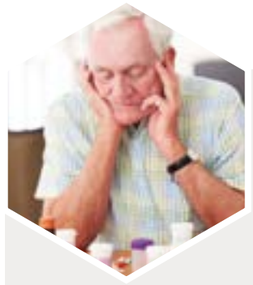
Thijs De Jong
Patient, 72

Dr Mei Lin
General Practitioner, 52

Dr Annette Phillis
Colorectal Surgeon, 38

Joel Foster
Nurse, 32

Luan Jones
Physiotherapist, 28



Thijs De Jong Patient, 72

"I'm just here to have my stomach fixed, but there is nothing really wrong with me. I feel fine."

Thijs lives in Canberra with his wife. They come from a non-English speaking background so they rely on their daughter-in-law, Rachael, for help with reading and writing English. Thijs' comfort with technology is limited to his TV. He does not own a computer or smartphone.

Thijs has Chronic Obstructive Pulmonary Disease (COPD) and stable coronary artery disease. He regularly sees his Dutch speaking GP with whom he has a good relationship and who helps him manage all his chronic health conditions. He has recently been diagnosed with Stage III colorectal cancer.

PRIMARY CARE

- Thijs visits his GP, Dr Mei Lin with Rachael, blood tests reveal anaemia, leading to a diagnosis of colorectal cancer.
- Dr Lin accesses the Provider Portal to determine the best pathway to manage Thijs' condition.
- Through the Portal Dr Lin sees that the waitlist for surgery and Dr Lin electronically sends his referral to Canberra Hospital from the GP Practice Management System.

OUTPATIENT CLINIC

- Rachael makes an appointment with Dr Phillis at Canberra Hospital using the Consumer Portal.
- Thijs and Rachael travel to the hospital and use the electronic way finding app to find their way to the clinic.
- At the clinic they check-in using the patient kiosk then go to the café to wait for the appointment.

INPATIENT CARE

- With Rachael's help, Thijs accesses the Consumer Portal and provides necessary pre-admission information.
- He is admitted to the hospital for his surgery and while waiting Rachel helps him access the Consumer Portal.
- When the anaesthetist and interpreter come to see Thijs before the surgery, he recognises them from their pictures in the portal.

DISCHARGE

- After the surgery, Thijs is notified by his nurse Joelle and by the Consumer Portal when Dr Phillis will come and see him.
- Dr Phillis and an interpreter meet with Thijs and his family to discuss the surgery and leave them with information they can access through the Portal to help them understand what has happened.
- Thijs is discharged 5 days later with care instructions written in Dutch.

CARE IN THE COMMUNITY

- After discharge, Rachael accesses the Portal to review Thijs' care plan which includes information about pain management and what problems might occur.
- A few days later, Thijs is contacted by a care coordinator from the University of Canberra Hospital as he hasn't booked in for his physiotherapy appointments.
- Thijs makes the required appointments over the phone.

CARE AT HOME

- A few days after seeing Dr Lin Rachel takes Thijs to the University of Canberra Hospital for his first session with Luan Jones a rehabilitation physiotherapist.
- Luan completes a physical assessment of Thijs and then explains the exercises she wants Thijs to do every day.

Patient-centred	Health services enabled by contemporary technology	Research, discovery and collaboration
• Ability for patients to access their own information and manage their appointments online. • Reduced need to repeat information to different clinicians across care episodes and settings • Receive higher quality and safe care resulting in shorter length of stay.	• Faster ability for clinical staff to access information wherever they are on any device and provide support to patients • Reduced wait time for treatment • Support for the completion of post-acute care through appointment follow-up triggers.	• Efficient, responsive, and proactive communication with care team both when in and out of the hospital • Visibility of patient schedule and care team, so that patients and carers can plan around these consultations • Leveraging growth and availability of data to improve care plans and outcomes.

Dr Mei Lin General Practitioner, 52

"I love looking after my patients, some of them have been coming to see me for 15 years. I like finding ways to help my patients better manage their own health and appreciate being able to collaborate with clinicians at Canberra Health Services to make this a reality."

Dr Mei Lin is a General Practitioner who has a practice in Canberra. She completed her speciality training in General Practice 25 years ago and has undertaken further complementary study in mental health and chronic disease management.

She speaks fluent Dutch as a result of her PhD study in the Netherlands and is a board member of the local Primary Healthcare Network. Dr Lin is very committed to making the health system work effectively.

REFERRING A PATIENT TO AN ACT PUBLIC HEALTH SERVICE

- Dr Lin has a visit from a regular patient, Thijs, who has symptoms that lead her to diagnose that Thijs has colorectal cancer.
- Dr Lin accesses the Provider Portal to determine the care pathway and waiting time for the specialist services that Thijs needs.

PATIENT CONNECTION WITH AN ACT PUBLIC HEALTH SERVICE

- Dr Lin recognises that there will be numerous tests and appointments that Thijs needs to prepare for his treatment so she tells him and his carer Rachel about the Consumer Portal.
- She explains that the Consumer Portal enables them to contact for assistance, personalised educational and support materials, and access to his medical information arising from the appointments and tests that he will have.

MULTI-DISCIPLINARY CARE

- Dr Lin is invited to join a multi-disciplinary team (MDT) meeting run by Dr Phillis to develop a post-surgical care plan for Thijs. Given her patient commitments Dr Lin attends the MDT remotely.
- On joining the MDT meeting Dr Lin views the clinical information for her patient and participates in the discussion about ongoing care, including her role as part of Thijs' care team.

INPATIENT CARE

- The team at Canberra Hospital keeps Dr Lin informed about his progress through electronic notifications.
- Thijs is discharged with some alterations to his usual medications. Dr Lin is alerted of Thijs' discharge through a discharge notification sent to her by the Canberra Hospital and an electronic copy is sent directly to her practice management system.

CARE IN THE COMMUNITY

- When Thijs next comes to see Dr Lin, they discuss the surgery, his care in Canberra Hospital and the changes in his medication.
- Dr Lin discusses with Thijs the physiotherapy he needs to have at the University of Canberra Hospital to assist with his recovery and checks through the GP Portal to make sure that his physiotherapy appointments have been scheduled.

Patient-centred	Health services enabled by contemporary technology	Research, discovery and collaboration
• A consolidated view of a patient's clinical information from ACT public health services spanning both inpatient and outpatient clinical care • Generation of alerts and notifications to external care partners to provide updates on inpatient and outpatient care.	• Access to information about what has happened to patients. • Ability to record and share patient information with other care partners • Reduced reliance on patients and carers to provide clinical information and details on appointments • Improved support for transfer of patients between acute and non-acute care settings.	• Better communication and collaboration with care teams • Participation in care planning meetings and joint patient appointments • Simple access to information regarding clinical services and referral pathways • Access to information on professional development and courses being offered.

Dr Annette Phillis Colorectal Surgeon, 38

"I'm busy but still want to give my best for my patients. Being able to work wherever I am is really important to me."

Dr Annette Phillis is a Colorectal Surgeon at Canberra Health Services. Dr Phillis completed her medical training at Harvard University, and after several years of working in the US, decided to return to Canberra when she and her partner moved back to Australia.

She likes to work with her own technology, and prefers to use her own phone and tablet PC.

WARD ROUND

- Dr Phillis starts her day with a ward round utilising wayfinding technology to optimise her time.
- On the round she talks to her patients about their care using the Computers on Wheels in the wards to show patients their clinical record, recent test results, and their care schedule.
- Dr Phillis changes the medication of several of her patients in the patient's Digital Health Record that she accesses on her tablet.

OUTPATIENT CLINIC

- Dr Phillis spends the afternoon seeing patients in the outpatient clinic using her personal tablet to access the hospital's wireless network.
- She has an appointment with Thijs De Jong, a new patient that has been referred to her by a local GP.
- The Digital Health Record has all the clinical information about Thijs from his previous visits to the Canberra Hospital and from private pathology and radiology providers.

INPATIENT CARE

- Dr Phillis performs Thijs' surgery. During the operation the theatre nurses and anaesthetist complete their surgical and anaesthetic documentation directly into Thijs' Digital Health Record.
- The physiological monitors in the theatre also populate their readings directly into Thijs' record via device integration.
- Following the surgery Dr Phillis dictates her surgical notes into the digital record system.

CONSULTATION OVER THE PHONE

- After Thijs is discharged Dr Phillis joins a call with Thijs and his GP Dr Lin to discuss his ongoing care.
- Dr Lin is able to access Thijs' surgery record via the ACT Health Provider Portal so that Dr Phillis can explain changes in Thijs' medication.

RESEARCH

- Dr Phillis is conducting research to improve the outcomes of her patients.
- Using the online researcher workbench Dr Phillis identifies a de-identified cohort of patients and the information needed for her research.
- Using analytic capabilities, Dr Phillis analyses the data and uses these results to commence a drafting a funding application for research.

Patient-centred	Health services enabled by contemporary technology	Research, discovery and collaboration
• Single view of a patient's clinical information across care settings • Reduced need to gather information from patients • Reduced time spent on clinical documentation • Reduction in inappropriate and/or duplication diagnostic tests • Improvement in patient length of stay due to better real-time alerts.	• Holistic patient view across Canberra Health Services, Calvary Public Hospital Bruce and surrounding health services on any device and accessible anywhere. • Sharing of patient record across care settings and specialties to support multi-disciplinary care. • Reduced reliance on patients and carers to carry clinical documents as a result of electronic information flows. • Remote monitoring of patients and automatic alerts.	• Improved communication and collaboration across a mobile clinical workforce • Better communication with patients and their carers to their support self-care • Better support for multi-disciplinary team-based care across craft groups, departments and external care partners.

Joel Foster Nurse, 32

"I love looking after my patients and seeing them recover after surgery. The ward gets really busy so sometimes it is hard to keep track of everything."

Joel Foster is a nurse in the surgical recovery ward at Canberra Hospital. He originally trained in Australia but spent a number of years working overseas in the UK before moving back to Canberra to be closer to his aging parents.

He loves working with his patients knowing that he is making a difference to their lives and helping them recover from surgery.

WARD ROUND

- Joel starts his day accompanying Dr Phillis on her ward round.
- Joel records his own notes on patient status and changes in treatment as he discusses the patients with Dr Phillis.

NEW PATIENT RECEIVED FROM PACU

- Joel receives a new patient, Thijs De Jong onto the ward who has just had colorectal surgery.
- Thijs is still groggy from the anaesthetic so he settles him into his room and lets him sleep.
- Joel reviews the handover notes from the post-anaesthetic care unit (PACU) in Thijs' Digital Health Record as well as the medication orders from the anaesthetist.

MEDICATION ADMINISTRATION

- Joel receives a notification on his nurse-phone that it is time for Thijs to receive his second course of antibiotics.
- He retrieves them from the medication dispensing cabinet which is integrated to the Digital Health Record.
- The medication cabinet checks the medication order in Thijs' Digital Health Record and then dispenses the correct medication and dosage.

URGENT RESULTS

- Joel receives a notification that Thijs is showing signs of deterioration.
- As he is checking him he receives a call from Dr Phillis who has received the same notification.
- Joel discusses Thijs' condition with Dr Phillis who electronically orders a pathology test to check for infection.
- Joel and Dr Phillis both receive a notification from Pathology advising that the test results are available. The test indicates that no infection was detected.

PREPARATION FOR DISCHARGE

- A few days later Thijs is showing strong signs of recovery so Dr Phillis schedules his discharge.
- Joel receives a notification of Thijs' impending discharge and checks to make sure his discharge medications and final blood tests have been ordered.
- Joel informs Thijs that he will soon be discharged and that his carers will automatically be informed of the discharge appointment.

Patient-centred	Health services enabled by contemporary technology	Research, discovery and collaboration
• Single view of a patient's clinical information across care settings • Reduced need to gather information from patients multiple times • Reduced time spent on clinical documentation • Improvement in patient length of stay due to better real-time alerts and patient alarms	• Direct recording of patient measurements into the patient's Digital Health Record from integrated devices • Electronic recording of observations, notes, medication and test orders so that papers doesn't get lost • Positive identification of patient and medication during administration to avoid errors.	• Improved communication and collaboration across a mobile clinical workforce • Improved communication between patients, their carers and care teams • Better communication with patients and their carers to their support self-care.

Luan Jones Physiotherapist , 28

"I'm really enjoying working in the new hospital. So many patients come through that I have the chance to work with and see them progress through their rehabilitation."

Luan Jones is a physiotherapist in the rehabilitation unit at the newly opened University of Canberra Hospital. She completed her training at the University of Canberra and has worked with Canberra Health Services since graduating.

She really enjoys working with patients and seeing the progress that they make as they go through their recovery process.

NEW PATIENT CONSULTATION

- Luan receives an electronic referral from Dr Phillis for a new patient Thijs De Jong who has just had colorectal surgery.
- While reviewing Thijs' Digital Health Record Luan notes that an appointment has been made for Thijs by the post-discharge care coordinator. Thijs and his daughter-in-law Rachel come for his first rehabilitation session.
- Luan completes a physical assessment of Thijs and then explains the exercises.

AMBULATORY CARE

- A few days after seeing Thijs Luan receives a notification from the Digital Health Record system advising that the results from the remote monitor that Thijs is wearing indicate that he is not doing his exercises.
- Luan calls Rachel and Rachel explains that the exercises are causing Thijs discomfort so Luan schedules a virtual appointment with Dr Phillis.
- Luan revises Thijs' exercise plan in his Digital Health Record and sends him a notification.

PATIENT TREATMENT

- Luan continues to have regular rehabilitation sessions with Thijs and records her observations and his progress electronically so his care team can monitor his progress.
- After a couple of weeks Luan receives an alert from Thijs' remote monitor advising that he is exercising more vigorously than expected.
- At their next session Luan adjusts the alert thresholds in the remote monitoring program as Thijs is feeling stronger and no pain.

ADMINISTRATION

- Luan and the other members of the rehabilitation team are required to record their activity each day to help the team manager track their workloads and activity levels.
- Luan uses the reporting capabilities in the Digital Health Record to report all of her patient appointments and patient notes to provide a record of her activities so she doesn't have to manually fill in a timesheet.

Patient-centred	Health services enabled by contemporary technology	Research, discovery and collaboration
• Single view of a patient's clinical information across care settings • Reduced need to gather information from patients • Reduced time spent on clinical documentation.	• Patient referrals received and managed electronically • Remote monitoring of patients and automatic alerts generation • Flexible working location through remote access to clinical information • Virtual appointments with patients at home, work and other locations outside the hospital • Electronic communications between staff and with patients to improve timeliness and efficiency.	• Improved communication and collaboration across a mobile clinical workforce • Improved communication between patients, their carers and care teams • Better communication with patients and their carers to their support self-care.