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FOREWORD

The Sydney Local Health District (SLHD) Information and Communication Technology (ICT) Strategic Plan has been developed in close consultation with our staff and partners to ensure that our ICT supports our overall health service vision of excellence in healthcare for all. We are committed to ensuring the SLHD ICT is visionary, future-oriented, affordable, and appropriate to our healthcare mission and strategy.

The aim of the Plan is to create a new future for health service delivery and patient care through the overall enhancement and expansion of the ICT system capacity and capabilities.

The Plan envisages the following outcomes:

- Safe, high quality healthcare.
- A fully integrated and sustainable model of healthcare delivery.
- Optimal use of the workforce and increased productivity.
- Leadership in research and innovative models of research partnerships.
- A leadership role in responsive, flexible and high quality education.
- Best practice governance and healthcare management.

Our District has a proud track record as a leader in health-related ICT development that supports both clinical and corporate excellence. In a constantly changing ICT landscape, we need to regularly review the ways that technology can assist us to be more efficient, effective and patient-focused. Over the last two decades, we and our predecessors have invested in ICT across a wide range of programs from enhancements to the electronic medical record (eMR) through to rostering and financial systems. With Cerner we have created world-class breakthroughs in eMR ICT technology, now being adopted by others both within Australia and overseas.

ICT offers exciting new ways to participate and collaborate as a health community including strengthening the collaboration with our staff; other Districts; our University Partners, particularly, the University of Sydney; our corporate partners, including Cerner; our primary care partners including the Primary Health Network; and our community.

In particular as we develop a more fully integrated healthcare model, there is an opportunity to find new and better ways to share relevant information with our partner organisations and with our patients and consumers.

Critical to the success of the ICT Strategy is the need for it to remain dynamic and flexible enabling the District to appropriately respond to major changes and developments in healthcare policy, plans and breakthroughs as well as developments in service delivery and technology.

The Plan encompasses the health of the population, the continuum of care and the need for patient access and equity in treatment and care.

It recognises that the health and wellbeing needs of all members of the community must be addressed including those of people with disabilities and from culturally and linguistically different communities.

The Plan has inbuilt risk management and value for money processes to ensure that the initiatives are fit-for-purpose and will deliver wise investments in information and communication technologies. All health facilities, including the Chris O’Brien Lifehouse, will be covered by the ICT planning process.

The benefits of the Plan will flow to the SLHD, the community in general, patients their families and carers, clinicians and health professionals, researchers and educationalists.

The SLHD approach to implementation is collaborative and consultative both within the District and with external stakeholders.

This Plan provides a vision for the District to move towards this goal over the next five years. The plan includes strategies related to our clinical systems, our corporate and business systems, our information management, our asset management, and our information and communications infrastructure.

Dr Teresa Anderson  
Chief Executive

The Hon. Ron Phillips  
Board Chair
INTRODUCTION

Information and Communication Technology (ICT) is integral to modern healthcare practice. ICT consists of hardware, software, networks, and media used for the collection, storage, processing, transmission, and presentation of information (voice, data, text, and images).\(^1\)

Contemporary healthcare is provided in a new digital world with readily available high-speed broadband, smart mobile connections, and intelligent software linking individuals, service providers and organisations. Rapid developments in ICT impact every aspect of healthcare.\(^2\)

ICT is a fundamental enabler of clinical service provision, referral processes, appointment scheduling, record keeping and patient monitoring. ICT supports patient and community access to our Health District, hospitals and services. It is used on a daily basis to roster and pay staff, keep personnel records, provide staff with access to education and training, pay bills, monitor finances, record and archive administrative decisions and communicate with each other. ICT has become a critical component of every aspect of healthcare provision.

ICT helps to link primary care and specialist providers, patients in their homes, workplaces, and community services. ICT can provide information and entertainment for patients while they are in hospital, opportunities for social networking, collaboration technology and reliable real-time video communication. ICT is a key enabler to a more responsive patient and family friendly healthcare system.

ICT helps provide innovative healthcare to our patients, their families and our community. This includes: integrating care across the healthcare continuum – from the patient’s home, to primary, ambulatory and acute and subacute services; providing infrastructure to support the range of more mobile technology; and, using data to drive efficiency, new models of care and improve the effectiveness of our health services.

ICT is fundamental to supporting advances in clinical care, for example, with new electronic medication management and electronic clinical handover tools we are improving the quality of clinical handover and reducing medication errors. Being able to unlock and link the information contained in our electronic medical records and clinical databases enables research and health reform which can transform healthcare provision.

The District provides quaternary and tertiary services not only to the population of SLHD but also to other districts, including rural and remote areas. Our ICT strategy aims to support clinical excellence, strengthen these links, and ensure that our clinicians remain leaders in healthcare through:

- Communicating efficiently with healthcare providers.
- Communicating effectively with patients and communities, including providing accessible user-friendly information.
- Supporting the development of new models of care.
- Enabling clinical excellence and quality improvement.
- Supporting healthcare research, clinical trials and evidence based practice medicine.

The SLHD ICT Strategic Plan defines the way we manage our information and technology to support our clinical and business needs. The Plan will also assist our decision-making about future acquisitions. Proposals to change or enhance our clinical or business processes will be tested to ensure consistency with our ICT Strategic Plan. The ICT Plan will also be a means of communicating our ICT Strategy both internally and externally.

Importantly, the Plan aims to be dynamic and flexible so the District can appropriately respond to major changes and rapid developments in healthcare policy, plans and delivery imperatives as well as the developments in ICT services.

The overall goal of the ICT Plan is to use ICT to meet our vision of excellence in healthcare for all.

The purposes of the SLHD ICT Strategic Plan are:

- To ensure that our ICT activities and investments are aligned with our strategic and corporate objectives.
- To define ICT standards and policies for our District.
- To set the ICT strategic objectives for the next five years.

The Plan envisages the following outcomes:

- A fully integrated and sustainable model of healthcare delivery.
- Optimal use of the workforce and increased productivity.
- Leadership in research and innovative models of research partnerships.
- A leadership role in responsive, flexible and high quality education.
- Best practice governance and healthcare management.

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\(^1\) Defined in the Information & Communication Technology Sector Strategy Paper of the World Bank Group, April 2002

\(^2\) NSW Health State Health Plan — Towards 2021
The following outlines the overall benefits of the Plan and highlights the key initiatives.

**Patients and the community**

Patients and the community will benefit from new information and communication tools that will improve their access to information and to their healthcare providers. Key initiatives include:

- Establishing a patient portal to promote healthy lifestyle choices and approaches to illness prevention.
- Developing “way-finding tools” to simplify access to our facilities and healthcare services.
- Developing telehealth services to address the needs of patients in rural and remote areas.
- Enabling ICT tools to enable patient self-management.

**Clinicians**

The Plan will enhance the provision of highest quality clinical care through facilitating new service delivery models that have the patient at the centre of care, support integration across the continuum of care, and make optimal use of our specialised workforce. Key initiatives include:

- Completing the roll out of a mobile, integrated, life-long eMR, to support best practice care.
- Establishing systems to support the provision of home care.

**Organisation**

The Plan will help maintain the District’s high levels of performance; with enhanced corporate governance, more efficient service delivery, and provision of high quality clinical care. Key initiatives include:

- Developing the Infrastructure and Data Centre, enabling new business systems to be put in place and providing high-level technical support to staff across the facilities.
- Investing in the development of purpose-specific software.
- Further implementing modern clinical communication systems.
- Further developing electronic business communication platforms.
- Incorporating ICT in the early planning phase of capital investments.
- Establishing links with local agencies and institutions, including local government to access geographic and population health data.
- Continuing the collaboration with South Western Sydney Local Health District in ICT planning and systems investment.

**Education and training**

The Plan incorporates strategies to employ new and existing technologies in the delivery of accessible and flexible on and off site education and training programs. Key initiatives include:

- Providing information technology capability across all sites for streaming group educational activities including grand rounds, tutorials and undergraduate and post graduate in-service training programs.
- Providing ICT capability training.

**Research**

The Plan optimises the District’s multi-million dollar investment in research, which aims to identify scientific improvements in the diagnosis and treatment of illness as well as improvements in the health of the population. Key initiatives include:

- Establishing an ICT Research/Informatics Unit, in partnership with the University of Sydney and e-Health. Headed by a clinical academic, the Unit will guide and inform future ICT development.
- Expanding access to computer training laboratories.
- Developing and introducing technologies, which connect researchers with each other and with research partners.

The ICT Strategic Plan is closely aligned with related Commonwealth, NSW Government and District policies and plans. These include:

- NSW 2021: A plan to make NSW number one
- NSW State Health Plan: Towards 2021
- A Blueprint for eHealth in NSW
- State-wide strategic plans and policies related to Mental Health.
- SLHD strategic plans and policies related to Mental Health.

The SLHD is the “host” organisation for ICT across both Sydney and South Western Sydney Local Health Districts (SWSLHD). SWSLHD has a separate ICT Plan which identifies its priorities. The two Districts will continue to work together to ensure effective ICT delivery with a shared high level governance structure.

Annual Operational and Business Plans will be developed consistent with this Strategy to ensure its smooth implementation.
We see **ICT** as an enabler of all aspects of excellence in healthcare practice.
OUR ICT VISION

To be a leader in health Information and Communication Technology, supporting our vision of excellence in healthcare for all.

Strategic Themes
Five major strategic themes underpin our ICT Strategic Plan. These are supporting clinical excellence and leadership, fostering truly integrated care, enabling health informatics, keeping people healthy, and communications and engagement.

Supporting Clinical Excellence and Leadership
Our ICT strategy, led by clinicians, aims to improve and support clinical excellence in response to patient needs.

Fostering Truly Integrated Care
Our ICT strategy aims to establish a fully integrated health and community sector, address cross-sector co-ordination issues and ensure the seamless provision of care across the spectrum from prevention to treatment.

Enabling Health Informatics/Clinical Analytics
Our ICT strategy aims to provides leadership in data and health informatics to support management, service delivery and health and medical research.

Keeping People Healthy
Our ICT strategy aims to support our efforts to promote and protect health and prevent ill-health.

Promoting Communication/Engagement
Our ICT strategy aims to support patient and community engagement in our District, hospitals and services, promote positive health, and promote participation, interactivity and the provision of information and resources.
More than 8,800 outpatient appointments are made every day in the Sydney and South Western Sydney Local Health Districts combined.
STRATEGIC THEMES

Clinical Excellence and Leadership

Clinical leadership of priorities and projects lies at the heart of our ICT strategy and is critical to its success. Priorities and projects are invested in which maximise positive healthcare outcomes. In this endeavour, clinical leadership is crucial. ICT projects and priorities needs to be user-friendly, appropriate and to significantly improve healthcare service delivery.

SLHD has a strong clinical stream structure, such that clinicians at all levels of the organisation are actively involved in the decision-making of the organisation. In ICT, clinicians are engaged in planning, system design, championing projects, operational development, work practice review and communication. Robust clinical governance of ICT projects and acknowledgement of the critical nature of clinician involvement is critical to ensure appropriate decision making and clinician support of ICT projects and priorities.

Many programs such as the introduction of the Electronic Medical Record (eMR) involve major organisational transformation; they are not simply an ICT implementation. The aim is always to improve the quality and safety of patient care and this requires clinician leadership and engagement in governance, planning, design, and implementation and evaluation.

The success of the SLHD implementation of FirstNet is further testimony to clinical excellence as driver. Clinicians were actively engaged in working with IM&TD and Cerner to develop a local FirstNet and with the associated review of our business processes to ensure that Firstnet worked for our clinicians and our patients.

The appointment of a new Chief Medical Information Officer for Sydney and South Western Sydney Local Health Districts, and Senior Clinical Information Officers within the facilities will help to further strengthen the clinical leadership within ICT.

Similarly, in the case of corporate and management information systems, managers as well as clinicians need to be involved at all stages of the project development.

FirstNet (Cerner), an EMR system, has been introduced in Emergency Departments (EDs) in NSW. This system replaced the Emergency Department Information System, which was previously used in most NSW EDs.

NSW Ministry of Health, 2014

Truly Integrated Care

The goal of truly integrating healthcare across all care is a key priority for SLHD and the health system. ICT systems and tools that facilitate communication between providers within health and with other sectors is a fundamental premise of integrated care. Integrated care aims to build strong partnerships within the health system, including primary, community, acute and sub-acute care, as well as public, private and not-for-profit providers. These partnerships are built around the patient and their health outcomes.

The NSW Ministry of Health has defined Integrated Care as “The provision of seamless, effective and efficient care that responds to all of a person’s health needs, across physical and mental health, in partnership with the individual, their carers and family. It means developing a system of care and support that is based around the needs of the individual, provides the right care in the right place at the right time……”

Integrated care is the seamless connection of care across many different providers. Strong partnerships across the health system, including primary, community and acute care will be actively fostered. In addition connections between public, private and not-for-profit providers will be further developed. Such integrated care provides the platform for appropriate service delivery and improved health outcomes.

Integrated care strategies that are being actively pursued in SLHD include the implementation of HealtheNet, HealthPathways and data sharing with General Practitioners (GPs). HealtheNet offers a platform for the sharing of electronic medical records across local health districts, linked with the national Patient Controlled Electronic Health Record. Other strategies could include the incorporation of patient reported data into the EMR via patient portals. Such data could also be made available to their general practitioners.

A key partner in ensuring truly integrated care is the patient’s GP. Recent significant advances have occurred in providing clinic reports, letters and discharge summaries from the hospital to the patient’s GP. Further, the provision of information related to pathology, radiology and other diagnostic tests would further improve the integration of care.

Dealing appropriately with the primary care sector is often complex as many patients have more than one GP, in more than one location, and all need electronic clinical communication from the District. Patients may also have private allied health providers such as pharmacists, dentists, physiotherapists, speech pathologists and psychologists involved in their care. It is often appropriate, with the consent of the patient, that these practitioners be copied into clinical reports and summaries that are sent to GPs.

Truly integrated care also requires that primary care practitioners have the capacity to send clinical documents and data including referrals and copies of medical reports to the hospital, from peer to peer, securely via secure electronic messaging.
“Information and Communication Technology offers exciting new ways to participate and collaborate with staff, corporate and primary care partners, other districts, researchers, and consumers, as a health community.”
Health Informatics/Clinical Analytics

Health informatics and clinical analytics play a key role in enhancing the District’s performance across multiple dimensions, including supporting research and evaluation.

The Sydney Local Health District has been prioritising health informatics and clinical analytics over the past few years and is recognised as a leader in this area within the state. The District now has the capacity for outcome analysis, data mining, clinical indicator analysis and performance monitoring and assessment.

The strategies to foster improved access and usability of the eMR and related analytical data sets for our clinicians, researchers and managers will:

- Increase our collective knowledge about our services, their cost and outcomes.
- Identify clinical variation / reduce unwarranted clinical variation.
- Strengthen / implement ‘best-practice’ models of care.
- Improve clinical outcomes.
- Drive efficiencies.
- Link clinical databases for research.
- Identify cost savings.
- Support research to improve clinical practice.
- Provide real-time clinical decision support.

The goal is to build descriptive and diagnostic analytical capabilities that allow management, researchers and staff to better understand their operating environment, patient trends, and ‘outliers’ that may need to be better understood. Developing a full range of ‘predictive’ analytical applications which use existing data assets to pilot advanced analytics is a priority. For example, areas that currently present challenges to our services include readmissions, performance related to surgical services and the performance of emergency department services.

This insight will help identify approaches that have the greatest potential impact on outcomes, and quantify the wider impacts of allocating (or shifting) resources to improve performance. This includes assessment of:

- Interventions to improve patient outcomes.
- Interventions to reduce costs.
- Impacts of staffing or facility changes.
- Impacts of changes to the patient flow through facilities.

Communication and Engagement

Communication is crucial to effective health care delivery. It helps our patients, staff and the community:

- Access and appropriately use our health services.
- Support self-directed prevention, early intervention and health improvement.
- Participate in planning, developing and reviewing healthcare services and strategies.
- Be informed about our vision, organisation and services.
- Know what to expect from SLHD.

It helps our district to:

- Provide clear, timely, consistent and accurate information.
- Promote and showcase its services.
- Provide health information to our community.
- Manage the expectations of our staff, patients and families and community.
- Build positive relationships with stakeholders and the community.

ICT connects services and communities in ways not previously possible and helps provide a range of information, instantly. It has the capacity to help provide accurate, timely and consistent information to patients, consumers and communities.

Communication modes are constantly evolving, with new tools and capabilities becoming available on a regular basis. New and emerging digital communication methods support the traditional communication methods. Social media tools such as email, websites and social networking are rapidly improving information capability and access to health services and information.

The SLHD Website is a key communication and engagement tool. Websites are crucial for promoting key messages, showcasing staff and services, making health information accessible and transparent and presenting information in simple, more user friendly ways. It offers a platform to share stories and communicate expectations about healthcare. The redevelopment of SLHD websites incorporates clean and clear design features as well as patient, family and community centred content.

A key priority is to further engage the community through a new social media strategy including the development of a social media policy and guidelines. The District is improving health literacy and engagement through multimedia and visual communication. The SLHD YouTube channel and Facebook page were launched in 2014. Social networking strategies are improving the communication and health promotion and prevention messages. Important public messages such as health alerts have already proven to be extremely effective.

Keeping People Healthy

ICT offers the opportunity to communicate and interact with our patients, consumers and communities to promote health and wellbeing. A range of applications, patient portals, social media strategies, interactive websites and monitoring and support devices can be designed to promote health, keep people out of hospital and to minimise the need for inpatient episodes.

Providing community staff with mobile devices, tablets with eMR access, and telehealth all promise to improve the integration and efficiency of care and enable patients to remain at home for their care.
In a 24/7 healthcare environment, at any one moment an average 7,900 users of the electronic Medical Record are logged in at the same time.
The Sydney Local Health District (SLHD) has a well-established reputation for excellence in the provision of healthcare and for managerial and fiscal responsibility. It has strong and well-recognised leadership roles in research and education. The District delivers quaternary, tertiary, acute, primary care and health improvement services, many of which are recognised internationally and nationally. Our services are highly complex and many are resource intensive.

SLHD provides health services 24 hours a day, 7 days per week, and 365 days per year. Our hospitals have a long history of providing tertiary and quaternary healthcare services to patients from other parts of NSW, including the provision of telemedicine and outreach clinics to rural areas. Almost 40% of our overnight bed admissions are for patients residing outside of the District.

The District includes principal referral hospitals, major and sub-acute hospitals and a large range of community health facilities. The facilities we manage directly are listed in Box 1.

Our clinicians, support staff and managers are constantly planning and implementing improvements to achieve our vision of excellence in health care for all. ICT is seen as a critical enabler of our services. On a typical day, the Sydney Local Health District:

- Treats more than 5,500 outpatients.
- Sees around 400 people in our Emergency Departments.
- Receives around 110 ambulances.
- Cares for more than 1,626 inpatients.
- Performs more than 140 operations.
- Delivers around 20 babies a day at RPA and Canterbury Hospitals.

We spend 3.79 million dollars each day on healthcare. We employ over 10,000 staff and Visiting Medical Officers.
Box 1: SLHD Facilities

Principal Referral Hospitals

- **Royal Prince Alfred Hospital (RPA)** including the Institute for Rheumatology and Orthopaedics (IRO) is a Group A1 Principal Referral Hospital and Major Trauma Centre with tertiary affiliations with the University of Sydney. It provides referral and district acute services to a catchment that includes the inner west LGAs, and, for referral services other LHDS across NSW, as well as interstate and overseas patients.

- **Concord Repatriation General Hospital (CRGH)** is a Group A1 Principal Referral Hospital with tertiary affiliations with the University of Sydney. It provides a range of tertiary and District level services to its local community and veterans across NSW who choose to continue receiving their care at the hospital. It also provides one of the two state-wide adult burns services.

Major Hospitals

- **Canterbury Hospital (CH)** is a Group B1 Major Metropolitan Hospital that provides District level services to its local community.

Sub-Acute Hospitals

- **Balmain Hospital (BH)** is a Group F4 Sub Acute Hospital that provides a general practice casualty service. It provides predominantly aged care and rehabilitation services, particularly for RPA and CRGH patients who no longer require acute care.

Non Acute Hospitals

- **Sydney Dental Hospital (SDH)** is one of the State’s two specialist dental facilities and is a teaching hospital of the University of Sydney. It offers a range of treatments to both adults and children for the District, and for all residents of NSW.

Mental Health Facilities

- **Concord Centre for Mental Health (CCMH)** provides the largest concentration of mental health beds for the District and includes tertiary referral services.

- **Thomas Walker Hospital (TWH) “Rivendell”** provides adolescent mental health services for the State and is located adjacent to the CCMH.

Community Health Facilities

SLHD provides a range of prevention, early intervention assessment, acute/post-acute treatment, health maintenance and continuing care services within the community through community based facilities and/or outreach services. Major health centres are located at Canterbury, Camperdown, Croydon, Marrickville and Redfern with early childhood services located throughout the District.
OUR COMMUNITY

The Sydney Local Health District (comprises the Local Government Areas (LGAs) of the City of Sydney (part), Leichhardt, Marrickville, Canterbury, Canada Bay, Ashfield, Burwood and Strathfield. The SLHD is responsible for providing care to over 600,000 people. It covers 126 square kilometres and has a population density of 4,210 residents per square kilometre (ABS 2006).

The population is diverse and differentiated. It is characterised by socio-economic and cultural diversity, with pockets of both extreme advantage and extreme disadvantage. With such a diverse population living in Sydney Local Health District, we have opportunities to improve health outcomes for priority communities, including the financially and socially disadvantaged and people whose language backgrounds are other than English, by enhancing access to current health technology and embracing future ICT developments.

The LGAs with the highest proportion of the population being Centrelink customers include Canterbury, Marrickville and Ashfield. Mean taxable income is lowest in the Canterbury LGA, which has a higher index of disadvantage than the rest of the State. Other significant suburbs of disadvantage include Redfern-Waterloo, Haymarket, Burwood, Marrickville, Ultimo, Sydenham and Homebush West.

Our community population is projected to grow significantly over the next decade. From a 2011 base of 582,100, the District is predicted to grow by 32.7% by 2031; an increase of almost 190,500 people. All local government areas are projected to increase in population. Of particular interest is the significant increase in the population of the City of Sydney, projected to exceed Canterbury by 2031, and the increase in the population of Burwood. Significant planned urban developments include:

- the new Green Square Town Centre Development in Zetland and Beaconsfield in the City of Sydney; urban development along the Parramatta Road corridor; new developments in Rhodes, Breakfast Point, the Central to Eveleigh Rail Corridor revitalisation, the Rozelle Bays urban regeneration and significant developments in Canterbury, and Redfern Waterloo.

- The District population is ageing, with the number of residents aged over 70 projected to increase by 34% over the next decade. The growth in the aged and the older population of District is especially important for healthcare delivery over the forthcoming decade.

According to the 2011 Census of Population and Housing, almost half of the District population speaks a language other than English at home, including significant numbers of refugees, asylum seekers and special humanitarian entrants. Nearly 8% of the population speaks little or no English. 34.1% were born in predominately non-English speaking countries, with 20.8% of this grouping residing in Australia for less than five years. The major languages spoken include Chinese languages, Arabic, Greek, Korean, Italian and Vietnamese. Sydney Local Health District suburbs with the highest proportion of residents speaking a language other than English at home include Campsie, Haymarket, Lakemba and Wiley Park.

A significant Aboriginal population resides in the SLHD, mostly located in the Redfern/Waterloo area, in the City of Sydney LGA and in Marrickville. Aboriginal people are widely recognised as having poorer health and poorer access to appropriate health services.

The SLHD contains the largest ‘homeless’ population in NSW, with large numbers of people in Sydney, Marrickville and Burwood LGAs being technically defined as homeless.
In 2014, there were on average, **7,360** face-to-face encounters between patients and clinicians in hospitals or clinics across the Sydney and South Western Sydney Local Health Districts every day.
THE PLANNING PROCESS

In March 2014, SLHD commenced the development of a five year ICT strategic plan to support the vision and objectives of the SLHD Strategic Plan 2012-2017.

Key consultation questions were:

• How does ICT work for you today? What have you achieved to date with ICT and what are your main challenges?
• What’s the vision for your department or service over the next five years in terms of improving service delivery and patient care.
• In what way can ICT (products and services) best support your service to improve patient care, in order to attain your vision?

The consultation process identified a number of directions towards achieving our vision, including:

• **Whole of life eMR:** developing a single connected electronic medical record for each person from antenatal care, through the entire continuum of care including specialist units, acute, subacute, ambulatory care, palliative care and primary care.

• **Integrated Care and Connectivity:** making the person’s clinical information readily accessible to all members of the care team including the person themselves and providing mechanisms to extend clinical information across the continuum of care.

• **Patient and Community Engagement:** engaging patients and the community through the provision of accessible health information.

• **Alignment:** maximising the benefits of investments in eHealth by ensuring that SLHD’s initiatives are aligned with State and Federal initiatives.

• **Access and Mobility:** enabling authorised healthcare workers to access the **right information**, in the **right place**, at the **right time**.

• **Communications Technology:** leveraging the full repertoire of technology to bring staff and patients closer even if they are geographically separated.

• **ICT Asset Management:** ensuring equipment is up-to-date through effective asset management.

• **ICT Support:** providing staff with structured, prioritised, timely ICT support.

• **Information Management:** optimising the effective lifecycle management of the extensive information generated in SLHD for use in better decision making and clinical care.

• **Research:** enabling the integration of clinical research and clinical care to help translate research into clinical practice and focus research on maximising health outcomes.
“The Information and Communication Technology Plan will remain dynamic and flexible, enabling the District to respond to developments in healthcare policy, plans, breakthroughs and technology.”
ALIGNMENT WITH THE DISTRICT VISION AND MISSION

The SLHD Strategic Plan 2012-2015

The ICT strategy has been developed to be fully consistent and support the SLHD vision, mission and values within the Sydney Local Health District Strategic Plan. It also follows the District’s Patient and Family Centred Care model.

It focuses on:
• Our Patients, Consumers and Carers
• Our Communities
• Our Services
• Our Staff
• Our Education
• Our Research
• Our Organisation
• Our Environment

Our District Vision

To achieve excellence in healthcare for all

Our District vision and its accompanying mission embeds concepts of equity, patient-centredness, health improvement, timeliness and efficiency, recognising that evidence-based service delivery requires highly skilled and valued staff supported by research, education and state-of-the-art technologies.

The goals of the District’s Strategic Plan recognise the primacy of the focus on patients, staff, community and the need for excellence in services, education, research and organisational support. ICT is essential to SLHD achieving this vision.

Our Vision for ICT

For SLHD to be a leader in Health Information and Communication Technology to support our vision of excellence in healthcare for all.

Our District Mission

Ensuring the community has equitable access to high quality patient-centred healthcare that is truly integrated care:
• Timely, evidence-based, culturally appropriate and efficient.
• Provided by highly skilled staff who are committed, accountable and valued.
• Supported by leading edge research, education and technologies.
• Supporting the healthcare of populations in other LHDs, States and Territories across Australia and other countries through research, education and the provision of tertiary and quaternary referral services.

Our District Values

| Collaboration | Improving and sustaining performance depends on everyone in the system working as a team. |
| Openness      | Transparent performance monitoring and reporting is essential to make sure the facts are known and acknowledged, even if at times this may be uncomfortable. |
| Respect       | The role of everyone engaged in improving performance is valued. |
| Empowerment   | There must be trust on all sides and at all levels for people to improve performance in a sustainable way. |

These important values are reflected in the District approach to ICT.
### Table 1: CORE Values related to ICT

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<th>Consumers</th>
<th>Clinicians</th>
<th>Partners</th>
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| **Collaboration**   | • Patients are our partners in building a better health system – patient and family centered care. | • We make it easier for our clinicians to have the conversations that deliver better care (communication tools, BYOD).  
• We make it easy for our clinicians to work together to deliver integrated care. | • We work closely with vendors, trainers, researchers, government pillars, and private providers to deliver outcomes.                                                                                       |
| **Openness**        | • We share information with our patients (e.g. patient portal, PCEHR). | • We are breaking down barriers that make it easier for clinicians to work together (HealthPathways).  
• We are giving clinicians access to the information that shows them how to improve patient care (STARS). | • We make our data available to the researchers who will find ways to make our health system better.  
• We transform information into knowledge so we can build the health system that is ready for our future needs. |
| **Respect**         | • Time is precious to our patients so we’re building a health system we they spend less time waiting.  
• Privacy: we protect those who trust us with their health information (robust clinical governance, device management strategy). | • We’re building a system that makes it easier for clinicians to care for patients – saving time. | • We foster and maintain relationships with partners.                                                                                                                                                     |
| **Empowerment**     | • We help our patients take responsibility for their health.  
• We are finding new ways to identify those most in need of our help (risk registers). | • We empower our clinicians to drive quality improvement, innovate and lead change.  
• We are investing in our staff to ensure they have the skills to deliver our future health system. | • We are empowering our partners to come to us with ideas to make our system better.                                                                                                           |
THE CURRENT ICT ENVIRONMENT

The District’s ICT impacts every part of our service and is influenced by a range of external and internal factors.

The District is directly influenced by activities taking place through national organisations such as the Australian Commission on Safety and Quality in Healthcare, which leads and coordinates national improvements in safety and quality in health care across Australia.

The District’s principal funding sources are derived from the State and Federal Governments and these sources are increasingly being defined through Activity Based Funding (ABF) models. ABF is necessarily dependent on accurate reporting of wide range of performance data. The collection and reporting of this data is critically dependent on information systems and occurs as an integral part of service delivery.

Sydney Local Health District is fortunate to have highly developed health ICT services. For the District to maintain its position as a leader in health ICT it is critical that there is ongoing investment in ICT and the development of our staff.

SLHD continues to host the Information Management and Technology Division (IM&TD) for SWSLHD under a transition agreement in place since the transition to Local Health Districts in 2011. A formal Service Delivery Agreement ensures effective governance and transparency.

ICT services are delivered by the central ICT function (IM&TD) and a range of facility based IT support teams as well as specialist ICT staff within individual business functions and clinical units.

The Central ICT organisation (IM&TD) is made up of five directorates that are responsible for the delivery of specific ICT services to both SLHD and SWSLHD. There are currently more than 130 staff in IM&TD who are spread across multiple facility locations. Trainers are also distributed across all hospitals and services. The directorates are supported by a team of four Business Services staff for financial and administrative activities.

IM&TD provides infrastructure which supports business operations and functions. The following table outlines the activity related to IM&TD services.

<table>
<thead>
<tr>
<th>Activity</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of eMR users</td>
<td>23,901</td>
</tr>
<tr>
<td>Number of patients in eMR</td>
<td>5,837,643</td>
</tr>
<tr>
<td>Number of appointments per day</td>
<td>8,888</td>
</tr>
<tr>
<td>Number of encounters per day</td>
<td>7,360</td>
</tr>
<tr>
<td>Number of orders placed per day</td>
<td>46,800</td>
</tr>
<tr>
<td>Number of patient charts opened each day</td>
<td>69,210</td>
</tr>
<tr>
<td>Number of users logged on concurrently on average</td>
<td>7,975</td>
</tr>
<tr>
<td>Number of transactions per month</td>
<td>71,979,854</td>
</tr>
<tr>
<td>Average response time (seconds)</td>
<td>0.811</td>
</tr>
<tr>
<td>Supported eMR interfaces</td>
<td>123</td>
</tr>
<tr>
<td>Number of reports generated each day</td>
<td>8,056</td>
</tr>
<tr>
<td>Intranet hits per month</td>
<td>50,000,000</td>
</tr>
<tr>
<td>Internet hits per month</td>
<td>180,000</td>
</tr>
<tr>
<td>Data storage under management (terabytes)</td>
<td>600</td>
</tr>
<tr>
<td>Managed desktop devices</td>
<td>30,000+</td>
</tr>
<tr>
<td>Managed mobile devices</td>
<td>4500+</td>
</tr>
<tr>
<td>Number of email messages per month</td>
<td>2,170,000</td>
</tr>
<tr>
<td>Number of service desk tickets logged per month</td>
<td>5,600</td>
</tr>
</tbody>
</table>

Source: eMR, LightsOn Network and other tools.
More than 5,500 people visit every day for tests or consultations across all locations and there are around 20 babies delivered at RPA and Canterbury Hospitals.
ICT DIRECTORATE SERVICES

Client Services
The client services team provides the technical capability to capture, transfer, extract, display and report on data from the eMR and other ICT systems. This team provides the capability to integrate disparate systems, provides the ability to transfer information and facilitates the central single electronic medical record.

Client Services provides the following:
- Provision of HL7 interface messaging between the Electronic Medical Record and non-Cerner clinical systems e.g. iPharmacy.
- Provision of reports and data extracts to support internal, State and Commonwealth mandatory reporting requirements along with scripting for use in the eMR Powerchart application.
- Development of Cerner eMR MPages.
- Database administration for legacy systems such as HIE.
- Application support for legacy systems such as Theatre Management, Allied Health, KRONOS reporting.
- Database administration for corporate SQL databases.
- System Administrator for Help Desk software including the provision of activity reports.
- Provision of adhoc outcome/activity reporting functionality for the eMR.
- Quality assurance activities including EQuIP requirements for ICT.
- Development and support of applications used to securely transmit eMR data to other organisations such as Medicare, GP’s etc.
- Co-ordination of activities related to Information Security Management (ISMS).
In 2014, the District provided and maintained 123 different interfaces into the electronic Medical Record, for clinicians to see and update the data they need.
Web Services
The Web Services team is responsible for the publication of SLHD Intranet and Internet sites. This directorate has experienced web professionals that can develop or transform web sites (internal and external) into attractive and effective media productions.

Web Services provides the following:
- Construction of intranet and internet sites.
- Development and maintenance of Content Management System.
- Design and development of financial web based systems e.g. LHD donations.
- Design and development of non-clinical web-based databases.
- Converting local Access databases to web based systems.
- Development of web based forms in required format e.g. IM&TD system application forms.
- Publication of policies, procedures, guidelines, manuals, rosters.
- Design of websites for further development by the end users.
- Hosting and maintaining an on-line survey tool.
- Maintaining online search functions.
- Maintaining SharePoint 2010 server and sites.
- Providing advice on planning your website’s design, content, position, navigation, etc.

On average, there are 17,400 unique visitors to the District-provided intranet site every day.
The Sydney Local Health District’s suite of websites are visited by over **16,000** people in any one month.
Desktop and Communication Services

This team provides the core infrastructure components allowing ICT to successfully facilitate business functions throughout the District.

Services are end-user facilities and technology touch points including desktop, laptops, tablets, smart phone, desk phones, pagers, printers and other attached peripherals.

Desktop and communications services also provide the core communication networks which facilitate District-wide communications including connectivity between facilities and to the internet. This also includes the expansion of the wireless network.

The central service desk manages all requests for support and any existing and emerging technology services that are required within the District.

Desktop and Communications services provides:

• Developing standards for desktops, laptops, tablets, smart phone, desk phones, pagers, printers and other attached peripherals.

• Installing desktops, laptops, tablets, smart phone, desk phones, pagers, printers and other attached peripherals for some facilities.

• Design, implementation and support for core data and voice (PABX and voice over IP) communication networks including the WAN, wireless network and paging services.

• Providing the Help Desk which receives and triages most requests for ICT support.

• Managing Network, Internet Security and Anti-virus functions.

• Managing all Telstra data services, mobile and fixed line services.
More than 2,000,000 emails are transmitted via the Sydney and South Western Sydney Districts’ systems every month, all are checked for viruses and spam.
**Data Centre Services**

The Data Centre Services team is responsible for the purchase, installation, configuration, implementation, maintenance and support of all servers resident in the Data Rooms managed across the health districts. It comprises seven sections, Systems Administration, Database Administration, Intel- Clinical, Intel- Corporate, Computer Operations and Facilities Administration.

Data Centre Services provides the following:

- **Purchase, installation, configuration, implementation, maintenance and support of all servers resident in the four Data Centres managed across the health districts (Liverpool, Concord, KGV and RPA) that deliver District-wide applications such as the eMR, Kronos Rostering, HOSBIL, Allied Health and other Legacy applications.**
- **Purchase, installation, configuration, implementation, maintenance and support of all Citrix servers which allow user access to clinical applications such as EMR, CBORD and ISOH.**
- **Purchase, installation, configuration, implementation, maintenance and support of all Citrix servers which allow user access to non-clinical applications such as Email, Internet, Intranet, Active Directory and Finance.**
- **Purchase, installation, configuration, maintenance and support of all email, Active Directory, Anti-Virus and Window Update servers and services.**
- **Provision of backup services for all systems hosted in the Data Centres.**
- **Provision of High Availability and Disaster Recovery services for the eMR.**
- **Provision of database administration services for the eMR.**
- **Provision of database administration for legacy corporate systems such as KRONOS and HOSBIL.**
- **24/7 monitoring of all devices in the Data Centres.**
- **Setting standards for Data Centre utilities such as air-conditioning and power.**

**Systems Administration and Database Administration**

support the large computer nodes that deliver district-wide applications such as the eMR, Oracle Financials and Supply, Workforce/Kronos Payroll, HOSBIL.

**Intel-Clinical** supports all of the Citrix devices which allow user access to eMR, CBORD, 3M Encoder, ISOH and the servers in the Data Rooms that provide applications for Cardiology, Pathology, Sleep Units, Fetal Medicine, CBORD, ISOH, Chest Clinic, Cancer Therapy, Renal, Mental Health, Pathology and others.

**Intel-Corporate** supports all devices in the Data Rooms that deliver applications such as Email, Internet, Intranet, Active Directory, Print and File, Engineering, Service Desk, Library, Billing, Finance and others.

**Computer Operations** is responsible for monitoring all devices in every Data Room, twenty-four hours per day every day of the year and running scheduled jobs to ensure the health of each device. They also respond to any failure or incident which may have a detrimental effect on the provision of service to our customer base.

**Facilities Administration** maintains and supports the physical aspects of each Data Room. This includes the air-conditioning, power, security, cleanliness etc. of each room. This position also plans for the implementation of any new device.

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The data we manage for Sydney and South Western Sydney Local Health Districts is about 8 times the size of the National Library of Australia Digital Storage Collection.
Our data accounts for about 20% of the whole State’s eMR digital health information.
The electronic medical record (eMR) is an electronic record of health-related information on an individual that can be created, gathered, managed, and consulted by authorised clinicians and other health service staff. It can also include, under appropriate circumstances, information generated by the individual themselves. With the consent of the individual, it can be shared between different health care settings.

The SLHD electronic medical record (eMR), also known as Powerchart, has been in development since the early 1990s when Cerner’s Pathology module (Pathnet) was first implemented. It is now one of the most well developed eMRs in Australia.

With a fully implemented eMR a clinician can:
- Locate a patient (in a ward, emergency department or theatres).
- Review all tests ordered and the results of those tests.
- Order new tests.
- Document histories, assessments, interventions, treatment plans and progress/outcomes.
- Schedule outpatient appointments.
- Review the current medication record and order new drugs.
- Generate a clinical pathway and document care.
- Refer the patient to other health care providers.
- Generate discharge referrals.
- Record allergies and alerts.
- Identify a patient requiring handover and document necessary information according to best practice models such as SBAR.
- View information documented by other clinicians where patients have presented to another service within the District.
- View new results and documents created for their patients.
- Retrieve information for research and outcomes analysis.

The primary reason for having an eMR is so clinicians can access their patients’ clinical information through one access point from anywhere and at any time, including remote access via secure network access. The long term aim is for the eMR to replace the paper record and become the primary source of information for health care, meeting all clinical, legal and administrative requirements.

The District’s clinical information systems strategy includes the provision of information systems solutions appropriate to community and primary based health services. A gap analysis undertaken in 2001 determined that the Cerner suite of applications could be used to meet a very substantial part (possibly as high as 95%) of the functional and data requirements known to be planned to be delivered through CHIME (NSW Health’s community information system) and more than CHIME in a number of functional areas. Based on this analysis, the former area health service determined CHIME would not be implemented and a decision was made to go with a Cerner module. The District build of mental health, sexual health and community health modules are now being used as the base for the state-wide build of the community health system, named CHOC (Community Health and Outpatient Care).

The District operates as part of NSW Health and follows its policy decision that all future clinical modules implemented in SLHD must be able to be integrated into the existing eMR. The District will continue to select clinical modules based on performance, functionality and system design, regardless of the vendor, as long as they are able to fully interface with the eMR.

Providing real time access to, and communication of, legible information in conjunction with automated decision support aims to reduce adverse events, improve patient safety and the quality of care. All information recorded and modified is retained and able to be audited for clinical and medico-legal purposes.

The eMR development needs to be commonly agreed, clinically meaningful and efficient, delivering the maximum benefits for patients, staff and the organisation. It is a long, complex and challenging process which can be influenced by external factors such as State and National initiatives and requirements of the District. The implementation will evolve with changing priorities and legislation, developments in information system products and lessons learnt along the way.

It will be some years before the District has a completed eMR so until that time there will be hybrid patient medical records (part paper, part electronic) and staff will be required to access both. SLHD has a policy to assist in the transition away from paper that states that what is stored electronically in the eMR does not have to be printed and filed in the paper medical record.

The Electronic Medical Record (eMR) team operates as part of the Information Management and Technology Division and manages the ongoing design, development and support of the eMR. The group also assists in identifying and addressing medico-legal, governance and clinical practice issues related to the eMR.
More than 23,900 staff accessed the electronic medical record (eMR) in 2014 across Sydney and South Western Sydney Local Health Districts.
The eMR team provides the following:

**eMR System development**
- Implementation of new modules and ongoing rollout of existing modules.
- Development or escalation to the vendor of functionality enhancements.
- Implementation of mandatory reporting requirements.
- Assessment, testing and implementation of new functionality delivered with software upgrade.

**eMR Training and Support**
- End user application support including the management of issues and the escalation of issues to the vendor if required.
- Development and maintenance of end user materials.
- Development of release notes for new functionality implemented with software upgrades.
- Involvement in user reference group meetings.
- Training for clinical (Powerchart, FirstNet, SurgiNet, etc.) end users.
- Training for Person Management, Profile and Scheduling super-users.

**eMR Security**
- Creation and maintenance of user access accounts and privileges.
- Provision of information regarding breeches of privacy and inappropriate access.

Everything we do at Sydney Local Health district is focused on patients and families, including our information and communication technologies.
PROVIDER CONSULTATION OUTCOMES

The following section outlines the outcomes of the provider consultations analysed by themes that are relevant across several different work areas. The discussions with stakeholders in information and communication technology from both within and outside the organisation created lists of “Strategic Directions” which were then used to develop a detailed action list, assigned to the District’s Domains, that are listed in Strategic Actions by Domain (page 48) and prioritised in the table on Page 52.

Whole of Life eMR
A key area of interest for all providers who were consulted centred on the roll-out of the Electronic Medical Record (eMR). Diagram 1 illustrates the concept that the eMR will be built on the shared hardware platform. Complexity of the system increases as new, specialised components of the system are added.

The primary purpose of the medical record and the aim of an eMR is to provide clinicians with a single view of the patient where all the relevant past and current clinical information is readily accessible.

eMR implementations to date include:
• Person Management (PAS) — used to collect patient demographic details and create encounters for each hospital or community visit.
• Scheduling — used for scheduling patients to see doctors and nurses in outpatients and community health centres.
• Order Management — used to place orders for diagnostic tests such as chest X-rays and for services such as porters or allied health consultations.
• Clinical Documentation — used to collect clinical information such as physical assessment, medical history, observations and outpatient letters. Major functions implemented in varying degrees include:
  ◦ Discharge summaries
  ◦ Renal eMR
  ◦ Diabetes in Pregnancy eMR
  ◦ HIV Ambulatory eMR
  ◦ Nursing and JMO handover
  ◦ Chronic Disease eMR
  ◦ Palliative Care eMR
  ◦ Outpatient letters
  ◦ Child and Family Health Nursing eMR
  ◦ Community Health Nursing eMR
  ◦ Mental Health eMR
  ◦ Wound management
  ◦ Peripheral Vascular Access Management
• PACS — integration with the eMR.
• Alerts — implemented Clinical, Child Protection and Chronic Disease alerts.
• Learning Live — computer-based training module.
• Electronic Patient Journey Board — patient information that is uploaded directly from their eMR, replacing information manually transcribed to a whiteboard.
• Voice recognition — used in Concord emergency department to generate clinical documentation.
• Medical Record Tracking — used to track the location of the paper medical record.
• Clinical Coding — used to record the diagnoses and procedures for inpatient encounters (visits) and specific cancer information.
• FirstNet — the emergency department module.
• PathNet — the laboratory department module.
• SurgiNet — the operating theatre module.
• Discern Expert — used to generate tasks and alerts for users.
• Medication Management — used to prescribe and verify medications and record the administration of that medication.
• CPDI — used to scan paper and import non-PACS images.
• PowerInsight — used for adhoc and routine reporting.
• Powerchart ECG — utilises DICOM for storing and displaying raw ECG data from within any Cerner solution. Allows for full ECG analysis and comparison, along with the ability to adjust presentation (i.e. leads, median beat overlay, etc.).

Future projects include:
• Powerchart Cardiology
• Powerchart Maternity
• Between the flags
• SBB eMR2 Program
• SBB CHOC Program
• Medical and CNC consults
• Connecting patient monitoring devices (iBus) to Cerner to enable data to be electronically imported into the eMR.
**Challenges**

Key challenges in developing ICT into the future include:

- Designing the system for the most efficient approach to data collection, location of relevant data and extraction of data.
- Managing the medico-legal issues associated with ICT including privacy and security. In particular there is a need to deal effectively with privacy breaches. The ongoing requirement of printing and storing paper results if they are stored electronically needs to be determined.
- Managing the change in work practice and overcoming workflow challenges e.g. how to do real-time data entry when you see 30 patients in a four hour clinic and how to effectively communicate with the patient while using the computer.
- Managing and providing the significant financial, training and personnel issues associated with the required developments of the eMR.
- Ensuring that an adequate number of clinical workstations are appropriately located.
- Addressing mobile computing needs e.g. for nurses administering medications and community health workers doing home visits.
- Ensuring the optimal performance and stability of the database with disaster recovery and high availability needed for business continuity.
- Implementing change in a managed fashion to ensure staff can adapt. The challenge is in undertaking change management in a busy and dynamic clinical environment such that it does not negatively impact on workflow and quality care.

We are at a level of maturity that it is not just about replacing paper and automating processes; we need to focus on quality and patient safety utilising best practice and standards. We need to leverage the investment in the eMR by utilising the powerful information to improve patient outcomes and increase the efficiency of delivering patient care.
“Integrated care means providing seamless, effective and efficient care that responds to all of a person’s health needs, across physical and mental health, in partnership with the individual, their carers and family.”
Sydney Local Health District

PowerChart, the default clinical viewer to the patient electronic medical record (eMR) is widely used across the SLHD; however, there are still hybrid medical records systems in place. Clinicians are looking forward for the eMR to include additional information which they consider essential to good patient care such as external pathology results and diagnostic imaging from private providers and electronic referrals which they believe will decrease duplication and improve care.

eHealth NSW has implemented a State-wide Enterprise Image Repository (EIR) which is intended to store these types of images, regardless of where they were performed, and make them available to authorised users for viewing anywhere on the Health Network. Once fully implemented, the EIR will enable our clinicians to access images performed by all public facilities within NSW.

Digital radiology images and digitised ECG traces have been available for at least five years, which has had a positive impact on patient care. However, making that digital imagery available to on-call clinicians is complex without the appropriate additional functionality in the PACS system or without the image capture capability in the eMR. Clinicians would like the ability to take clinical photographs, for example, of a patient’s wound, burn or for any other clinical purposes, using smart devices and to upload the image into the patient’s eMR.

The medical records department (Patient Information Services) manages the storage of the paper record, and as patient numbers increase the number of paper records increases. The physical storage space for paper records and the cost of their management needs to be weighed up against the cost of digitisation e.g. scanning and the further development of the eMR. SLHD needs to continue to revise its policies and processes to mitigate the potential clinical risks associated with hybrid records until full digitisation is achieved.

Strategic Direction:

- Establish a roadmap to a whole of life eMR which supports a single view of the patient record.

Integrated Care — Connectivity

Improving and expanding integrated care is one of the priority strategic directions for SLHD. Integrated care involves the provision of seamless, effective and efficient care that responds to all of a person’s health needs, across physical and mental health, in partnership with the individual, their carers and family. It means developing a system of care and support that is based around the needs of the individual, provides the right care in the right place at the right time, and makes sure dollars go to the most effective way of delivering healthcare for the community.

There are challenges associated with achieving integrated care in both the acute, non-acute care and primary care settings that need to be addressed through service redesign. ICT will be an essential enabler in that redesign. The capacity of ICT to support integrated care is dependent on the breadth of the eMR, i.e. the range of modules implemented that support particular care pathways, and access by all providers.

There is a challenge in being able to provide continuity of relevant clinical information across all care providers which is compounded by the need to capture the necessary data to support activity based funding. While of the journey to fully integrated care is still underway, there are potential solutions being trialled or implemented.

One such solution is HealtheNet, a clinical portal developed by NSW Health. HealtheNet is a statewide enabler of integrated care. HealtheNet enables efficient sharing and access to patient information for NSW Health clinicians from across NSW Health Local Health Districts (LHDs) and a patient’s Personally Controlled Electronic Health Record (PCEHR) via the NSW Clinical Portal.

The NSW Clinical Portal consolidates clinical information about patients from outside the District’s own electronic medical record (eMR). Patient information available in the NSW Clinical Portal includes:

- Patient identifiers from across NSW Local Health Districts (LHDs), including Medical Record Numbers (MRNs), Area Unique Identifiers (AUIDs) and a patient’s National Individual Healthcare Identifier (IHI)
- Cross-LHD discharge summaries, event summaries from community health services, alerts, allergies and hospital visit histories.
- Cross-LHD medical imaging studies and reports.
- PCEHR information including Discharge Summaries from other States, Medicare Information, GP Shared Health Summaries, Specialist Letters, eReferrals and Consumer Entered Information.

HealtheNet was introduced to Sydney Local Health District at the end of March 2015.

The District will ensure the implementation of strong Data and Information Governance when collecting data across the care continuum in order to support communication and research across care settings.
Our expert teams have a depth of knowledge specific to the health sector and our clinicians understand the potential of technology and constantly seek new solutions.
Strategic Directions:

- Implement centralised systems (e.g. HealtheNet) as the platform for sharing information of relevance to patient care between clinicians. This includes developing a whole of life eMR including: Powerchart Maternity, CHOC, PowerCardiology, eMM, Powerchart Oncology.
- Provision of information on services and healthcare to the SLHD population via a number of channels such as the Internet, social media, SMS, e-mail, via SLHD web pages and patient portals.

**HealthPathways**

Sydney Local Health District is working with the Inner West Sydney Medicare Local on the implementation of HealthPathways, a web based portal that provides primary and secondary care clinicians access to locally determined clinical indicators for disease management and support, coupled with information on local services and options for patients. HealthPathways websites are developed through the active collaboration of primary and secondary care clinicians and are designed to connect the patient with the appropriate service with the right management plan.

HealthPathways Sydney is part of a growing community of HealthPathways sites across New Zealand and Australia with local development teams supported by technical writers and web support services based in New Zealand.

Patient, Client and Community Engagement

Sydney Local Health District has a robust Consumer and Community Participation Framework that provides a blueprint for the way we will develop effective partnerships with our consumers and communities.

Community participation embraces a philosophy of ‘working with’ rather than ‘doing to’ people. Community participation is the involvement of consumers and carers in decisions about the health of individuals, as well as the involvement of consumers and communities in decisions about the planning, provision and evaluation of healthcare services. The ‘working with’ philosophy recognises that client expectations regarding their interaction with healthcare providers are changing rapidly. An example is the growing use of technology by individuals to collect or receive health information via smart devices and wearable devices and apps that collect and monitor daily activities and health indicators. This growing interactive capability can be harnessed through patient portals which have been widely adopted by leading health providers internationally. Significant efficiencies could be achieved simply through the use of such a portal to manage planned appointments.

Currently most appointments, treatments and procedures within SLHD are booked by telephone, which is labour intensive and does not always meet our patient’s and community’s growing expectations for technology to support self-service and choice. Based on feedback from community and consumer groups as well as market trends, it is clear that contemporary services should be digitally enabled via a number of channels such as the internet, social media, SMS, e-mail, online content and patient portals.

There is recognition within our services and the community that we need to improve the District’s online presence through the SLHD website to include:

- Up-to-date and interactive information regarding services, health promotion and literacy information (e.g. links to existing trusted sources of information).
- The ability to support client self-service (e.g. to enable clients to book appointments online, update their personal information, supply information pre-admission or complete online patient surveys).

Client groups would like videos on what to expect when you come to hospital, disease related information and surgical procedures, while our NGO partners want to be able to find a specialist, know when and where clinics take place etc. eReferrals and the associated workflows would assist this process.

Patients and visitors would like to have Wi-Fi and internet access available at SLHD facilities in order to access SLHD and other digital content.

**Promoting Patient and Family Care**

In using ICT to promote healthy choices the use of mobile devices is just the start. For example, public libraries are just starting to experiment with loan of Ipads and other devices and there may be scope for people to take mobile devices to use to record and get information on their dietary choices for example. This may occur between outpatient visits and patients may then bring them back in for uploading and to receive further advice. This is possible through apps people can put on their own devices. Loaning equipment could be a possibility in some cases.

Strategic Directions:

- Continue to develop the SLHD website providing timely, accurate and consistent health information for our patients, staff and community.
- Continue to add value to our communication strategies by incorporating a range of existing and emerging communication tools. These include: visual communication, social media, and online campaigns, databases etc.
- Develop a patient/community platform to support online self-service e.g. for self-service appointment booking.
- Develop a patient information portal and resource centre for the development and delivery of consistent patient and community centred information about healthcare and services. The resource centre aims to put all of our patient information in one easy to access location. This is in line with our community expectations and the national healthcare standards.
There are around 14,000 desktop computers used in Sydney Local Health District, all provided and maintained by the Desktop and Communication Services team.
Use ICT to improve access to, and communication with, health services e.g. provide on-line bookings of outpatient services, send reminder notices for bookings made by SMS & email, provide updates on progress for elective surgery.

• Implement eReferrals and associated workflows for common referral pathways

• Investigate the use of kiosks e.g. to display health literacy information, assist patients to self-servce and perform way-finding.

• Support the development of smart device apps to support way-finding or as a means of interacting with services.

• Complete the expansion of the Wi-Fi network to all facilities which can accommodate staff, patient and visitor access to the internet.

• Develop mobile applications to help enable access to our hospitals and services for patients and to facilitate way-finding. Into the future, the second stage of this application would be to customise the information for individual patients.

Alignment with State and Commonwealth eHealth initiatives

HealthShare and eHealth NSW

The NSW Government has established eHealth NSW as a separate entity from HealthShare with the specific intent of overseeing the strategic direction of eHealth throughout the Local Health Districts. This reflects the growing importance of ICT in the effective and efficient delivery of healthcare.

Inherent in the charter of eHealth NSW is the development of a refreshed eHealth Strategic Plan which:

• Articulates the benefits of eHealth to patients, clinicians and the community.

• Consolidates the expansion of existing State-wide eHealth applications.

• Demonstrates the transparency of the eHealth infrastructure to ensure reliability and security of patient information.

• Supports new eHealth solutions – including mobile and innovative “disruptive” technologies, and locally driven solutions – to meet changing needs and deliver new models of care, including outside the hospital setting.

• Builds eHealth capacity across the whole NSW Health network, as well as developing key partnerships and collaborations that will enable and support connectivity across providers and treatment settings.

The participation of the Chief Executive of the District on the eHealth Executive Advisory Council and the Chief Information Officer on the eHealth ICT Infrastructure Committee ensures that plans are aligned and that Sydney Local Health District and eHealth leverage off each other’s developments.

There have been significant changes in the last few years in the way that ICT projects are delivered with many of key administrative systems such as Finance and Payroll implemented in partnership with HealthShare. Additionally there are growing state-sponsored, large clinical programs such as Endoscopy and ICU which are being driven by the Agency for Clinical Innovation (ACI). Such programs need to be implemented in partnership with District for them to be effectively implemented.

HealthShare (eHealth NSW) has a large number of state wide programs that are being progressively rolled out. There needs to be enhanced visibility and a closer alignment of the eHealth program timelines to our District initiatives and priorities. These programs will deliver significant benefits to our District and address many of the requirements articulated by stakeholders, for example, by enabling functions such as staff self-service, improved access to and recording of staff education, improvements to the recruiting process, enabling enhanced eMR functionality and supporting integrated care; all of which are required by our District to meet our corporate goals. Again these programs will be implemented in partnership with HealthShare.

Historically our District has managed its own data centres, while other LHDs have outsourced this function to eHealth NSW. Downtime for the SLHD data centres has been much lower than in comparative centres. The duration of any planned downtime has also been lower.

Nonetheless, our District could investigate whether these facilities should be moved to the State Data Centre or to a private provider such as the Cerner Regional Hosting Operation (RHO). There are three key reasons for this:

• SLHDs’ ability to adequately maintain the required hardware will be challenged as the two LHDs becomes more digital, and more systems are deployed.

• Current IM&TD staff who have extensive data centre skills are nearing retirement. These resources are not easy to find and are in high demand in the overall IT marketplace.

• The NSW Government has mandated that all agencies migrate to the new Whole of Government data centres by 2017. There is likely to be ongoing pressure on the LHDs to move to this arrangement.

The Australian Commission on Quality and Safety

The Australian Commission on Quality and Safety in Healthcare initiatives oversees the Safety in eHealth program to support quality practice. The main elements of this are:

• Optimising safety and quality within the rollouts of clinical systems, with an initial focus on discharge summary and hospital medications management programs.

• Using initiatives to improve the safety and quality of health care.

• The secondary use of information agenda – optimising the reuse and analyses of safety and quality data available from clinical systems, to further drive improvements in safety and quality.

The Commission works in collaboration with jurisdictions, the private hospital and primary care sectors, the National eHealth Transition Authority.
At the end of 2014, there were over 5,800,000 patient records stored in centralised, electronic format across the Sydney and South Western Sydney Local Health Districts and the number continues to grow.
There is widespread use of personal smart devices at work. Staff would like to log on to the hospital network with their own devices in lieu of a LHD supplied device. The proliferation and widespread adoption of powerful smart devices for personal requires a “Bring Your Own Device (BYOD)” Policy and associated mobile device management (MDM) models / tools to ensure it is current. Considerations are: security, privacy, support, and the dependence on available Wi-Fi networks. From the available evidence when BYOD is implemented well, the benefits far outweigh the potential risks.

An accessible, secure Wi-Fi network is a pre-requisite to the use of mobile devices within a facility. Additionally, there needs to be a simple enrolment process to permit approved devices to access the secure network. For mobile access outside facilities, for example, in the community, mobility needs to rely on portable devices and 3G or 4G networks and devices will need to be equipped with either a SIM card or a wireless modem.

A single sign-on process to the network and applications has the ability to transform healthcare delivery and staff considered this functionality highly desirable.

**Strategic Directions:**

- Amend each user’s network profile to enable Internet access as a default and implement a comprehensive communication plan to advise staff of the change in policy reiterating that usage will be monitored.
- Complete the expansion of the Wi-Fi network to all facilities to facilitate staff, patient and visitor access to the internet.
- Review the BYOD and Mobile Device Management (MDM) policy to ensure that it adequately protects the confidentiality of patient information and sensitive corporate information while delivering the productivity benefits that such mobile devices can bring.
- Investigate the necessary infrastructure and management systems to properly implement a BYOD environment.
- Ensure all mobile devices, such as smart-phones and laptops that are issued by the District have a standard configuration which includes access to the LHD Wi-Fi network, the internet support off-site mobility requirements via 3G/4G networks and are managed by a MDM system.
- Define and implement a process to support single sign-on to the network and applications.
- Ensure Internet connectivity has the appropriate capacity and resilience to support current and future user requirements.
- Provide a single directory within SLHD that integrates with the state-wide directory enabling single sign-on across the state.
- To ensure improve reliability, network performance, improved training, support and maintenance of equipment, a review will be conducted to establish in the communications unit of IM&TD improved capabilities to oversight mobile device management in the District to ensure its utilisation and management is optimised.

**Access and Mobility**

Access refers to the ability of authorised healthcare workers to obtain access to the right information, in the right place, at the right time.

Users require ready access to fixed hardware such as PCs or mobile devices such as laptops, tablets or other smart devices which may include those supplied by the District or a university and those owned privately by the user. Access also includes systems, networks, the Internet and the ability to work at a variety of locations e.g. LHD hospitals and services, university facilities, a patient’s home or remotely at their own home and with a high degree of availability 24hrs a day, 7 days a week, 365 days a year. As the eMR and other ICT system configuration which includes access to the LHD Wi-Fi network, the internet support off-site mobility requirements via 3G/4G networks and are managed by a MDM system.

Access to a Wi-Fi network across the District and fast easy access to the electronic medical record (eMR) and the Internet is seen as a priority by most stakeholders. All stakeholders reported on the rich sources of clinical information available on the Internet and their expectation to have ready access to these in a state-of-the art healthcare environment.

IM&TD have implemented tools to ensure that there is monitoring and content management filtering of internet access to mitigate the risk of inappropriate use.

Patients and visitors’ have also expressed a need for access to Wi-Fi and internet on our District campuses. Improvement is required to the enrolment procedure to enable a LHD-supplied device to access the Wi-Fi network.

**Strategic Directions**

- Work with eHealth and Healthshare on the development of a comprehensive corporate ICT plan to ensure alignment of programs and resources.
- Work with eHealth to develop an implementation methodology that ensures that the needs of the District are recognised.
- Work with eHealth and other Districts on eMR modules to ensure alignment, reduce duplication and increase the ability to leverage off each other’s initiatives and innovations.
- Work with eHealth NSW to improve visibility of future implementation plans in order to ensure alignment between our District and eHealth’s program of work.
- Investigate opportunities to transfer the data centres into the State Data Centre or to a private provider such as the Cerner Regional Hosting Operation (RHO).

**Network.**

It is expected to have ready access to these in a state-of-the-art healthcare environment.

There is a need for access to Wi-Fi and internet on our District campuses. Improvement is required to the enrolment procedure to enable a LHD-supplied device to access the Wi-Fi network.
Communication Technology

Communication Technology covers a broad spectrum of communication modalities. These include both traditional and IP-based telephony and their associated PABX systems, Video Conferencing (VC) using both mobile devices via the Internet and installed VC devices, Radio Paging systems, messaging systems such as SMS and MMS, instant messaging systems and the use of mobile phone technologies. Video conferencing technologies in particular are important enablers of telehealth initiatives, innovative models of care and integrated care pathways.

VOIP PABXs is the future direction for facility-based fixed telephony and has already implemented in a number of facilities across the District including RPA. Some PABX systems at other facilities throughout the LHD are approaching end on life and need to be replaced. From the implementation at RPA, there is a good understanding of the technical requirements as well as a capability to host smaller facilities. An important benefit of VOIP PABX is the linkage with a single source of truth for staff details (e.g. Active Directory) which should help ensure that up-to-date contact details are maintained. The implementation of the VOIP PABXs to date has been conducted as a business as usual activity. To ensure that future roll-outs can be completed quickly they should be managed as properly resourced projects, not as business as usual activities.

Video Conferencing

Sydney Local Health District has implemented videoconferencing as an alternative to face to face meetings in the majority of its sites. This has been successful in decreasing travel time, increasing availability of staff for meetings and improving productivity. A significant number of the District’s meetings are held via videoconferencing.

The two main modes of Video Conferencing (VC) utilised are ‘Fixed Facility’ video conferencing and Internet-based video conferencing. ‘Fixed Facility’ video conferencing refers to the type of VC where the equipment (camera, screen, and telecommunication) is usually permanently located in a room or department. This mode also includes those VC which can be moved from room to room within a building such as those affixed to a Computer on Wheels (COW) such as those set up in some tertiary facilities which provide clinical support to rural clinicians. Fixed Facility Video Conferencing is ideally suited to scheduled, recurrent interactions such as regular internal team or MDT meetings where the participants are in different, geographically dispersed facilities. It supports the participation of many people at each site where the equipment is located.

To ensure reliability, network performance, improved training and support, maintenance of equipment, a section will be established in the communications unit of IM&TD to oversee videoconferencing to ensure its utilisation and management is optimised. The productivity benefits of video conferencing, particularly for organisations that are widely geographically dispersed, are indisputable. These include decreased staff travel time for meetings, the clinical care benefits of providing enhanced services to rural and remote areas and supporting new models of care.

Internet-based video conferencing that uses PC, laptops, tablets or smart phones and specific video sharing applications such as Skype, Whatsapp, and Apple’s FaceTime. This mode is more suited to ad hoc requirements, particularly one-on-one sessions. It has the key advantages of being quick to set up and supports high definition video. In addition to those applications above, there are commercially available applications such as Microsoft’s Lync, Webex and GoToMeeting and GoToWebinar that support multi-participant environments and are well suited to supporting remote education and training.

This functionality is being used; however, currently this is no support for its use on personal devices. The current BYOD policy limits the potential usefulness of this mode of video conferencing. Desktop Video Conferencing has the potential to deliver wide-ranging benefits including the elimination of travel time and consequent cost reductions e.g. for staff internal meetings, formal training/education and Multi-Discipline Team clinical care meetings. The District will investigate the possibility of extending technology support for these Tele-health initiatives and models of care with the potential to reduce the need for patients to attend hospitals and community health centres for their care.

The District has established an ICT working committee to review the use of pagers across the District. There is a general view that the current technology is outdated and has limitations. Currently clinicians carry both pagers and smart-phones as a means of communication. Although paging technology is reliable, it has the obvious limitation in that it cannot accommodate detailed messages and requires a follow up telephone call. There are currently a number of challenges in using mobile telephones as a primary means of communication as mobile signal quality and access varies greatly across facilities and across the community. In addition staff mobile contact details are not always up to date and available in a central location. Mobile phone signal repeaters are a cost effective technical means of boosting the mobile phone reception in facilities where signal strength is an issue. In disaster situations, pagers are considered a more reliable means of accessing staff. Future approaches to paging may also include mobile VOIP, and the integration of instant messaging, SMS/MMS messaging with an exchange server. All of these approaches require that the ‘source of truth’ for contact details, i.e. the Active Directory, is properly configured and maintained so that contact information is always correct and up to date. These approaches need to be evaluated in the broader context of the LHD’s ICT enterprise architecture.

Strategic Directions

- Complete the replacement of end-of-life PABX systems including the necessary planning and resourcing to implement the new systems without interruption essential telephony services.
- Complete the replacement of associated Call Accounting and Directory System services associated with the PABX replacements.
• Implement tools to manage such systems and to enable the fast and secure provisioning of services.
• Incorporate the findings of the Paging Systems review into a wider-ranging review of internal communication solutions that considers the risks and benefits of alternative solutions such as messaging and is based on authentication via Active Directory.
• Allocate responsibility and appropriate resources for the management and maintenance of these additional Video, Voice and Paging capabilities to the existing communications unit in IM&TD.
• Investigate the use of a managed service provider for fixed facility video conferencing.
• Ensure that the BYOD Policy accommodates the wider adoption of internet-based video conferencing.
• Explore opportunities to actively adopt internet-based video conferencing to support new models of care.
• Investigate and implement a standard desktop multimedia communications platform including video conferencing, messaging, desktop sharing and collaboration.

ICT Asset Management
IM&TD is currently not responsible for desktop acquisition and management. The procurement of PCs is decentralised and General Managers are responsible for ensuring that these comply with a standard operating environment. Asset refreshes do not always take place at the appropriate intervals which means that PC’s may operate slowly or no longer be fit for purpose. This in turn means staff may not be able to access the systems they require to provide services in a timely fashion leading to frustration.

As the District becomes more and more ICT advanced, both clinically and non-clinically, there needs to be an unambiguous understanding of the ICT infrastructure, the specifications and defined method of acquisition, and the maintenance and support arrangements. There are significant benefits in having a single, appropriately resourced business unit responsible for all ICT. There needs to be improved governance for these elements, bringing together ICT, biomedical engineering, clinicians and managers.

An option for consideration for desktop and laptop fleet acquisition is the fixed term lease model. There are several variants of the leasing model designed to suit differing organisational requirements. Similar lease or management models are available for printers and multi-function devices which require connectivity to Local Health District networks.

Currently some business units within the District that acquire ICT assets (systems or devices) do so without discussion with IM&TD. This may lead to incompatibility issues that could compromise the effectiveness of the systems, devices or the network. It is acknowledged that many of these devices require clinical and biomedical expertise in their selection. It is also recognised that these devices contribute data to the eMR. Advice needs to be obtained from IM&TD about how that information will be integrated into the eMR to ensure there is no further fragmentation of the medical record and to ensure that these assets will be supported after implementation.

Strategic Directions
• Develop and implement a policy that defines what constitutes an ICT asset for use on the District network.
• Ensure that IM&TD is consulted in the acquisition and the management of all ICT assets including biomedical equipment that interfaces with the eMR to ensure that they are able to connect to ICT infrastructure.
• Investigate the costs and benefits for the funding and purchasing of ICT, including leasing models, for the desktop, laptop, tablet and printer (or Multi-Function Device) fleet.
• Establish an IM&TD Biomedical Engineering Subcommittee of the ICT Governance Committee with biomedical engineering, clinician, IM&TD and management representation.
Our service desk logs on average **5,600** requests for assistance each month.
ICT Support
Our IM&TD Help Desk provides functional ICT support for approximately 20% of NSW Health including approximately 22,000 staff. A review of this service indicated that while first level Help Desk support was generally considered as being well delivered, concern was expressed about the handling and resolution of more complex or difficult service requests. The effective service management of such a large user base is dependent as much on the functional capability of the Help Desk system as it is on the knowledge and expertise of the support staff. IM&TD has acknowledged that the current Help Desk software needs to be enhanced. Local knowledge and expertise are well recognised as being important in the rapid resolution of issues.

The skills needed to support a complex set of clinical and operational systems in busy hospitals and community service are best developed by staff who are working closely with customers in those facilities. A smooth functioning Help Desk is a key part of ensuring that our District’s ICT strategy is accepted. Staff need to be comfortable that their problems are understood and can usually be swiftly resolved if they are going to have faith in the direction of ICT within the organisation.

The lack of support for departmental systems remains a challenge for two main reasons. Firstly, there is uncertainty about the responsibility and accountability boundaries for ICT systems which provides an opportunity for departments to make their own arrangements without consultation with IM&TD. As a consequence, in some cases, department systems and IT support are acquired and implemented without discussion with IM&TD; however, once operational there is an expectation that IM&TD will provide users with support. This leads to a risk that this support is not properly costed and the skills may not reside in-house with IM&TD.

When departments do employ their own local IT support staff and these team members are off sick, on leave or leave the organisation, there is often no contingency or succession planning and IM&TD are expected to resolve support issues when they do not have visibility of local processes, vendor arrangements and may not have the skills required within the team to support the system. These local IT resources have no accountability to IM&TD, despite the potential risk and impact of their activities on District ICT architecture and infrastructure. IM&TD have identified a need to fully document the Help Desk processes; however, will require additional resources to do this.

Strategic Directions
- SLHD will continue to have a locally managed Help Desk and will investigate the costs and benefits of utilising alternative platforms. If this improves functionality, staff training should be conducted and implementation planned.
- IM&TD will be consulted for all biomedical systems that interface with the eMR and a comprehensive implementation plan will be developed which will include ongoing support for the system.
- Ensure integration of departmental IT resources with IM&TD and implement processes to ensure that support arrangements are agreed and documented.
- Implement basic ITIL practices and processes within an ITIL compatible Help Desk (Service Desk) tool, which may be that provided by eHealth.

Information Management
In today’s era of the hybrid patient record, the overall management of the patient record is essentially federated. Elements of patient records are often held in source systems and databases for research and education purposes. The development and implementation of the Personally Controlled Electronic Health Record (PCEHR or MyHR) provides yet another repository of patient medical information.

In order to effectively manage this hybrid record, the District needs to revise its Information Management Framework so that it encompasses the information lifecycle and defines the necessary governance and policies to ensure that the information is firstly captured and stored and then securely maintained to preserve patient confidentiality and support secondary use for research purposes. The framework will cover research data and information management, data capture for operational decision making as well as clinical data to inform safety and quality initiatives. This includes the adoption of national eHealth standards, the use of clinical terminology, data dictionaries and support for standardisation where possible.

Sydney Local Health District has invested in a leading business intelligence platform (QlikView) that provides powerful search and analytical functions across multiple datasets as well as capabilities for near-real-time dashboard reporting. The decision to select this platform is supported by eHealth NSW which is currently negotiating state-wide licensing. The Performance and Redesign Unit is further developing the Sydney Targeted Activity Reporting System (STARS) based on this platform which has already delivered a range of very useful applications drawing on data from the HIE. Further development of the analytic capability will be vitally important for Activity Based Funding reporting. Clinicians have shown much interest in STARS and are keen to further extend the functionality in relation to the eMR.

Strategic Directions
- Revise the Information Management Framework, with special emphasis on governance and supporting research.
- Continue to invest in the Performance and Redesign Unit and STARS support operational staff, researchers and clinicians to obtain the information they require from existing systems.
- Review the IM&TD and the Performance and Redesign Unit roles and responsibilities as related to the provisioning of Business Intelligence (BI) deliverables in order to maximise resources and minimise duplication.
- Continue to invest in IM&TD resources to support and maintain the complex database models such as the eMR, to enable STARS to maximise deliverables.
Work collaboratively with eHealth information management and analytical capabilities being developed as part of the “Edward” project. This needs to be supported by a highly skilled group of data analytic specialists to ensure appropriate business intelligence for decision support.

Research
With strong links to our university partners, particularly the University of Sydney and our Medical Research Institutes, SLHD will continue to support research, teaching and education of our clinical professionals. The District is committed to ensuring a strong, vibrant and well-governed research and healthcare environment now and in the future. The integration of high quality health delivery, education and research has long been a feature of this District. Much of the focus of the research endeavour is on the translation of research into clinical practice. Through the establishment of Sydney Research, a collaboration between the District and our partners, we aim to further enhance research within the District.

The District, with its University and industry partners aims to establish an ICT Research Unit. This builds on the work undertaken through an the ARC linkage grant in 2008 for investigating and measuring how the implementation of information and communication technologies across SSWAHS has or may be used to support improved models of care delivery by creating opportunities for innovation and work-practice.

The aims of our research are to:
• Describe and measure work innovation associated with the introduction and use of ICT.
• Identify factors which drive ICT work innovation including the role of organisational culture, communication practices, team climate social networks governance structures.
• Test the effectiveness of strategies for enhancing the role of ICT in work innovation.
• Assess the impact of investments in ICT on the quality of clinical care and patient outcomes.

The research involves multiple projects including:
• The impact of mobile devices for Sydney District Nursing.
• The impact of the eMM at Concord Hospital.
• Economic benefit realisation of ICT programs.

Currently IM&TD support for research is mainly in relation to hardware. In the future more storage capacity will be needed for large research data. Improved eMR data capture and reporting capability will accommodate research needs for data mining and ultimately extract data in real-time. Currently the process of extracting data from the eMR is complex and time consuming. The utilisation of STARs to unlock data within the eMR will significantly enhance the use of this clinical data for research.

Improved Wi-Fi coverage is also necessary to support the mobility of clinicians and researchers between our District and university facilities. Internet access is seen as a basic requirement to support researchers and clinicians. Improved interconnectivity between acute, primary and community care records has the potential to enhance research opportunities across the entire care continuum provided an Information Governance Framework is applied.

Health Informatics will continue to be a complex area requiring well-trained and highly skilled staff who understand the eMR, are able to assist clinicians and researchers to perform complex information queries across systems such as the eMR, clinical databases and clinical registries. Their role will be to support clinical and operational reporting as well as complex research requirements. They will also support safety and quality initiatives to improve patient outcomes such as assisting in the development of clinical decision support tools and via analytics to evaluate models of care. The demand for these services is growing in line with our ICT developments.

Strategic Directions
• Revise the Information Management Framework, with special emphasis on governance and supporting research.
• Continue to invest in the Performance and Redesign Unit and STARs support operational staff, researchers and clinicians to obtain the information they require from existing systems.
• Investigate the feasibility of SLHD developing a research partnership with Cerner, the University of Sydney and eHealth similar to the Tiger Institute developed in partnership between Cerner and the University of Missouri and its partner health organisation which is dedicated to improving the health of the communities through the exchange of information.
STRATEGIC ACTIONS BY DOMAIN

The District has identified goals and strategies under each of its Strategic Domains that will assist the District in achieving its vision for SLHD to be a leader in health ICT, supporting our vision of excellence in healthcare for all.

Our Patients, Families and Carers

The District will:
- Use ICT to improve access to, and communication with, health services e.g. provide on-line bookings of outpatient services, send reminder notices for bookings made by SMS & email, provide updates on progress for elective surgery.
- Develop a patient information portal and resource centre for the development and delivery of consistent patient and community centred information about healthcare and services. The resource centre would put all patient information in one easy to access location. This is in line with our community expectations and the national healthcare standards. Implement centralised systems (e.g. HealtheNet) as the platform for sharing information of relevance to patient care between clinicians explore opportunities for home based tele-linked health care consultations e.g. streamed family conferences with community and hospital staff or community nursing consultations with health care providers.
- Embed patient and family centred care principles into the development and implementation of all ICT plans and programs.
- Increase consumer/patient access to Wi-Fi.
- Investigate mobile device usage for inpatients for outpatient treatment and prevention programs.
- Use ICT to facilitate feedback from patients and families/carers.
- Investigate options for television and other info-tainment systems for patients.

Our Community

The District will:
- Engage the community in a whole of life eMR.
- Facilitate way finding through our facilities and services.
- Promote access to timely and accurate information for our diverse community including people with disabilities and Culturally and Linguistically Diverse (CALD) communities.
- Facilitate enhanced on-line engagement and feedback with our community through excellent, accessible web sites and social media options Foster partnership work with the community and our stakeholders e.g. local councils sharing links.
- Develop an online Health community.

Our Services

The District will:
- Establish a roadmap to a whole of life eMR which supports a single view of the patient record. This includes developing a whole of life eMR including: Powerchart Maternity, CHOC, PowerCardiology, eMM, Powerchart OncologyFacilitate connectivity across the continuum of care – community/primary, ambulatory, acute, pharmacy (external laboratory and imaging integration).
- Enhance quality and safety systems using innovative technologies: e.g. Improve access to radiology reports and design systems to track utilisation/ review of results; develop alert systems for electronic observation charts or abnormal results; support ICT strategies to improve medication management.
- Engage key stakeholders including General Practitioners, the Medicare Local, Non-government organisations, community organisations and other government organisations such as Family and Community Services in the planning and implementation of ICT programs. Implement HealthPathways to support the integration of care across the continuum.
- Enhance ICT support capacity including the Help Desk.
- Ensure integration of departmental IT resources with IM&TD and implement processes to ensure that support arrangements are agreed and documented.
- Integrate SLHD ICT with Lifehouse to ensure effective patient care across the two organisations.
- Integrate the eMR with other population data systems.
to enable the development, implementation and evaluation of models of care.

- Enhance Clinical Decision support tools including STARS to support reductions in clinical variation.
- Use ICT to improve access to, and communication with, health services e.g. provide on-line bookings of outpatient services, send reminder notices for bookings made by SMS and email, provide updates on progress for elective surgery.
- Enhance the mobility of the eMR.
- Explore the use of eMR flags such as end of life plans, organ donation.
- Support the development of an equity lens within STARS and develop other Population Health apps.
- Implement eReferrals and associated workflows for common referral pathways.
- Expand tele-health and investigate the possibility of home monitoring devices.
- Investigate the costs and benefits for the funding and purchasing of ICT, including leasing models, for the desktop, laptop, tablet and printer (or Multi-Function Device) fleet.

Our Organisation

The District will:

- Strengthen ICT resources to effectively support a mobile work force, Wi-Fi, general network access, server and desktop support.
- Improve real time performance reporting and analytics to enhance the performance of all clinical, managerial staff from NUM/Unit Director level through to the CEO and District.
- Enhance corporate and business information systems through ICT. For example, payroll, rostering, billing, record management (TRIM).
- Ensure transparent budgeting and financial allocation and reporting to ensure IM&TD is appropriately resourced.
- Strengthen ICT governance/leadership including through developing the ICT Plan and ensure effective provision of services to SWSLHD
- Use industry standard methodologies to manage project delivery including standardised project implementation planning and implementation.
- Ensure transparent communication of ICT projects e.g. newsletter, regular column in Health matters and publication of progress against the program on the SLHD intranet.
- Provide IM&TD with an oversight role in relation to all ICT purchases to ensure compatibility with the eMR and business systems.
- Enhance data security and privacy particularly in relation to mobile devices.
- Develop a comprehensive communication plan to ensure all staff and key stakeholders are kept informed of ICT developments and priorities.
- Define and implement a process to support single sign-on to the network and applications.
- Provide a single directory within SLHD that integrates with the state-wide directory enabling single sign-on across the state.
- Annually review and adjust the five year ICT strategic plan to ensure its continuing relevance, affordability and appropriateness.
- Support appropriate ICT policies and procedures e.g. Down time and escalation.
- Ensure patient privacy remains a priority across all ICT business.
- Review the IM&TD and the Performance and Redesign Unit roles and responsibilities as related to the provisioning of Business Intelligence (BI) deliverables in order to maximise resources and minimise duplication.
- Ensure effective contract management including proactive relationship management of IT vendors.
- Review remote (e.g. Cerner, Whole of Government Data Centres) hosting and cloud options for future eMR requirements.
- Support data mining capability that will support auditing and other business processes.
- Work collaboratively with eHealth information management and analytical capabilities being developed as part of the “Edward” project. This needs to be supported by a highly skilled group of data analytic specialists to ensure appropriate business intelligence for decision support.
- Enhance archiving and storage through advanced search functions.
Our Facilities

The District will:

• Ensure seamless Wi-Fi connectivity throughout the health service.

• Complete the replacement of associated Call Accounting and Directory System services associated with the PABX replacements. Complete the replacement of end-of-life PABX systems including the necessary planning and resourcing to implement the new systems without interruption to essential telephony services.

• Investigate the use of kiosks e.g. to display health literacy information, assist patients to self-serve and perform way-finding. Investigate the use of smart apps to promote way-finding.

• Investigate and implement a standard desktop multimedia communications platform including video conferencing, messaging, desktop sharing and collaboration.

• Develop effective tools, protocols/policies and support for management of Bring Your Own Device (BYOD).

• Review the BYOD and Mobile Device Management (MDM) policy to ensure that it adequately protects the confidentiality of patient information and sensitive corporate information while delivering the productivity benefits that such mobile devices can bring. Ensure that the BYOD Policy accommodates the wider adoption of internet-based video ensure all mobile devices, such as smart-phones and laptops that are issued by the District have a standard configuration which includes access to the LHD Wi-Fi network, the internet support off-site mobility requirements via 3G/4G networks and are managed by a MDM system.

• Ensure all capital developments have an IT component.

• Include ICT in all service and facility capital master and clinical service planning.

• Implement tools to manage such systems and enable the fast and secure provisioning of services.

• Incorporate the findings of the Paging Systems review into a wider-ranging review of internal communication solutions that considers the risks and benefits of alternative solutions such as messaging and is based on authentication via Active Directory.

• Explore the possibility of cloud technology.

• Ensure infrastructure and data centre development and maintenance.

• Invest in teleconferencing.

• Investigate the use of a managed service provider for fixed facility video conferencing.

• Ensure all ICT and equipment/technologies/policies and procedures are compatible with those for the eMR and District.

• Continue to work with clinicians to support greater use of smart phone technologies for SMS and communication rather than using pagers.

Our Environment

The District will:

• Continue the development of the eMR to replace reliance on the paper medical record and reduce paper medical record storage.

• Develop strategies to help staff reduce their carbon footprint including investigating the use of web-based communication applications and encourage the use of teleconferencing and internet meeting solutions e.g. WebEx for meetings to decrease staff travel.

• Include consideration of sustainability in all ICT programs and procurement and engineering systems consistent with the District Sustainability Plan.

• Investigate opportunities for recycling PCs and ICT infrastructure.

• Develop online transport share systems to reduce our carbon footprint.

Our Staff

The District will:

• Facilitate the recruitment and retention of highly skilled, experienced and adaptable ICT staff.

• Streamline access to ICT systems for new staff.

• Recruit a District Chief Medical Information Officer (CMIO) and Chief Nursing Information Officer (CNIO).

• Facilitate the recruitment, retention and development of skilled, experienced and adaptable clinical and corporate staff in the use of ICT systems.

• Support the development of SLHD staff with an interest in project and change management to facilitate the availability of skilled staff for ICT implementations.

• Recruit a Facility Senior Medical Information Officer and Senior Nursing and Allied Health Information Officer to work with the District CMIO, IM&TD and the Research unit in the development, implementation and analysis of ICT in the facilities.
• Identify ICT champions in all departments and link them to IM&TD information and roll outs.
• Enhance staff wellbeing by creating online opportunities to connect with one another and the organisation, and to participate in activities of value to them.
• Ensure that all staff are provided with a hospital e-mail address to improve communication across the organisation.

Our Education
The District will:
• Upgrade existing infrastructure to support new technologies and provide a connected learning environment.
• Upgrade existing infrastructure to support the connection of existing and future teaching and procedural spaces to external partner sites to enhance remote education both nationally and internationally.
• Upgrade or purchase up-to-date equipment to allow streaming of lectures between Canterbury Hospital and Concord and RPAH in particular or to other sites that education is being held. Implement reliable and scalable, service-based technologies with familiar, easy-to-use interfaces.
• Develop IT capability across all sites to allow for streaming of all group educational activities online (e.g., grand rounds, medical college talks and tutorials, medical and nursing undergraduate and postgraduate in-service programs.
• Develop specific ICT training and education programs. Utilise ICT in orientation programs to ensure timely access to essential information. Train staff in tele-health and simulation.
• Develop a Masters of Health Information Management Program with the Australian Institute of Health Service Management.
• Provide ICT infrastructure that allows flexible and accessible learning and teaching through mobile devices to increase the reach of education and training.
• Incorporate ICT in all education programs where appropriate.
• Continue to develop and enhance educational websites that upload and promote accessible learning/teaching opportunities across the District through the use of technologies such as webex and streaming.
• Facilitate clinical and non-clinical learning through simulation.

Our Research
The District will:
• Establish an ICT research/informatics unit headed by a clinical academic in partnership with the University of Sydney and eHealth Use Charles Perkins Clinical Research Centre as a trial of integrated health information management with the University of Sydney.
• Implement Powerchart clinical trials.
• Revise the Information Management Framework, with special emphasis on governance and supporting research.
• Implement a standardised system (e.g., Power trials) that provides integrated clinical registries and clinical data bases within the eMR to support research.
• Continue to invest in the Performance and Redesign Unit and STARs support operational staff, researchers and clinicians to obtain the information they require from existing systems.
• Connect researchers across the district and our partners through the provision of online information.
• Explore ICT platforms that the District holds for research opportunities.
• Develop capability in predictive analytics.
• Integrate clinical registries and clinical data bases within the eMR to support research.
• Expand access to computer training labs.
## STRATEGIC ACTIONS AND PRIORITIES

### Our Patients, Families and Carers

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<th>Priority</th>
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</thead>
<tbody>
<tr>
<td>Clinical Excellence and Leadership</td>
<td>• Use ICT to improve access to, and communication with, health services e.g. provide on-line bookings of outpatient services, send reminder notices for bookings made by SMS and email, provide updates on progress for elective surgery.</td>
<td>High</td>
</tr>
<tr>
<td>Integrated Care</td>
<td>• Develop a patient information portal and resource centre for the development and delivery of consistent patient and community centred information about healthcare and services. The resource centre would put all patient information in one easy to access location. This is in line with our community expectations and the national healthcare standards.</td>
<td>High</td>
</tr>
<tr>
<td>Engagement</td>
<td>• Implement centralised systems (e.g. HealtheNet) as the platform for sharing information of relevance to patient care between clinicians.</td>
<td>High</td>
</tr>
<tr>
<td>Engagement</td>
<td>• Explore opportunities for home based tele-linked health care consultations e.g. streamed family conferences with community and hospital staff or community nursing consultations with healthcare providers.</td>
<td>High</td>
</tr>
<tr>
<td>Clinical Excellence and Leadership</td>
<td>• Embed patient and family centred care principles into the development and implementation of all ICT plans and programs.</td>
<td>Medium</td>
</tr>
<tr>
<td>Engagement</td>
<td>• Increase consumer/patient access to Wi-Fi across the District.</td>
<td>Medium</td>
</tr>
<tr>
<td>Engagement</td>
<td>• Investigate mobile device usage for inpatients and outpatient treatment and prevention programs.</td>
<td>Medium</td>
</tr>
<tr>
<td>Engagement</td>
<td>• Use ICT to facilitate feedback from patients and families/carers.</td>
<td>Medium</td>
</tr>
<tr>
<td>Engagement</td>
<td>• Investigate options for television and other info-tainment systems for patients.</td>
<td>Medium</td>
</tr>
</tbody>
</table>

### Our Community

<table>
<thead>
<tr>
<th>Theme</th>
<th>Strategic Actions</th>
<th>Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integrated Care</td>
<td>• Engage the community in a whole of life eMR.</td>
<td>High</td>
</tr>
<tr>
<td>Integrated Care</td>
<td>• Facilitate way finding through our facilities and services.</td>
<td>High</td>
</tr>
</tbody>
</table>
Integrated Care

- Promote access to timely and accurate information for our diverse community including people with disabilities and Culturally and Linguistically Diverse (CALD) communities.

High

Integrated Care

- Facilitate enhanced on-line engagement and feedback with our community through excellent, accessible web sites and social media options.

High

Integrated Care

- Foster partnership work with the community and our stakeholders e.g. local councils sharing links.

Medium

Integrated Care

- Develop an on-line health community.

Medium

Our Services

<table>
<thead>
<tr>
<th>Theme</th>
<th>Strategic Actions</th>
<th>Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical Excellence and Leadership</td>
<td>Establish a roadmap to a whole of life eMR which supports a single view of the patient record. This includes developing a whole of life eMR including: Powerchart Maternity, CHOC, PowerCardiology, eMM, Powerchart Oncology.</td>
<td>High</td>
</tr>
<tr>
<td>Integrated Care</td>
<td>Facilitate connectivity across the continuum of care — community/primary, ambulatory, acute, pharmacy (external laboratory and imaging integration).</td>
<td>High</td>
</tr>
<tr>
<td>Clinical Excellence and Leadership</td>
<td>Enhance quality and safety systems using innovative technologies: e.g. Improve access to radiology reports and design systems to track utilisation/review of results; develop alert systems for electronic observation charts or abnormal results; support ICT strategies to improve medication management.</td>
<td>High</td>
</tr>
<tr>
<td>Integrated Care</td>
<td>Engage key stakeholders including General Practitioners, the Medicare Local, Non-Government Organisations, community organisations and other government organisations such as Family and Community Services in the planning and implementation of ICT programs. Implement HealthPathways to support the integration of care across the continuum.</td>
<td>High</td>
</tr>
<tr>
<td>Coms Tech</td>
<td>Enhance ICT support capacity including the Help Desk.</td>
<td>High</td>
</tr>
<tr>
<td>Coms Tech</td>
<td>Ensure integration of departmental IT resources with IM&amp;TD and implement processes to ensure that support arrangements are agreed and documented.</td>
<td>High</td>
</tr>
<tr>
<td>Integrated Care</td>
<td>Integrate SLHD ICT with Lifehouse to ensure effective patient care across the two organisations.</td>
<td>High</td>
</tr>
<tr>
<td>Integrated Care</td>
<td>Integrate the eMR with other population data systems to enable the development, implementation and evaluation of models of care.</td>
<td>Medium</td>
</tr>
<tr>
<td>Theme</td>
<td>Strategic Actions</td>
<td>Priority</td>
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</tr>
<tr>
<td>Clinical Excellence and Leadership</td>
<td>• Enhance clinical decision support tools including STARS to support reductions in clinical variation.</td>
<td>Medium</td>
</tr>
<tr>
<td>Integrated Care</td>
<td>• Use ICT to improve access to, and communication with, health services e.g. provide on-line bookings of outpatient services, send reminder notices for bookings made by SMS &amp; email, provide updates on progress for elective surgery.</td>
<td>Medium</td>
</tr>
<tr>
<td>Coms Tech</td>
<td>• Enhance the mobility of the eMR.</td>
<td>Medium</td>
</tr>
<tr>
<td>Clinical Excellence and Leadership</td>
<td>• Explore the use of eMR flags such as end of life plans, organ donation.</td>
<td>Medium</td>
</tr>
<tr>
<td>Keeping People Healthy</td>
<td>• Support the development of an equity lens within STARS and develop other Population Health apps.</td>
<td>Medium</td>
</tr>
<tr>
<td>Integrated Care</td>
<td>• Implement eReferrals and associated workflows for common referral pathways.</td>
<td>Medium</td>
</tr>
<tr>
<td>Clinical Excellence and Leadership</td>
<td>• Expand tele-health and investigate the possibility of home monitoring devices.</td>
<td>Medium</td>
</tr>
<tr>
<td>Coms Tech</td>
<td>• Investigate the costs and benefits for the funding and purchasing of ICT, including leasing models, for the desktop, laptop, tablet and printer (or Multi-Function Device) fleet.</td>
<td>Medium</td>
</tr>
</tbody>
</table>

### Our Organisation

<table>
<thead>
<tr>
<th>Theme</th>
<th>Strategic Actions</th>
<th>Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical Excellence and Leadership</td>
<td>• Strengthen ICT resources to effectively support a mobile work force, Wi-Fi, general network access, server and desktop support.</td>
<td>High</td>
</tr>
<tr>
<td>Coms Tech</td>
<td>• Improve real time performance reporting and analytics to enhance the performance of all clinical, managerial staff from NUM/Unit Director level through to the CEO and District.</td>
<td>High</td>
</tr>
<tr>
<td>Coms Tech</td>
<td>• Enhance corporate and business information systems through ICT. For example, payroll, rostering, billing, record management (TRIM).</td>
<td>High</td>
</tr>
<tr>
<td>Coms Tech</td>
<td>• Ensure transparent budgeting and financial allocation and reporting to ensure IM&amp;TD is appropriately resourced.</td>
<td>High</td>
</tr>
<tr>
<td>Clinical Excellence and Leadership</td>
<td>• Strengthen ICT governance/ leadership including through developing the ICT Plan and ensure effective provision of services to SWSLHD.</td>
<td>High</td>
</tr>
<tr>
<td>Coms Tech</td>
<td>• Use industry standard methodologies to manage project delivery including standardised project implementation planning and implementation. Use a risk management approach to all ICT programs.</td>
<td>High</td>
</tr>
<tr>
<td>Engagement</td>
<td>• Ensure transparent communication of ICT projects e.g. newsletter, regular column in Health matters and publication of progress against the program on the SLHD intranet.</td>
<td>High</td>
</tr>
<tr>
<td>Coms Tech</td>
<td>• Provide IM&amp;TD with an oversight role for all ICT purchases ensuring compatibility with the eMR and business systems.</td>
<td>High</td>
</tr>
<tr>
<td>Clinical Excellence and Leadership</td>
<td>• Enhance data security and privacy particularly in relation to mobile devices.</td>
<td>High</td>
</tr>
<tr>
<td>Engagement</td>
<td>• Develop a comprehensive communication plan to ensure all staff and key stakeholders are kept informed of ICT developments and priorities.</td>
<td>High</td>
</tr>
<tr>
<td>Access and Mobility</td>
<td>• Define and implement a process to support single sign-on to the network and applications.</td>
<td>High</td>
</tr>
<tr>
<td>Access and Mobility</td>
<td>• Provide a single directory within SLHD that integrates with the state-wide directory enabling single sign-on across the state.</td>
<td>High</td>
</tr>
<tr>
<td>Clinical Excellence and Leadership</td>
<td>• Annually review and adjust the 5 year ICT strategic plan to ensure its continuing relevance, affordability and appropriateness.</td>
<td>Medium</td>
</tr>
<tr>
<td>Coms Tech</td>
<td>• Support appropriate ICT policies and procedures e.g. downtime and escalation.</td>
<td>Medium</td>
</tr>
<tr>
<td>Clinical Excellence and Leadership</td>
<td>• Ensure patient privacy remains a priority across all ICT business.</td>
<td>Medium</td>
</tr>
<tr>
<td>Coms Tech</td>
<td>• Review the IM&amp;TD and the Performance and Redesign Unit roles and responsibilities as related to the provisioning of Business Intelligence (BI) deliverables in order to maximise resources and minimise duplication.</td>
<td>Medium</td>
</tr>
<tr>
<td>Clinical Excellence and Leadership</td>
<td>• Ensure effective contract management including proactive relationship management of IT vendors.</td>
<td>Medium</td>
</tr>
<tr>
<td>Coms Tech</td>
<td>• Review remote (e.g. Cerner, Whole of Government Data Centres) hosting and cloud options for future eMR requirements.</td>
<td>Medium</td>
</tr>
<tr>
<td>Coms Tech</td>
<td>• Support data mining capability that will support auditing and other business processes.</td>
<td>Medium</td>
</tr>
<tr>
<td>Coms Tech</td>
<td>• Work collaboratively with eHealth information management and analytical capabilities being developed as part of the “Edward” project. This needs to be supported by a highly skilled group of data analytic specialists to ensure appropriate business intelligence for decision support.</td>
<td>Medium</td>
</tr>
<tr>
<td>Coms Tech</td>
<td>• Enhance archiving and storage through advanced search functions.</td>
<td>Medium</td>
</tr>
<tr>
<td>Theme</td>
<td>Strategic Actions</td>
<td>Priority</td>
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</tr>
<tr>
<td>Coms Tech</td>
<td>• Ensure seamless Wi-Fi connectivity throughout the health service.</td>
<td>High</td>
</tr>
<tr>
<td>Coms Tech</td>
<td>• Complete the replacement of associated Call Accounting and Directory System services associated with the PABX replacements. Complete the replacement of end-of-life PABX systems including the necessary planning and resourcing to implement the new systems without interruption to essential telephony services.</td>
<td>High</td>
</tr>
<tr>
<td>Engagement</td>
<td>• Investigate the use of kiosks e.g. to display health literacy information, assist patients to self-serve and perform way-finding. Investigate the use of smart apps to promote way-finding.</td>
<td>High</td>
</tr>
<tr>
<td>Coms Tech</td>
<td>• Investigate and implement a standard desktop multimedia communications platform including video conferencing, messaging, desktop sharing and collaboration.</td>
<td>High</td>
</tr>
<tr>
<td>Coms Tech</td>
<td>• Develop effective tools, protocols/policies and support for management of Bring Your Own Device (BYOD). Review the BYOD and Mobile Device Management (MDM) policy to ensure that it adequately protects the confidentiality of patient information and sensitive corporate information while delivering the productivity benefits that such mobile devices can bring. Ensure that the BYOD policy accommodates the wider adoption of internet-based video. Ensure all mobile devices, such as smart-phones and laptops that are issued by the District have a standard configuration which includes access to the LHD Wi-Fi network, the internet support off-site mobility requirements via 3G/4G networks and are managed by a MDM system.</td>
<td>High</td>
</tr>
<tr>
<td>Coms Tech</td>
<td>• Ensure all capital projects have an ICT component. Include ICT in all service, facility capital master and clinical service planning.</td>
<td>High</td>
</tr>
<tr>
<td>Coms Tech</td>
<td>• Implement tools to manage such systems and to enable the fast and secure provisioning of services.</td>
<td>High</td>
</tr>
<tr>
<td>Coms Tech</td>
<td>• Incorporate the findings of the Paging Systems review into a wider-ranging review of internal communication solutions that considers the risks and benefits of alternative solutions such as messaging and is based on authentication via Active Directory.</td>
<td>High</td>
</tr>
<tr>
<td>Coms Tech</td>
<td>• Explore the possibility of cloud technology.</td>
<td>Medium</td>
</tr>
<tr>
<td>Coms Tech</td>
<td>• Ensure infrastructure and data centre development and maintenance.</td>
<td>Medium</td>
</tr>
<tr>
<td>Coms Tech</td>
<td>• Invest in teleconferencing.</td>
<td>Medium</td>
</tr>
</tbody>
</table>
### Coms Tech
- Investigate the use of a managed service provider for fixed facility video conferencing.  
  - Priority: Medium
- Ensure all ICT and equipment/technologies/policies and procedures are compatible with those for the eMR and District.  
  - Priority: Medium
- Continue to work with clinicians to support greater use of smart phone technologies for SMS and communication rather than using pagers.  
  - Priority: Medium

### Our Environment

<table>
<thead>
<tr>
<th>Theme</th>
<th>Strategic Actions</th>
<th>Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical Excellence and Leadership</td>
<td>Continue the development of the eMR to replace reliance on the paper medical record and reduce paper medical record storage.</td>
<td>High</td>
</tr>
<tr>
<td>Clinical Excellence and Leadership</td>
<td>Develop strategies to help staff reduce their carbon footprint including investigating the use of web-based communication applications and encourage the use of teleconferencing and internet meeting solutions e.g. WebEx for meetings to decrease staff travel.</td>
<td>High</td>
</tr>
<tr>
<td>Clinical Excellence and Leadership</td>
<td>Include consideration of sustainability in all ICT programs and procurement and engineering systems consistent with the District Sustainability Plan.</td>
<td>High</td>
</tr>
<tr>
<td>Coms Tech</td>
<td>Investigate opportunities for recycling PCs and ICT infrastructure.</td>
<td>Medium</td>
</tr>
<tr>
<td>Coms Tech</td>
<td>Develop online transport share systems to reduce our carbon footprint.</td>
<td>Medium</td>
</tr>
</tbody>
</table>

### Our Staff

<table>
<thead>
<tr>
<th>Theme</th>
<th>Strategic Actions</th>
<th>Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical Excellence and Leadership</td>
<td>Facilitate the recruitment and retention of highly skilled, experienced and adaptable ICT staff.</td>
<td>High</td>
</tr>
<tr>
<td>Clinical Excellence and Leadership</td>
<td>Streamline access to ICT systems for new staff.</td>
<td>High</td>
</tr>
<tr>
<td>Clinical Excellence and Leadership</td>
<td>Recruit a District Chief Medical Information Officer (CMIO) and Chief Nursing Information Officer (CNIO).</td>
<td>High</td>
</tr>
<tr>
<td>Coms Tech</td>
<td>Ensure that all staff are provided with a standard hospital email address to improve communication across the organisation.</td>
<td>High</td>
</tr>
</tbody>
</table>
### Clinical Excellence and Leadership

- Facilitate the recruitment, retention and development of skilled, experienced and adaptable clinical and corporate staff in the use of ICT systems. **Medium**

- Support the development of SLHD staff with an interest in project and change management to facilitate the availability of skilled staff for ICT implementations. **Medium**

- Recruit a Facility Senior Medical Information Officer and Senior Nursing and Allied Health Information Officer to work with the District CMIO, IM&TD and the Research unit in the development, implementation and analysis of ICT in the facilities. **Medium**

- Identify ICT champions in all departments and link them to IM&TD information and roll-outs. **Medium**

- Enhance staff wellbeing by creating online opportunities to connect with one another and the organisation, and to participate in activities of value to them. **Medium**

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### Our Education

<table>
<thead>
<tr>
<th>Theme</th>
<th>Strategic Actions</th>
<th>Priority</th>
</tr>
</thead>
</table>
| Clinical Excellence and Leadership | • Upgrade existing infrastructure to support new technologies and provide a connected learning environment. Upgrade or purchase up to date equipment to allow streaming of lectures between Canterbury Hospital and Concord and RPA in particular or to other sites that education is being held. Implement reliable and scalable, service-based technologies with familiar, easy-to-use interfaces.  
  • Upgrade existing infrastructure to support the connection of existing and future teaching and procedural spaces to external partner sites to enhance remote education both nationally and internationally.  
  • Develop IT capability across all sites to allow for streaming of all group educational activities on line (e.g. grand rounds, medical college talks and tutorials, medical and nursing undergraduate and postgraduate in service programs.) | High     |
| Clinical Excellence and Leadership | • Develop specific ICT training and education programs. Utilise ICT in orientation programs to ensure timely access to essential information. Train staff in tele-health and simulation.                                                                                                           | High     |
| Clinical Excellence and Leadership | • Develop a Masters of Health Information Management Program with the Australian Institute of Health Service Management.                                                                                                        | High     |
| Clinical Excellence and Leadership | • Provide ICT infrastructure that allows flexible and accessible learning and teaching through mobile devices to increase the reach of education and training.                                                                                                     | High     |
**Clinical Excellence and Leadership**

- Incorporate ICT in all education programs where appropriate. **Medium**

- Continue to develop and enhance educational websites that upload and promote accessible learning/teaching opportunities across the District through the use of technologies such as webex and streaming. **Medium**

- Facilitate clinical and non-clinical learning through simulation. **Medium**

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**Our Research**

<table>
<thead>
<tr>
<th>Theme</th>
<th>Strategic Actions</th>
<th>Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical Excellence and Leadership</td>
<td>• Establish an ICT research/informatics unit headed by a clinical academic in partnership with the University of Sydney and eHealth Use Charles Perkins Clinical Research Centre as a trial of integrated health information management with the University of Sydney.</td>
<td>High</td>
</tr>
</tbody>
</table>
| Clinical Excellence and Leadership | • Implement Powerchart clinical trials.  
• Revise the Information Management Framework, with special emphasis on governance and supporting research  
• Implement a standardised system (e.g. Power trials) that provides integrated clinical registries and clinical data bases within the eMR to support research. | High     |
| Clinical Excellence and Leadership | • Continue to invest in the Performance and Redesign Unit and STARs support operational staff, researchers and clinicians to obtain the information they require from existing systems. | High     |
| Integrated Care               | • Connect researchers across the district and our partners through the provision of online information.                                                                                                         | Medium   |
| Coms Tech                     | • Explore ICT platforms that the District holds for research opportunities.                                                                                                                                       | Medium   |
| Coms Tech                     | • Develop capability in predictive analytics.                                                                                                                                                                     | Medium   |
ACRONYMS

ABF Activity Based Funding
The system by which governments can fund their contribution to public hospital services, first agreed by COAG in 2008 with updated implementation milestones agreed as part of the National Health Reform Agreement (NHRA), signed 2 August 2011

BAU Business as Usual
The normal operating procedure, requests and tasks that are constant for District staff.

BYOD Bring Your Own Device
A corporate policy that allows employees to ‘opt-in’ to access Health network and information assets using a privately owned mobile device.

CHOC Community Health and Outpatient Care
A state-wide program that will deliver an Integrated Clinical System into the community health and outpatient care clinical services by adding functionality to the Electronic Medical Record (eMR) used throughout NSW, giving clinicians across multiple sites timely access to information previously captured on paper.\(^1\)

COW Computer on Wheels
The mobile wireless computer used by clinical staff to document information in the eMR at point of care.

CIO Chief Information Officer
The head of the IM&T.

CPDI Cerner Provision Document Imaging
Cerner module for scanning paper, importing PDFs and non-PACS clinical images and patient id photos into the eMR.

CMIO Chief Medical Information Officer
A role to integrate clinical requirements with information technology capability, introduced to the SLHD in 2014.

CMS Content Management System
An interface for an administrator to update content to a web-page or web-application.

EIR Enterprise Image Recovery Repository
A state wide storage system for diagnostic imaging, to make them available to authorised users for viewing anywhere on the health network.

eDRS Electronic Discharge Referral Summary
Automatically generated summaries of an inpatient episode of care provided to external health service providers. Also referred to as eDischarge or discharge summary.

eMM / eMeds Electronic Medication Management
A state wide program that will enable electronic prescribing by doctors, review and dispensing of medication orders by pharmacists, and administration of medications by nurses.

eMR Electronic Medical Record
A digital version of a paper chart that contains all of a patient’s medical history.

ePJB Electronic Patient Journey Board
A digital replacement of the ward white boards with additional information to provide an up to date visual cue of each patient’s status at any given time, ensuring that all patients get the right care, at the right time, from the right multidisciplinary team (MDT) members.

The ePJB provides a highly effective communication tool and patient flow tool for use by all members of the MTD (medical, nursing, allied health, administration and support services).

It enables sharing of key information about each patient’s care coordination.

EQuIP Evaluation and Quality Improvement Program
EQuIPNational is a four-year accreditation program for health services that will ensure a continued focus on quality across the health care organisation.

HIE Health Information Exchange
A legacy database administered by IM&T.

HOSBIL Hospital Billing System
An electronic system for patient billing.

ICT Information and Communication Technology
A term to cover all areas of technology within the District.

IM & TD Information Management and Technology Division
The central department that manages and directs Information technology for the district.

ISOH The Information System for Oral Health
This collaboration was formed between Oral Health Services in Queensland and New South Wales in 2003 as a strategic alliance that includes the implementation of the enterprise-wide Information System for Oral Health (ISOH).

KGV King George V Building
The administration building for Royal Prince Alfred Hospital.

LAN Local Area Network
An organisation’s data network or internet connection accessed via data cables.

LMS Learning Management System
An online location for training and education for district staff.

KRONOS The central systems for managing staff rosters.

PACS Picture Archiving and Communication System
A digital medical image storage system.

PABX Private Automated Branch Exchange
A business phone network for multiple users that allows line switching.

PCEHR Patient Controlled Electronic Medical Record
National system for patient access to electronic medical records. Soon to be rebranded MyHR.

RHO Regional Hosting Organisation

RIS Radiology Information System
A digital storage system for x-rays.

RPA Royal Prince Alfred Hospital

SBB State Based Build
A term used to describe eMR modules developed by eHealth for implementation in the LHDs.

SLHD Sydney Local Health District
The district encompassing Balmain, Canterbury, Concord, RPA hospitals and associated healthcare services.

SQL Structured Query Language
A standard interactive and programming language for getting information from and updating a database.

STARS Sydney Targeted Activity and Reporting System
A business intelligence program that provides search and analytical functions across multiple datasets. Trade name: QlikView.

SSID Service Set Identifier
The identifying name of a wireless network, that users see when they log on.

SWSLHD South Western Sydney Local Health District
The district encompassing Bankstown, Bowral, Camden and Campbelltown, Fairfield, Liverpool hospitals.

SWSD State Wide Service Desk
The State Wide Service Desk provides Information and Communication Technology (ICT) support services to areas within NSW Health including Local Health Districts, Health Agencies and some external organisations, such as research partners.

TRIM Total Records and Information Management
A system for capture, management, security and access to corporate records – in context of the governance and regulatory compliance obligations.

VMO Visiting Medical Officer
GLOSSARY

Application
A program that has been designed for a user to enter or access information, as part of their daily work flow requirements.

Asset management
Balancing of costs, opportunities and risks against the desired performance of assets, to achieve the organisational objectives. This includes infrastructure and data assets.

Active Directory
Microsoft’s trademarked directory service, a centralised and standardised system that automates network management of user data, security, and distributed resources, and enables interoperation with other directories.

eHealth
NSW State Government Agency that provides ICT services and centralised data management for Local Health Districts, other than SLHD.

Clinical Coding and Chart Abstracting
eMR modules for assigning classification codes and DRG to diagnoses and procedures recorded in an inpatient encounters and recording specific cancer information.

Cerner
The eMR vendor for the LHD electronic medical record.

CBORD
Trade name for provider of software that manages hospital food, nutrition and meal ordering.

Citrix
Software company that provides server, application and desktop virtualisation, networking, software-as-a-service.

Down time/ down time escalation
The time when a system isn’t operating and a system of alerts and protocols to identify and rectify the problem.

Discern Expert
A module in the eMR used to generate tasks and alerts for users.

encounters
Cerner’s term for inpatient, outpatient, emergency and community based episodes of care.

Exchange server
Microsoft Exchange Server (MXS) is a collaborative enterprise server application designed by Microsoft to run on Windows Servers that supports email, contacts and tasks, calendars, web-based and mobile access and data storage.

FirstNet
The Cerner emergency department module of the electronic medical record.

Pathnet
The Cerner laboratory department module of the electronic medical record.

Powerchart
The eMR portal for clinicians which provides access to the patient’s eMR. Message Centre is located within PowerChart and allows for signing verbal/protocol orders, signing/reviewing documents and messaging. Message Centre is also referred to as “Inbox.”

HealthShare
A NSW organisation providing quality shared services to support the delivery of patient care within the NSW Health system, including linen, food, procurement, uniforms and StaffLink.

Hybrid medical record
A mix of paper and electronic medical record systems.

Clinical Informatics
Clinical informatics is the science of transforming health care by analysing, designing, implementing, and evaluating information and communication systems that enhance individual and population health outcomes, improve patient care, and strengthen the clinician-patient relationship. Clinical informatics involves:

• assess information and knowledge needs of health care professionals and patients,
• characterise, evaluate, and refine clinical processes,
• develop, implement, and reﬁne clinical decision support systems, and
• lead or participate in the procurement, customization, development, implementation, evaluation, and continuous improvement of clinical information systems.

iPharmacy
CSC pharmacy information system managing pharmacy dispensing, inventory and cost centre accounting requirements.

Laptop
Also known as notebooks are portable computers that you can take with you and use in different environments. They include a screen, keyboard, and a trackpad or trackball.

Mobile Applications
Software designed for any or all mobile devices.

Mobile Device
Any mobile phone, smartphone, laptop or media tablet.

Mobility
In an ICT context – a term used to describe a broad range of services and functions centred on the ability to use computing capability without a predefined location and/or connection to a network to publish and/or subscribe to information.

Powerchart Cardiovascular
The Cerner module solution that enables the automation of diagnostic cardiovascular activities such as ECGs, ECHO, cardiac catheters etc. Cardiology procedure reports and images will be available in the eMR for all clinicians to access.

Portal/ patient portal
Patient Portals are healthcare-related online applications that allow patients to interact and communicate with their healthcare providers.

Patient charts
The records that are specific to a patient, and can be either recorded on paper or electronically.

Powerinsight
A module in the electronic medical record used for adhoc and routine reporting.

SharePoint
A Microsoft web application and platform that integrates intranet, content management, and document management.

Single source of truth
A goal of an information storage system or database that every data element is stored exactly once.

Smart phone
A smartphone is a mobile device with voice, messaging, scheduling, email and Internet capabilities. Smartphones also permit access to application stores, where software can be downloaded to the device.

Social networking/ social media
Social media is a collection of Internet-based communities that allow users to interact with each other online.
SurgiNet
The Cerner operating theatre module of the electronic medical record.

Tablet
An open-face wireless device with a touchscreen display and without physical keyboards. The primary use is the consumption of media; it also has messaging, scheduling, email, and Internet capabilities.

Telehealth
The use of electronic information and telecommunications technologies to support long-distance clinical health care, patient and professional health-related education, public health and health administration.²

Wi-fi
Wireless access to an organisation’s data network or internet connection.

Wayfinding
An application that helps people with directions to or pathways through an area that is viewed on a static or mobile device and may use geolocation technology.

Whole of life eMR
A single connected electronic medical record for each person from birth to death.

(Endnotes)
2 http://www.cerner.com/solutions/Hospitals_and_Health_Systems/Cardiovascular/
3 http://www.healthit.gov/providers-professionals/faqs/what-telehealth-how-telehealth-different-telemedicine
Information and communication Technology   strategic Plan 2015–2020
On a typical day in Sydney Local Health District we care for more than 1,600 people in hospital, see around 400 in our emergency departments and perform more than 140 operations.