Greater Randwick Integrated Health Services Plan

Adapted from Kings Fund Visualised sourced from Timmins N and Ham C. The Kings Fund: The quest for integrated health and social care. A case study in Canterbury, New Zealand. p. 9

September 2016 (amended 10 November 2016)

Version Control

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1.0 – 1.7		Development of IHSP	SESLHD
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2.1	10 Nov 2016	Correction to Table 31 p 186	NSW Ministry of Health

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Foreword

The *Greater Randwick Integrated Health Services Plan* (Plan) has been produced in response to a funding announcement by the NSW Minister for Health to redevelop the Randwick Hospitals' Campus. The Campus forms part of a specialised health and academic health sciences precinct which includes the University of New South Wales Kensington Campus, and the immediate surrounding areas.

The NSW Government is investing in the Randwick Hospitals' Campus which will become a global **Academic Health Science Centre** renowned for excellence in health, teaching, education and research. This investment will ensure staff working on this Campus continue to deliver the highest standard of care to patients in world-class facilities.

The Randwick Hospitals' Campus has a proud history of delivering exemplary healthcare, teaching, education and research in medicine to our local community and providing specialist care to the broader community. These specialties include children's cancer, spinal injury, diving and hyperbaric medicine, renal transplant, neurosciences, mental health, drug and alcohol and healthy ageing. We are also recognised leaders in population and public health, primary health care and equity, children and women's healthcare and research and health education.

The specialised Academic Health Science Centre will provide a generational opportunity to attract the biggest concentration of clinical, scientific and academic minds, and to become an economic powerhouse by attracting strong commercial and mixed use activity in the immediate surrounding areas.

The *Greater Randwick Integrated Health Services Plan* outlines the changing health needs of the population, emerging health trends, and national and international best practice models of care. It projects future health service requirements to support people to stay healthy for as long as possible.

The Plan, which is based on robust data analysis and feedback from consumers, carers and the broader community and from hundreds of clinicians, managers and other service providers and key stakeholders, outlines a way forward that radically shifts our focus towards community and home based care and building resilient and healthy communities for the future.

To achieve this vision, we will integrate health and social care in geographical localities, increase our investment in population health and the social determinants of health, foster translational research and teaching and respond to the opportunities presented to us from rapid advancements in health care and technology to drive up improvements in the quality of care we deliver to patients.

Such change does not happen in isolation. It is underpinned by the South Eastern Sydney Local Health District's **Roadmap: A Journey to the Delivery of Excellence** which outlines a major program of transformation that is underway across our organisation. Our strong partnerships with the Sydney Children's Hospital, University of New South Wales and other research institutions, government and non-government agencies, primary care and other service providers, businesses and importantly with our community, are critical for realising our vision.

We hope you will support our bold and ambitious Plan for transforming our health system to secure better outcomes for our community.

Michael Still MBA
SESLHD Board Chair

Gerry Marr
SESLHD Chief Executive

Executive summary

The context

Randwick Hospitals' Campus

By 2027, 471,000 people will be living in the northern part of SESLHD according to current projections. Planned urban consolidation will increase the current population by 90,000 people.

More than 300,000 people currently travel to this area each day for work[1], with more people coming from out of area for specialist services, study and/or tourism. More people are anticipated to access the Randwick Hospitals' Campus in the future with the introduction of Light Rail and because the area is identified as a strategic growth centre for Sydney, New South Wales.

The NSW Minister for Health's announcement to redevelop the Randwick Hospitals' Campus has presented an exciting opportunity to create a campus-wide vision that will lay the foundations for creating a world-class Health, Research, Teaching and Education Centre delivering cutting-edge, compassionate and holistic healthcare and wellness programs to our community and other residents of NSW.

The Randwick Hospitals' Campus is unique in Australia. Three leading public tertiary referral hospitals, mental health facilities and a private hospital, a comprehensive range of ambulatory, outpatient, population and community health and specialist services; and renowned institutions such as the Black Dog Institute, NeuRA and The Bright Alliance are located on the Campus. The Campus is also in close proximity to the prestigious University of New South Wales which provides leadership in research and evidence-based population health and clinical care. The redevelopment also creates an opportunity to build bridges with and leverage the expertise of local businesses and other agencies as well as community groups to contribute to this endeavour, and attract new industry to the area.
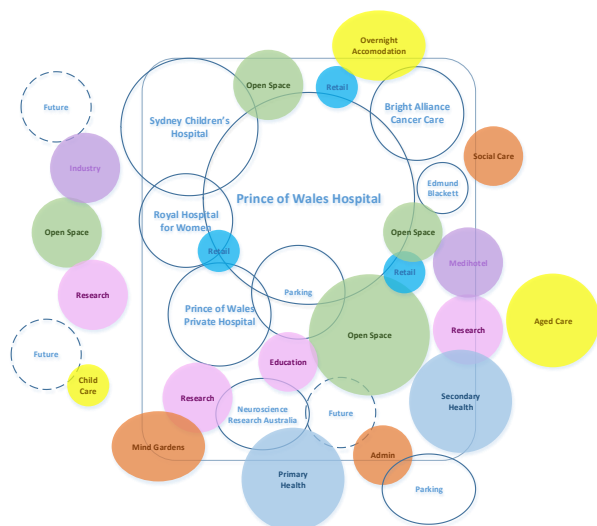
Our uniqueness provides a catalyst for our health, research, academia and industry partners to become a world renowned Academic Health Science Centre, attracting and harnessing the pool of clinical and academic expertise to pioneer innovative and translational research for optimal patient care and population outcomes.

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[1] Transport for NSW, Bureau of Transport Statistics, Journey to Work, 2011, URL:

http://www.bts.nsw.gov.au/Statistics/Statistics?FolderID=214

Our ambition

We will be a global Academic Health Science Centre renowned for excellence in Health, Teaching, Education and Research.

An investment in infrastructure will ensure staff working on this campus will continue to deliver the highest standard of care to patients in world class facilities.

People will also receive compassionate personalised care at home or in a place that is as close as possible to their home by clinicians who are informed by the latest available evidence.

People will be empowered to take responsibility for their own health and wellbeing and supported to manage periods of ill health.

We will focus on our community's assets, supporting health literacy and advocating for healthy neighbourhoods, so that the people we serve are able to maintain their health and wellbeing.

A seamless integrated approach across health disciplines and the healthcare continuum, other service providers and with social care, research and education sectors is required to fully address the physical, emotional and social wellbeing of our community.

Our health services have a key role in reducing avoidable deaths and disability within our community and people beyond our local area. There is considerable expertise available on the Randwick campus across all clinical disciplines, with close proximity to universities, and across primary health care through to highly specialised tertiary and quaternary care. This will grow through the opportunities associated with the proposed capital redevelopment.

New technologies, advances in treatment and improved health literacy will enable us to provide services that are less invasive, better targeted to needs of people experiencing ill health, and help reduce the number of emergency and hospital presentations and the length of stay.

The hospitals on the Randwick Hospitals and Health Services' Campus and associated health services are unique in NSW in the extent to which numerous shared services operate in conjunction with one another across the Campus. Our ambition is to build on these, and strengthen our partnerships with primary health providers, universities and other health service providers. We recognise that collaboration, outsourcing and co-commissioning are important.

Long term, a Randwick Academic Health Science Centre could result in a number of hub and spoke networks that collectively reflect the integration of healthcare, education and research, with individual stakeholders all achieving success because of a strong, robust and interdependent network of relationships.

To convey our *Journey to Excellence* we have adapted Canterbury's diagram which outlines our vision for a transformation of our system.
Adapted from Kings Fund Visualised sourced from Timmins N and Ham C. The Kings Fund: The quest for integrated health and social care. A case study in Canterbury, New Zealand. p.9

Why we need change

We are serving a growing number of people, many of whom are experiencing long term health conditions; and there are significant health inequities within the geographical area we serve.

We are currently on an unsustainable path of ever increasing demand for emergency services, hospital beds, outpatient and community services and bigger expenditure.

If we do not redesign our system to be more focused on supporting people to remain healthy and manage their own care effectively, we will not have the workforce nor budget to deliver harm-free personalised care to every patient, every time.

Activity at the Royal Hospital for Women is expected to grow at 1.2% each year to 2027.

For Mental Health Services, average annual growth rate of inpatient separations is 1.3% and bed days have declined by 0.8%. Growth is anticipated primarily in the demand for ambulatory and community Mental Health services.

Projected annual growth rates in Prince of Wales Hospital activity to 2027 are expected to be in the order of:

- Medical inpatients: +2.5%
- Surgical: +2.1%
- Sub-acute: +9.6%
- Emergency presentations: +4.3%.

Activity at the Sydney Children's Hospital, Randwick, is expected to grow each year by 3.1% for emergency presentations and 2.2% for overnight hospital care.

The 70-84 years age group is expected to be the fasting growing age group, followed by people aged 85 years and older, then children.

Around 37% of our residents reported having a long term health condition. Many people have more than one long term illness or condition at the same time.

The incidence of diabetes is increasing in the population, reflecting the rising levels of obesity. At Prince of Wales Hospital, diabetes accounts for 14% of acute inpatient separations (recorded as either a principal or secondary diagnosis) and the average overnight length of stay is double compared to the overall average length of stay (10.1 days compared to 5.5 days in 2014/15) . While the incidence (age-adjusted) of many other long term conditions such as heart disease, dementia and some cancers are not actually increasing, there are simply more people living with these conditions because the population is ageing and growing, and people are living longer.

Increasing numbers of young people with long term health conditions and disabilities will also require transitioning from paediatric to adult health services.

In terms of attributable hospitalisations:
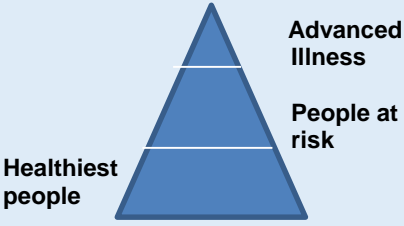
- Residents of the former Botany Bay LGA are more likely to be overweight or obese (about 5% higher) than the average NSW resident;

- Residents of the former Botany Bay LGA are at much higher risk (about 17% higher) of taking up smoking than the average NSW resident. Waverley LGA residents are also at higher risk (5% higher);

- Residents of all Local Government Areas in the northern part of the SESLHD are at higher risk of excessive alcohol use compared with the average NSW resident. Residents of north Randwick LGA have a 40%
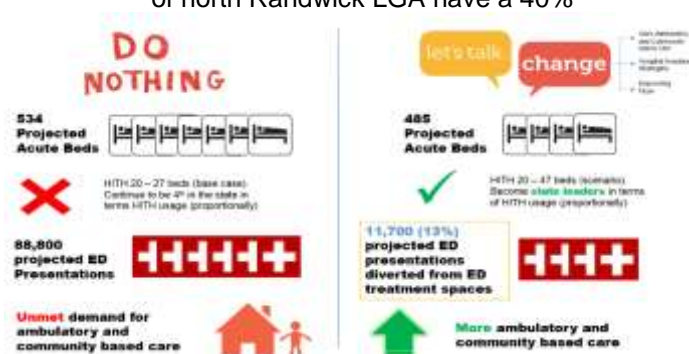
Transforming our system and services

Our *Journey to Excellence* takes a population health management approach to deliver care that is…

- **personalised**
- **predictive**
- **participatory and**
- **preventive**

Advanced Illness

People at risk

Healthiest people

Population Risk Stratification

We are also increasing our efforts to empower our citizens to stay healthy.

To improve the community's health and wellbeing, staff are identifying what matters to their patients so they can address unmet health and social needs as part of routine care.

There will be a shift in the balance of care from acute hospital services to comprehensive and responsive primary, community and social care services, along with comprehensive approaches to improving population health and the ability of patients to self-manage their long term conditions.

Reducing loneliness and social isolation, particularly among older people, is another important focus for our staff who will work collaboratively with other organisations such as the NSW Department of Family and Community Services and local councils to address this increasing societal issue as our population ages.

To support people to stay in their own homes and communities for as long and as independently as possible, increased investment is required in primary health and social care to allow alternatives to hospital admission. Along with co-commissioning with other providers; virtual health care supported by digital technology; predictive medicine; health literacy; consumer and community participation; hospital-based outreach services and integrated and social care hubs based in communities experiencing health disadvantage (Botany and South Maroubra are examples) the health system will be different to that we've known.

Partnership is fundamental to achieving progress. We must work with our population, clinical networks, Sydney Children's Hospital, Primary Health Network and primary care providers, SESLHD facilities, other Local Health Districts and Specialty Networks, universities, other government and non-government agencies, the not-for-profit sector, and increasingly, the private sector.

Innovation Unit '10 ideas for 21st century healthcare)
http://www.innovationunit.org/sites/default/files/DIGITAL%20VERSION10%20Ideas%20Final.pdf

A population health approach

> **We recognise that giving each child the best start to life and a life course approach are important aspects of achieving population health and wellbeing.**
>
> **We will take a renewed focus on the early years, and keeping people in the middle and older years as healthy as possible.**

Evidence from across the world shows adverse childhood experiences such as neglect, poverty, parental mental illness, domestic violence, domestic substance misuse and intergenerational trauma impact negatively on the baby and child's brain development. Babies and children who grow up in unsafe and unpredictable environments are more likely to later adopt a range of risk behaviours such as excessive alcohol use, and subsequently have poorer health and wellbeing compared with children who grow up in more nurturing environments. These children are also more likely to experience developmental disabilities and heart disease later in life. Socio-economic disadvantage can contribute to poorer cognitive functioning among children, leading to long-term consequences for their health and wellbeing. It is vital that we collaborate with human services, other agencies and our community groups to give our babies and children the best start to life.

Promoting a life course approach to health is an important aspect of contemporary health practice. We will work closely with primary health care providers to identify people who are at risk of ill health and work with them to help keep them well.

Communities themselves often have the resources and assets to support their health, however, many healthcare staff fail to recognise these assets. It is critical that we build the capacity and capability of our organisation to identify and leverage these assets through coproduction and co-designing services with them.

We will also apply a population health approach to improving our secondary health care, by being:

Anticipatory and predictive:

o Careful analysis of big data in population health for predictive analytics to identify high risk patients and those in need of health care
o Use of risk stratification and decision support tools to identify patients with ongoing care needs and population health needs
o Development of population registers.

Coordinated and integrated:

o A whole of system redesign so patients are at the centre of the system to make informed decision-making and supported by a coordinated pathway of health and social care to maximise the healthcare experience for patients, carers and family.

Easily accessible and navigable:

o Providing seamless patient transitions into and across services
o Ensuring the right care in the right place at the right time
o Expansion of community based levels of care with broader acuity levels.

Our models of care are being designed around people and with people to ensure we deliver:

- Compassionate care and empower consumers, carers and family members to be genuine partners and producers of their own healthcare.

- Predictive medicine focused on the whole person, with improved use of genomics and diagnostics.

What is needed

> **We need new purpose built facilities both on the Randwick Hospitals' Campus and off-campus.**
>
> **Our services will be designed around people and places, including a built environment that supports health and healing and facilitates the ways in which people interact.**
>
> **We will pursue an increased depth of integration between clinicians, educators, researchers, academics and industry partners.**
>
> **Our services will be co-designed and coproduced with community members, staff and key partners.**

There are a number of infrastructure challenges with the Randwick campus. Many buildings are not fit for purpose and/or contemporary models of care. This includes a lack of purpose-built ambulatory facilities, disjointed theatre/procedural rooms and peri–op services in multiple settings, imaging technologies in theatres, insufficient single rooms, a poorly configured emergency department at Prince of Wales Hospital, an inadequate specialist newborn care facility, lack of subacute beds, inadequate staff and storage facilities, mental health buildings not fit for purpose and a lack of point of care teaching space, education centre and community space for groups.

There is critical need to create offsite multi-purpose centres – *"Integrated Health and Social Care Hubs"* – to deliver mental health and drug and alcohol services, satellite renal dialysis, GP clinics/urgent care, joint specialist/GP clinics, rehabilitation and outreach services, and human services such as Child, Family and Community Services.

Clinicians have strongly indicated there is a need for a bespoke *"Education and Research"* precinct on campus, with the University of New South Wales and other health facilities. The Centre would include a training simulation laboratory to enable team based training and drills for emergencies, and, the provision for conferences accessible to health staff, researchers, GPs, NGOs and the broader community.

This Centre would be complemented by point of care education and community space to run groups and enable partners to engage in an open, transparent and collaborative manner and facilitate the interaction between healthcare, research and education to provide the best possible care.

There is potential for a Medihotel to accommodate patients who require access to hospital services without the need for an acute inpatient bed, require less intense nursing intervention and a more homely environment.

We are committed to reducing the number of inappropriate presentations to our emergency departments, or at the very least, minimise growth in overall activity. This will involve action in primary care, population health and community health, ambulance services and improvement programs in patient flow.

Our plan seeks to identify the number of beds – acute, subacute and hospital in the home – and ambulatory clinic spaces required for our population to be care for effectively over the next 20 years. To do this, we undertook rigorous scenario modelling to identify these numbers which will enable staff to develop and implement new models of care based on community need and new technologies, taking into account the major system redesign programs of work underway on the campus and across the organisation to reduce the need for hospital care. These spaces will be developed with flexibility of use, and designed to promote a healing, comforting and ecologically sustainable environment.

Our plan has been guided by a set of overarching principles to drive a shared vision delivering cutting-edge, compassionate, holistic and sustainable healthcare and wellness programs with - and to - the community into the future.

Wendy's Story

Wendy is 80 years of age, frail and lives alone in Waverley.

She looks after herself and has 4 long term conditions: hypertension, diabetes, osteoporosis and depression and is taking 7 medications.

What will our transformed system mean for Wendy?

Delivering joined up holistic care (physical, social and emotional), we will improve Wendy's quality of life, support her independence and resilience to remain an active citizen.

Wendy lives independently in her home, and is supported by her GP and practice nurses to be responsible for her own health management by regularly monitoring her own blood pressure and glucose levels.

However, due to her frail condition, her GP considers her to be at high risk for hospitalisation, having used a risk stratification process.

So, Wendy has been allocated a key worker to support the coordination of her care. She has a care plan in place in case she needs to go to hospital, which the ambulance can access when she calls them.

All Wendy's health records are linked between her health and social care providers to facilitate the integrated care of her long term health conditions.

However, one day Wendy suffers a fall in her home.

She has an alarm which she activates to alert emergency services. The ambulance services are called and suspect that Wendy has a hip fracture.

Greater Randwick Integrated Health Services Plan

Wendy is admitted directly to Prince of Wales Hospital (by-passing the ED) under an orthogeriatric pathway, where clinicians are able to access her linked electronic medical records (EMR).

She is assessed for frailty using the Rockwood Frailty score and the frailty pathway is implemented to ensure that she receives appropriate assessment and care, with a seamless pathway in place as she transitions across her episode of care.

Surgery is completed on the same day to repair her hip fracture.

Wendy receives short term multi-disciplinary care in an acute setting until she is medically stable and is then transferred to the War Memorial Hospital for multi-disciplinary rehabilitation. Wendy's treatment at Prince of Wales Hospital can be accessed at any time by clinicians at the War Memorial Hospital.

Wendy has been consulted on her discharge plan and knows what is happening when she goes home.

The key worker and GP have been informed prior to discharge and all services are in place to allow a smooth transition to home. Wendy's discharge summary is electronically available for follow-up healthcare workers.

After 4 weeks of supported care, Wendy is referred to an ongoing hydrotherapy group at a local swimming pool, which helps to maintain her physical capacity, independence and wellbeing.

Wendy is supported by volunteers in the community who help her shop and go on social outings.

These physical and social activities enable Wendy to make some new friends. This helps her to be more active in her community and stay for as long as possible in her home.

1.   Background

Key points

A major redevelopment of the Randwick Hospitals and Health Services' Campus provides an opportunity to transform the Campus.

Realising this opportunity has involved a rigorous approach to planning including:
- Agreed purpose, principles, scope and governance
- Broad consultation, extensive literature searches, robust data analysis and scenario planning
- Consideration of other planning activities, government priorities and District strategic plans.

1.1 Purpose

In March 2015, the NSW Minister for Health announced the need for the redevelopment of the Randwick Hospitals and Health Services' Campus[2]. The announcement of this capital funding will importantly enable the Campus to be fit-for-purpose for delivering healthcare in the 21st century.

The purpose of this Greater Randwick Integrated Health Services Plan is to inform the capital planning for the Randwick Hospitals and Health Services' Campus redevelopment.

Prior to any capital development, the NSW Ministry of Health and NSW Treasury require completion of Integrated Health Services Planning.

Integrated Health Services Planning

The Greater Randwick Integrated Health Services Plan documents the full complement of health and support services and other requirements for the proposed redevelopment to ensure that health services align with changing patterns of community need and expectations, contemporary and emerging models of care, and the most effective use of available and future resources.

Integrated Health Services Planning involves literature searches of other high performing health systems and contemporary evidence based models of care, consultation with staff and other key stakeholders, data extraction and analysis and investigation of pertinent information to inform the:
- Demand / supply of current and future health and support services
- Scenario modelling to identify:
  - Anticipated system/service improvements via new models of care such as diversion of rehabilitation inpatients to a day rehabilitation outpatient service, Hospital in the Home, High Volume Short Stay, avoidable admissions, streaming planned and unplanned procedural activity
  - Changes to patient flows (e.g. future plans of War Memorial Hospital Waverley, Sydney / Sydney Eye Hospital, other public hospitals such as St Vincent's Hospital, Sydney Children's Hospital, Randwick (SCH) and private hospitals)
  - Unmet demand and how this could be reduced
  - Role of other service providers (e.g. GPs) and
- Quantifying the impact of scenarios on future bed and space requirements.

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[2] Liberal Party of Australia NSW Division URL: http://nsw.liberal.org.au/500-million-for-prince-of-wales-hospital-first-major-redevelopment-in-20-years/

Process of Facility Planning

After Integrated Health Services Planning comes capital planning. By following the NSW Process of Facility Planning[3], a robust framework for planning and procuring capital infrastructure across the NSW public health system is provided.

It comprises the following four sequential and inter-connected stages. Each stage produces a discrete deliverable however planning may be refined across more than one stage to achieve the best possible outcome.

Stage 1: Service Procurement Plan	Stage 2: Project Definition Plan	Stage 3: Project Implementation	Stage 4: Post Occupancy Evaluation

1.2 Principles of the Integrated Health Services Plan

This Plan has been guided by a set of overarching principles to drive a shared vision to deliver cutting-edge compassionate holistic and sustainable healthcare and wellness programs to the community into the future. These principles include:

- Commit to a generational opportunity for the future of the Campus
- Leverage the greatest collective benefit for partners and communities
- Be designed around people and places and not institutions, including the capacity of the built environment to facilitate the ways in which people interact
- Service models and models of care will be evidence-based (local, national and international), promote multidisciplinary care and facilitate integrated healthcare
- Pursue an increased depth of integration between clinicians, educators, researchers, academics and industry partners
- Be co-designed and coproduced with community members, staff and key partners
- Partners will engage in an open, transparent and collaborative manner and facilitate the interaction between healthcare, research and education
- Promote the best use of resources
- Provide and promote a healing, health promoting and ecologically sustainable environment
- Promote social connectivity with staff and the broader community.

1.3 How this Plan was developed

1.3.1 Scope of this Plan

To inform the Randwick Campus redevelopment, all services delivered by the Prince of Wales Hospital and Community Health Services (POWH&CHS), Royal Hospital for Women (RHW) and Eastern Suburbs Mental Health Service are considered in this document.

Services currently delivered within the community setting are also considered within this Plan as well as services delivered by other facilities within and external to the South Eastern Sydney Local Health District (SESLHD).

New primary and community health and specialist services that need to be delivered within particular community localities (named in this Plan as Integrated Health and Social Care Hubs) due to anticipated future population need will also outlined in this document.

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[3] NSW Health, 2010, Process of Facility Planning URL:
http://www.health.nsw.gov.au/assets/Documents/full_pofp_more_than_10m_v.3.0_.pdf

This Plan also draws upon a range of other plans that play a critical role in realising the vision of the Randwick Campus. These plans include the:
- RHW's Strategic Plan
- SESLHD Mental Health Service Clinical Services Plan
- SESLHD Drug and Alcohol Clinical Services Plan (in development)
- SCH, Randwick Clinical Services Plan inputs
- Sydney/Sydney Eye Hospital Services Plan
- The Health-Science Alliance
- War Memorial Hospital Waverley Strategic Plan
- Central and Eastern Sydney Primary Health Network Strategic Plan
- University of New South Wales Strategic Plan
- Prince of Wales Private Hospital and other private hospitals.

Consideration of other important partners to inform the Plan includes:
- Other research and education providers
- Other government and non-government agencies
- Businesses and
- Assets of consumers, carers and family and local communities.

Analyses of current health and care activity include:
- Residents of the northern SESLHD cared for by the POWH and other public and private hospitals
- Residents from other Local Health Districts cared for by the POWH and RHW
- The continuum of care from population and primary health care, outpatient and/or community health services through to inpatient services (including speciality care).

The timeframe for the Plan is 2022 with a view to 2027 and long term projections to 2032.

1.3.2 Governance framework for the Plan

The governance framework was designed to:
- Deliver a consistent and robust approach to generate quality planning outcomes
- Enable decision making throughout the project
- Establish a transparent authority framework to manage planning
- Ensure strong and genuine clinical and non-clinical engagement
- Provide opportunities for community partners, community members and consumers to be engaged, informed and participate in the redevelopment of the campus
- Complement roles of partners and other hospitals and facilities in the area and
- Support the realisation of the vision of the Academic Health Science Alliance.

The Integrated Health Services Plan has been based on broad consultation and prepared by SESLHD's Strategy and Planning Unit, reporting to the Director Planning, Population Health and Equity and the General Manager, Prince of Wales and Sydney/Sydney Eye Hospitals.

An Advisory Committee was convened monthly to provide expert advice to the planning team, primarily with respect to the development of new models of care, scenario modelling and change management.

A Steering Committee was established to oversee the development of the Plan. Chaired by the Chief Executive, this committee includes representatives from the public hospitals on campus, Mental Health Service, Primary and Integrated Health Directorate and Planning, Population Health and Equity Directorate. Other members include the Primary Health Network, University of New South Wales, Health Consumers NSW, Health Service System and Investment Branch, Ministry of Health and Health Infrastructure NSW

1.3.3 Consultation process to develop this Plan

Wide ranging consultation has taken place for the development of this Plan:

Stage 1: November 2015- January 2016

- Initial consultation and information sharing commenced in November 2015, with a series of six staff forums attended by a wide cross section of POWH and Community Health and Eastern Suburbs Mental Health Service staff. Presentations included the Integrated Health Services Planning process, data and model of care principles, followed by questions from the floor
- Two technical papers, comprising population and activity data and the case for change were widely distributed for comment in December 2015 – January 2016. **Over 490 feedback comments were logged**.

Stage 2: January – May 2016

- Priority areas were identified: translational research, education, older people, tertiary services, and integrated care, and working parties established for these areas
- Meetings were held with individual clinical and clinical support departments, including Clinical Stream Directors and managers when available, to identify service specific issues, proposed models of care and discuss data and projection methodologies
- Advice and input was sought from education providers and research partners
- Monthly consultations with the Planning Advisory Committee regarding progress, proposed scenarios and models of care
- Presentations (including questions and answers) were delivered to the Northern Clinical Council, Department Heads meeting, Medical Grand Rounds, Community Advisory Group
- A draft Consumer and Community Participation Plan was developed in consultation with Health Consumers NSW
- Consultations held with other campus partners: RHW, SCH, Randwick, Mental Health Service, Community Health and Eastern Heart Clinic. It is noted SCHs Network has been consulted in a limited way and focussed on shared services planning.
- Consultation with other key health providers: War Memorial Hospital Waverley, St Vincent's Public Hospital, Trapeze (within SCHN), Central and Eastern Sydney Primary Health Network, General Practitioners (GPs), Directorate of Primary Integrated Community Health and Directorate of Planning, Population Health and Equity
- Consultation was also undertaken with the Ministry of Health: Health System Planning and Investment Branch, and with Western Sydney Local Health District Planners to discuss planning issues and methodologies

Stage 3: June – August 2016

- Draft Plan formulated, based on broad consultation and advice, international and national evidence and advice from Advisory and Steering Committees
- Draft Plan, distributed for broader comment to internal and external partners. **More than 800 additional comments were logged** with the majority being incorporated into the final Plan.

1.4 Other Planning

The redevelopment of the Randwick Hospitals and Health Services' Campus is complex because there are many facilities located on or nearby the vicinity of the Campus that either deliver services to the community or foster their health and wellbeing.

In parallel with the development of this Plan, other significant capital planning activities are also underway on or surrounding the Campus. These include the installation of Light Rail along High Street as well as a large housing and retail development on Barker St.

1.4.1 Sydney Metropolitan Strategy

A Plan for Growing Sydney[4] is focused on bringing all stakeholders together with a common purpose to:
- Develop a competitive economy with world-class services and transport
- Deliver greater housing choice to meet our changing needs and lifestyles
- Create communities that have a strong sense of wellbeing and
- Safeguard our natural environment.

Planning at the subregional level recognises the central Sydney's best features – its importance in the economic, social and cultural life of the whole city, particularly the internationally competitive Sydney CBD; the social, recreational and economic value of Sydney Harbour; and the range of cultural facilities, open spaces and iconic places of national importance throughout the subregion.

Randwick, as a key Strategic Centre, priorities are:
- Improving access to the CBD and to communities like Randwick and Kingsford through the Sydney Rapid Transit and Light Rail projects.
- Support health-related land uses and infrastructure around POWH and SCH.
- Support education-related land uses and infrastructure around the University of New South Wales.
- Work with council to identify if opportunities exist for urban renewal around Randwick's education and health facilities, including offices, retail, services, housing and local community improvements.
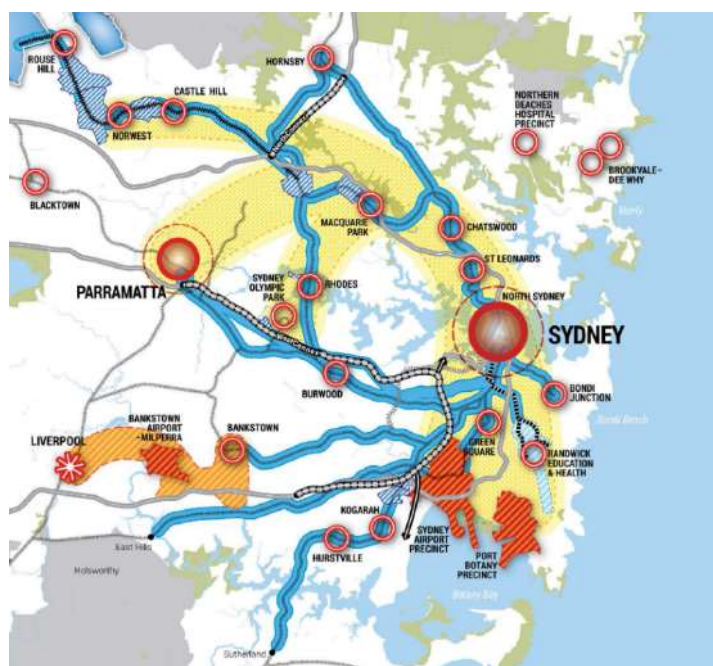
While for surrounding areas:
- Protecting important industrial land at Sydney Airport and Port Botany and better connecting Sydney's global transport gateways to the rest of Sydney through WestConnex
- Building the Green Square Town Centre comprising around 4,000 dwellings and 90,000 square metres of commercial and retail area
- Continuing to support Bondi Junction, Burwood, Randwick and Rhodes as strategic centres and major locations for jobs and investment.

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[4] http://www.planning.nsw.gov.au/en/Plans-for-Your-Area/Sydney/A-Plan-for-Growing-Sydney

1.4.2 Greater Randwick Urban Masterplan

The Randwick Hospitals and Health Services' Campus forms part of a specialised health and academic health sciences precinct which comprises the Randwick Campus, the University of New South Wales Kensington Campus, and the immediately surrounding areas. The specialised precinct is rapidly emerging as a leading-edge, world-class precinct which is complemented by strong commercial and mixed use activity.

A key step in the planning process is to define the long term development direction for both Greater Randwick and the specialised health and academic sciences precinct, and align the Redevelopment with this direction. This is critical to ensure that master planning is not fragmented across stakeholders and various documents, and to make sure that it keeps pace with major recent government infrastructure projects, such as the Sydney CBD and South East Light Rail.

The Greater Randwick Urban Masterplan (GRUM) presents the opportunity to steer capital investment in major infrastructure projects in the Greater Randwick Area to maximise whole of government and public-private cost-benefit (providing mutual benefit for all stakeholders).

The Greater Randwick Urban Masterplan (GRUM) workshop recognised consistent values across the settings.

1.4.3 Randwick Academic Health Science Centre

Academic Health Science Centre's (AHSC):
- Join a leading university with a major tertiary health care provider in a tripartite mission of excellence in clinical service, research and education
- Drive a care continuum from innovation, to bedside, to the community, endeavouring to ensure that the latest advances and highest standards reach patients
- Are so well established abroad that the debate has moved on to extending AHSCs into systems or networks to embrace primary health care and global responsibilities[5].

The Triple Helix concept is used widely to guide the development of knowledge precincts (of which an AHSC is a specific example). Key features of Triple Helix include:
- Fully formed 'economies' incorporating various intertwined stakeholders
- Public bodies play a coordination role (legislative) as well as providing practical support such as infrastructure or funding
- Universities and other knowledge institutions provide research expertise (and educated staff) that both informs industry and reacts to its needs -promoting innovation
- Industry provides the productive and economic impetus.
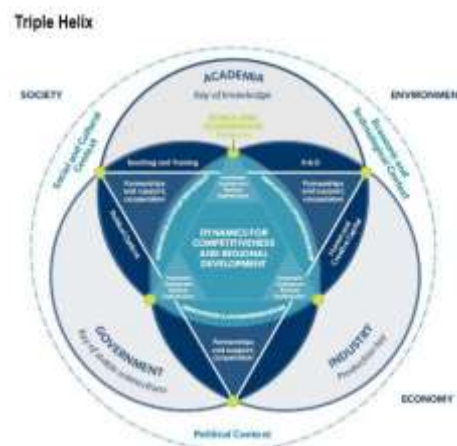
The Randwick Academic Health Science Centre (RAHSC) articulates a shared long term vision that comprises a number of hub and spoke networks that collectively reflect the integration of healthcare, education and research.

These hub and spokes networks (see diagram below) include:
- Healthcare within the LHDs including:
  - Tertiary and Quaternary Hospitals
  - Thematic Centres of Excellence
  - Secondary Hospitals
  - Primary care networks including community health and urgent care centres as well as specialists clinics and wellness centres
- Education networks that include:
  - Tertiary education including Universities and TAFEs
  - Secondary education including a 'health care high'
  - Community Education

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[5] Fisk et al, 2011, Academic health science centres in Australia: let's get competitive, MJA 2011; 194 (2): 59-60

- Research networks that include:
  - Medical Research Institutes
  - University Basic Research
  - Industry Research Centres
- Industry networks including:
  - Clinical trials
  - Basic and applied research
  - Specialised manufacturing
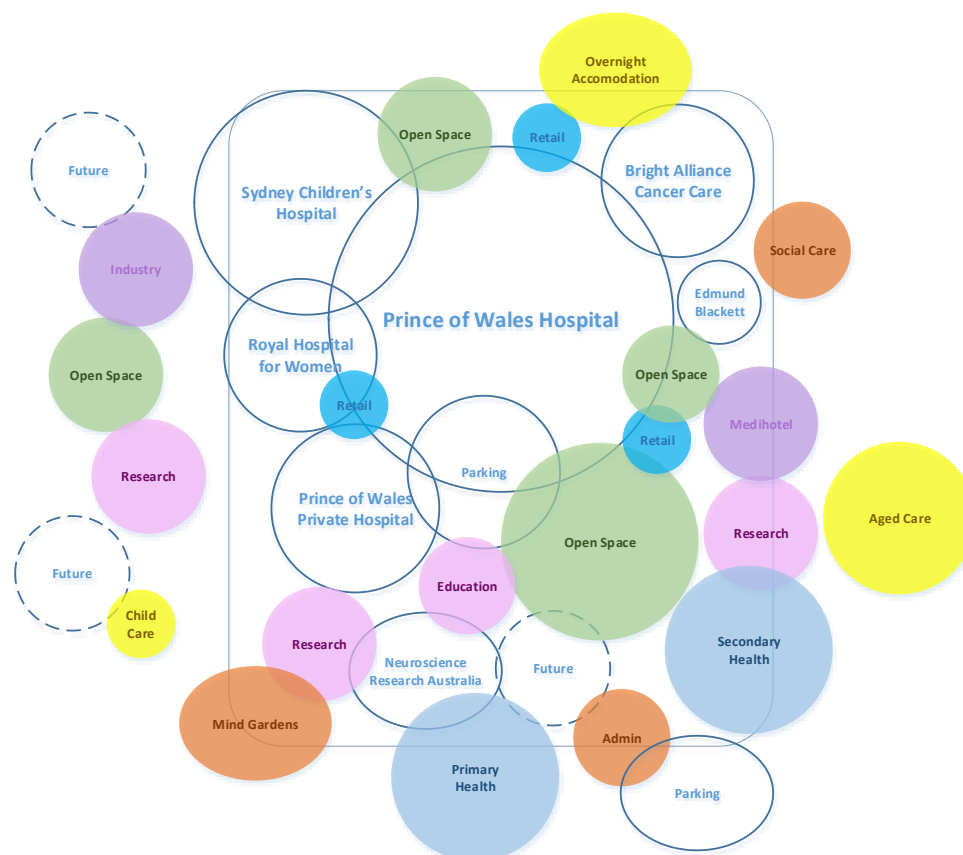
A number of themes emerged from workshops relating to the aspired AHSC at Randwick. These focused on the key enablers, noting that the Health Science Alliance has already an established and agreed understanding of the RAHSC aspiration. The themes were:

- Integrate Governance: to provide a coordinated response to activity and planning on the campus
  - This would need and integrated approach to manage the RAHSC given the different funding bodies, governance oversight frameworks and external pressures on each AHSC member
  - It was broadly concluded what was required was an Integrated Governance Model that brought together the Hospitals, Community, Universities (including education and research), and Industry
  - The envisaged product of this high degree of integration was a model of Centres of Excellence that spanned all institutions to create a hybrid entity that brought together care, education, and research around specific areas of focus (e.g. oncology). These centres rely on the coordinating and planning activities at this higher level to ensure an integrated model is realised
- Cultural Change: to create a research disposition through all staff in order to enable high quality research activity and to support translational research
  - Critical to the vision of the RAHSC was the recognition that there needed to be a significant cultural change in the way things were done
  - This ranged in scale from creating a geographical inclusive notion of who is part of the RAHSC to include community care locations as well as whole of Sydney research networks. Importantly this means thinking about the services in terms other than the number of beds
  - It also included re-envisaging what the clinical stream of the future might look like. This is both a question of how and who delivers care but also of research and education. Noting

that education includes not just universities but also the TAFE and high schools
- o Perhaps most significant cultural change though hinges on moving from a Sickness Model to a Wellness Model that embraces secondary and community health
- Connected Identity: create the RAHSC as a destination brand that provides an unifying identify for the precinct while still allowing each individual entity to express its own branding/identity.
  - o The imagining of how the RAHSC is represented to the external stakeholders also speaks to the vision of the essence of the RAHSC
  - o The strong theme here was as an important precinct, a destination that was very much a "University Hospital", where the individual stakeholders all achieve success because of a strong, robust and interdependent network of relationships
  - o The basis of these relationships exist now within the Health Science Alliance but will be enhanced through extension to other partners such as schools
  - o The RAHSC is envisaged as strongly connected to both the community and industry. Drawing on industry needs and resources to provide incentive within the AHSC
  - o Industry provides a strong translations focus and enables strategic investment in key infrastructure such as clinical information systems.

1.4.4 Royal Hospital for Women's Services Plan

In 2013 the RHW released its *Strategic Plan 2014-2020* laying out "… a path that builds on our proud record while preparing for the next challenges – population growth and changes in fertility rates, advances in neonatal care and clinical practice in general, changes in the inpatient mix accompanying a shift to same day and ambulatory care and, critically, changing expectations from women as consumers of health services."

This Plan was supported by a Background Report providing supplementary clinical services information including planning context and process, population snapshot, an overview of the organisation's services and workforce, service utilisation, projected bed numbers, issues arising from consultations and recommended strategic directions.

Since the release of these documents the Royal has identified some additional areas of consideration which have been included in this Plan.

1.4.5 War Memorial Hospital, Waverley

The War Memorial Hospital is an affiliated hospital under the governance of Uniting, the services and advocacy arm of the Uniting Church NSW & ACT. The Uniting in Waverley site offers a wide range of health and community services including the Uniting War Memorial Hospital, residential aged care and independent living units.

Uniting in Waverley envisions that it will continue as a community hub and remain committed to providing a continuum of care. Local people can continue to access the War Memorial Hospital and Uniting services, from early learning through to contemporary health and aged care services as well as other community services and facilities. Any future planning by Uniting of the Waverley site will include that of the War Memorial Hospital, which Uniting believes has significant potential to accommodate additional hospital services on site.

District activity and demographics show us there will continue to be a growing need for both community and inpatient subacute services now and into the future.

As an established Public Health Organisation within SESLHD and a recognised hub within the community, War Memorial Hospital is in a position to play a further part within the District. Uniting believes there is opportunity to broaden the District footprint with increased accommodation of

subacute and community services on the Waverley site, complementing the acute and primary health sector. This will further complement existing services on site, with its focus on health, restoration and well-being.

1.4.6 Mental Health Clinical Services Plan

The *SESLHD Mental Health Clinical Services Plan 2013-2018* presents an overview of current services and strategic priorities for the Mental Health Service in the five years to 2018. The Plan identifies the scope and breadth of the community and those who currently, or in the future, need to access mental health services. Of particular relevance to the Randwick Hospitals' Campus Redevelopment is the Eastern Suburbs Mental Health Service which delivers comprehensive public specialist mental health services to support people across the lifespan with a range of developing or existing mental health illnesses and disorders.

Services are provided in inpatient, ambulatory and community settings and relate to prevention, early diagnosis, early intervention, case management, emergency response, triage, assessment, acute care and sub-acute care, in collaboration with other service providers within our geographical boundaries. In the Randwick area, services are delivered from four sites:
- Randwick Hospitals Campus (including 88 inpatient beds)
- Maroubra Community Mental Health Centre
- Bondi Junction Community Mental Health Centre
- Headspace Bondi Junction.

The catchment for Eastern Suburbs Mental Health Service covers the Local Government Areas of Botany Bay, Randwick, Waverley, and part of Woollahra and City of Sydney (delivered in partnership with St Vincent's Health Network).
- In order to realise the Mental Health Service's vision, the Greater Randwick Campus Master plan will consider the appropriate, defined footprints for the full range of Mental Health services, which includes inpatient and ambulatory care, clinics, research, administration and support services
- The footprint accommodating all inpatient beds will ensure appropriate connectivity to related services on campus. The master plan will also take into account a defined precinct for on-campus ambulatory and research services. Options to be explored include occupancy within the Research Precinct of the Campus, or a designated campus Ambulatory Care Precinct or similar
- Any design needs must be sympathetic to the unique needs and suitable co-location arrangements of disparate inpatient and ambulatory units and support a healing and health promoting environment for patients and their families
- The SESLHD Board has approved Mental Health Service to develop a Service Delivery Plan and Business Case for progressing the Maroubra and Bondi Junction Community Mental Health Centres redevelopment.

1.4.7 Sydney Children's Hospital, Randwick Integrated Health Services Plan inputs

The SCH is a specialist paediatric hospital that has provided tertiary and quaternary clinical care to children and young people since 1852. Co-located and adjoining to the POWH on the Randwick Precinct, the SCH is governed within the Sydney Children's Hospital Network (SCHN).

Operating in an environment of dynamic change, the Network is the largest paediatric health care provider in Australia with over 50,000 inpatient admissions and over 92,000 emergency presentations

annually. The SCHN not only has state-wide responsibility for providing quaternary healthcare but it is also a leader in paediatric research and education.

The SCH and surrounding health services have developed significantly overtime and evolved into a major health precinct.

Over the last 20 years the SCH has experienced:
- A sustained increase in its level of clinical activity
- A significant increase in the range and complexity of the health services it provides
- An expansion in its activities related to both education and research
- A significant growth in the health workforce.

These issues have created significant pressures on the existing asset base, especially the built environment. This has limited the ability of the hospital to response to the changing needs of the organisation and its patient cohort.

As such, the SCH and SCHN as a whole are undertaking a Master Plan, simultaneous Clinical Services Plan and an Asset Strategic Plan process – which will help inform the capital planning of SCH and the Children's Hospital at Westmead.

This process will help ensure the SCH is able to respond to community demands and drivers now and into the future. Key stakeholders across the SCHN and the Randwick Precinct will be consulted with to help inform the SCH Master Plan and clinical services planning process.

The focus of SCH inclusions in this plan are the shared services.

1.4.8 Prince of Wales Private Hospital

The Prince of Wales Private Hospital (operated by Healthscope) opened on the Randwick Campus in 1996.

The hospital has 168 overnight beds and specialises in maternity, cardiothoracic, neurosurgery, orthopaedic, neurology, urology, vascular and interventional radiology (mainly neuro).

It is co-located with POWH (public), RHW and SCH which has allowed development of a cooperative relationship including shared services and a variety of agreements.

Future plans for the hospital include a significant capital expansion and to continue to work co-operatively with POWH (public), RHW and SCH.

1.4.9 University of NSW

The redevelopment of the Randwick Hospitals and Health Services' Campus presents an ideal opportunity to collocate a range of services, facilities and the workforce to support the realisation of the vision of the partners.

The University of NSW's vision of becoming a top 50 global university, outlined in its UNSW 2025 Strategy[6], translates to major objectives of the UNSW Medicine strategy[7]. These include:
- Ensure sustainability and growth through
  - Delivering progressive coursework programs based on best-evidence and innovation
  - Growing our HDR cohort and managing on-time completions
  - Develop new PG coursework relevant to our areas of strength and
  - Strengthening our success in research grant funding, broadening our external revenue base through relationships with alumni, philanthropy and industry.
- Support and enable the University's 2025 Strategy
- Champion and lead the emerging Academic Health Science Partnership (AHSP) and the health and medical research hubs associated with our clinical schools
- Operate as one, unconstrained by our geographic breadth and current organisational boundaries
- Build our capabilities around a focussed number of strengths, aligned to major health challenges of our society, which will drive remarkable health outcomes and for which we will be internationally recognised
- Establish and benchmark measures of quality and excellence that reflect the UNSW Medicine aspiration to become a top 50 global medical school and recognised as a global leader in health and medical research, research translation and education on the international stage
- With our partners build a unique, effective and efficient basic science and translational research and teaching environment
- Develop effective and efficient systems, processes and infrastructure to support the faculty in the delivery of its strategic objectives and outcomes.

1.4.10 The Mindgardens Neurosciences Project

Mindgardens is a multi-disciplinary, multi organisational research and education collaboration in the diagnosis, treatment and prevention of brain and nervous system disorders, psychosis, mental health, neurological, drug and alcohol, prevention, suicide and other related research domains.[8] It seeks to bring together, in one location, pre-eminent researchers, medical research institutes and clinical service entities from the 3 campus hospitals, Eastern Suburbs Mental Health Service, 5 medical research institutes and the University of NSW.

Its mission is "*to prevent, treat and provide care across a broad range of neurological, mental health, thinking and related disorders by building effective networks of engaged communities that is centred, supported by collaborative research that translates into real-world solutions*"[9]

Key areas of focus will be:[10,11]
- The Developing Brain – focusing on the genetic, environmental, lifestyle and social factors

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[6] URL: https://www.2025.unsw.edu.au/
[7] URL: https://med.unsw.edu.au/sites/default/files/_local_upload/others/Faculty_Strategic_Intent.pdf 2016
[8] Hassell: Draft Mindgardens Stakeholder Report 20/6/16
[9] Ibid
[10] Ibid
[11] Mindgardens URL: http://mindgardens.org.au/themes-mindgardens/

influencing the development of the brain from preconception and throughout the life course
- Mental Health and Wellbeing – focusing on being in control of your own actions, with a review of multicultural, cultural issues, comorbidities, depression, bipolar, disorders, anxiety, and stress and trauma related conditions including refugee related stress. There will be a focus on accelerating the development and translation of new and novel treatments, expanding approaches to mental health and well-being and to support people living in and contributing to the community
- Healthy Brain Ageing – focusing on factors affecting growth, development and maintenance of a healthy brain and mind across the different stages of life, neurodegenerative changes and dementia. Promoting illness prevention and a community focus on accelerating the development and translation of treatments.

Fundamental to the translation of this research will be the alignment of Health Services and linkages with Primary Health and clinical schools. This will require partnerships with eHealth services, with access to enabling infrastructure such as Digital Health systems to enable integration of health services and research.

Key benefits will include:
- An accelerated understanding of neurosciences, drug and alcohol and mental health disorders and diseases with better care and cure outcomes through world-class translational research strategies
- Greater connectivity between scientists and clinicians
- Utilisation of the rapidly advancing management and analysis tools of Big Data approaches
- The scale to facilitate Australia's collaboration with global developments in neurosciences.

1.5 Context

1.5.1 Government priorities

NSW "Making it happen" State Priorities

NSW is determined to keep delivering for the people of NSW, which is why 30 reforms have been identified "… to grow the economy, deliver infrastructure, and improve health, education and other services across NSW"[12].

The Premier has 12 priorities in action to make NSW an even better place to live and work. These include:
- Building infrastructure for contemporary models of care to improve patient experience
- Improving emergency and surgical care
- Protecting our children
- Reducing youth homelessness
- Tackling childhood obesity
- Improving government services.
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National Clinical Care Standards[13]

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[12] https://www.nsw.gov.au/premiers-priorities
[13] http://www.safetyandquality.gov.au/our-work/clinical-care-standards/

Part of the work by the Australian Commission on Safety and Quality in Health Care is to lead and coordinate national improvements in safety and quality in health care across Australia including developing clinical care standards to ensure these are appropriate, reduce variation and improve clinical outcomes and the patient experience. In 2011 they published ten nationally consistent and uniform standards for application across a wide variety of health care services, designed to assist health service organisations to deliver safe and high quality care.

Other Commonwealth and State key priorities

- Whole of Health Program[14]
- National Primary Health Care Strategic Framework[15]
- Reducing Unwarranted Clinical Variation[16]
- A national framework for recovery-oriented mental health services[17]
- Contributing Lives, Thriving Communities - Review of Mental Health Programmes and Services[18]
- A new blueprint for mental health services[19]
- NSW Integrated Care Strategy[20]
- Public Specialist Outpatient Services[21]
- The NSW Aboriginal Health Plan 2013-2023[22]
- NSW Health Professionals Workforce Plan 2012 – 2022[23]
- NSW Health Policy and Implementation Plan for Healthy Culturally Diverse Communities 2012-2016 [24](updated plan in development)
- NSW Refugee Health Plan 2011-2016[25]
- The NSW Strategic Plan for Children and Young People[26]
- Living Well: A Strategic Plan for Mental Health in NSW 2014-2024[27]
- NSW Health Framework for Women's Health 2013[28]
- eHealth NSW Strategy for NSW Health 2016-2026[29]
- NSW State Plan: Toward 2021[30]
- State Infrastructure Strategy 2021-2032[31].

[14] http://www.health.nsw.gov.au/wohp/Pages/default.aspx
[15] http://www.health.gov.au/internet/main/publishing.nsf/content/nphc-strategic-framework
[16] http://www.eih.health.nsw.gov.au/initiatives/reducing-unwarranted-clinical-variation-taskforce
[17] http://www.health.gov.au/internet/publications/publishing.nsf/Content/mental-pubs-n-recovgde-toc
[18] http://www.mentalhealthcommission.gov.au/our-reports/contributing-lives,-thriving-communities-review-of-mental-health-programmes-and-services.aspx
[19] http://www.health.gov.au/internet/ministers/publishing.nsf/Content/health-mediarel-yr2015-ley151126.htm
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[21] http://www.eih.health.nsw.gov.au/initiatives/specialist-outpatient-services-improvement-project
[22] http://www.health.nsw.gov.au/aboriginal/Documents/aboriginal-health-plan-2013-2023.pdf
[23] http://www.health.nsw.gov.au/workforce/hpwp/Publications/health-professionals-workforce-plan.pdf
[24] http://www0.health.nsw.gov.au/policies/pd/2012/pdf/PD2012_020.pdf
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[26] https://aifs.gov.au/cfca/2016/05/03/report-acyp-nsw-consultations-children-and-young-people
[27] http://nswmentalhealthcommission.com.au/our-work/strategic-plan
[28] http://www.health.nsw.gov.au/women/Publications/womens-health-framework-2013.pdf
[29] http://www.health.nsw.gov.au/ehealth/documents/ehealth-strategy-for-nsw-health-2016-2026.pdf
[30] http://www.health.nsw.gov.au/statehealthplan/Pages/NSW-state-health-plan-towards-2021.aspx
[31] http://www.infrastructure.nsw.gov.au/pdfs/SIS_Report_Complete_Print.pdf

1.5.2 South Eastern Sydney Local Health District

Overview

SESLHD covers eight NSW Local Government Areas (LGAs) from Sydney's Central Business District in the north to the Royal National Park in the south. The District also provides a key role in assisting residents of Lord Howe Island and Norfolk Island with access to hospital and health services, including state-wide services. The District has a complex mix of highly urbanised areas, industrialised areas and low density suburbs and has a population of over 840,000 people.

SESLHD's facilities and services

The services provided across the District include hospital and outpatient services, imaging and pathology, population health programs and services, ambulatory, primary health care and community health services among others.

Facilities include six public hospitals and associated health services:

- POWH and Community Health Services
- RHW
- St George Hospital and Health Services
- Sutherland Hospital and Health Services
- Sydney / Sydney Eye Hospital and
- Gower Wilson Memorial Hospital on Lord Howe Island.

The District also provides one public residential aged care facility (Garrawarra Centre), and oversees two third schedule health facilities: War Memorial Hospital Waverley (third schedule with Uniting Care) and Calvary Healthcare Sydney (third schedule with Little Company of Mary Health Care). In April 2016, SESLHD was appointed as the official organisation to partner with the new entity - Norfolk Island Health and Residential Aged Care Service (NIHRACS) - to plan and deliver the range of health services required to meet the needs of Norfolk Island residents.

Other public health facilities that deliver services to the local population within SESLHD's geographical boundaries include SCH, St Vincent's Public Hospital (Darlinghurst) and Sacred Heart Health Hospice (Darlinghurst).

There are a growing number of private health facilities, aged care services and numerous primary health care providers with the Central and Eastern Sydney Primary Health Network encompassing SESLHD.
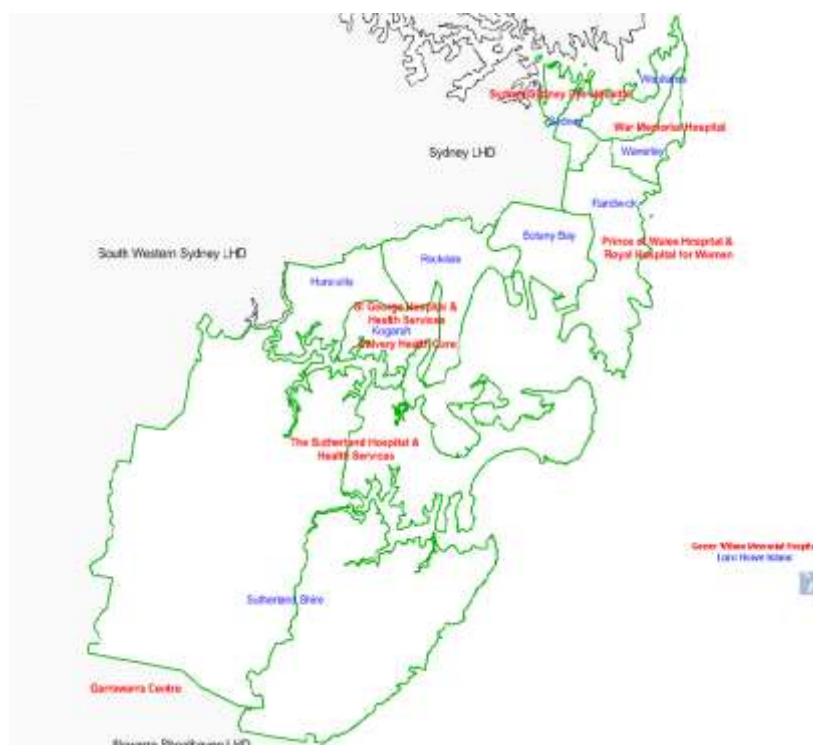
SESLHD's strategic planning framework

South Eastern Sydney Local Health District is on a reinvigorated path to building higher performing and cutting edge health services.

This direction is guided by several key strategic planning documents[32]:

SESLHD Roadmap to Excellence as the Journey to Excellence strategy continues to drive the efforts of the District five key programs of work have emerged:

- Integrated Care
- Service Realignment
- Building Capacity and Capability
- Organisational Change
- Saving Money Safely.

These are set in the context of a strong focus on equity and community engagement.

Health Care Services Plan 2012-2017 details how the District's services will deliver high quality health care to those in need and prevention and wellness programs to local communities.

Asset Strategic Plan 2012 – 2017 provides the long term approach for managing the District's land, buildings, infrastructure, plant and equipment to support implementation of health care priorities and initiatives outlined in the Health Care Services Plan 2012-2017.

A companion document *Our Community, Our Services: a Snapshot* providing an overview of trends in population health status and risks and patient access, utilisation and experiences of District services.

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[32] The SESLHD Plans listed below can be accessed at URL: http://www.seslhd.health.nsw.gov.au/HealthPlans/default.asp

The Board endorsed the *SESLHD Integrated Care Strategy* in April 2015. The 3 key priority areas in the Strategy are:

- Engage with People and Communities
- Health Intelligence Systems
- Innovative Models.

Effective and enduring community partnerships are crucial for SESLHD to achieve an effective and sustainable health system for the future. We should not and cannot design and deliver our health services without them. The *SESLHD Community Partnerships Strategy* outlines the District's commitment and approach to achieving a better public health system in partnership with our communities.

The *SESLHD Equity Strategy* has recently been developed to create a vision for and impetus to refocus our work to better address inequities. The Strategy identifies 3 strategic directions:
Transform our health service to systematically improve equity
Invest to provide more care in the community and more prevention and wellness programs
Refocus our work to better address the social determinants of health and wellbeing.

The *2014-2016 SESLHD Implementation Plan for Healthy Culturally Diverse Communities* describes a vision for an equitable health system where cultural and linguistic diversity is at the heart of service planning, service delivery and policy development. It outlines priority actions, specific objectives, stakeholders and partnerships, and indicators to measure our success.

2.   The Case for Change

We are currently on an unsustainable path of ever increasing demand for emergency services, inpatient beds, outpatient and community services and bigger expenditure

Preliminary base case projections suggests:

40% more acute and 56% more subacute beds

88,800 projected ED Presentations

More operating theatres and procedure rooms

If we continue on this unsustainable we path will have:

➢ Increased risk of harm to patients due to poor infrastructure, lack of workforce and inadequate technology
➢ Escalation of health inequalities, despite the cause of the greatest inequalities being considered potentially avoidable
➢ Episodic care for a single health condition rather than addressing the whole needs (physical, mental and social wellbeing) of the individual with:

  ✗ Lack of continuity and connectedness between health and social care providers
  ✗ Unnecessary and avoidable admissions and/or readmissions and/or delayed discharges
  ✗ Inappropriate and /or delayed access to treatment
  ✗ Compromised patient care and choice
  ✗ Poorer patient outcomes

➢ Increasing levels of patient, carer and family, community and staff dissatisfaction
➢ Significantly increasing waiting times
➢ More costly interventions and services
➢ Lack of translational research opportunities.

Challenges	Potential Solutions	Benefits
Growing and ageing population; increased chronic and complex health and social wellbeing, particularly amongst vulnerable populations	Construct a facility capable of delivering health services appropriate for the 21st century on the Randwick Campus and in the community	Create capacity to meet the current and future demand to improve the health of the population
Innovative models of care are constrained by the infrastructure and systems in place	Further expansion of hospital avoidance strategies and integrated models of care	Integrated models of care and compassionate, preventive, predictive and participatory services provided.
Current facility is not fit-for-purpose to meet current and increasing demand and deliver safe quality care	Extend partnerships and networks with other health, aged and community care providers, education and research	Sustainable services for quality person-centred care whilst optimising value of investment, leading to reduced adverse events, improved experiences
Existing ICT systems are outdated, lack flexibility, agility and integration.	An integrated ICT system that is responsive to 21st century healthcare	Personalised records; test results at point of service; data informed decisions; social networks
Education and training resources are constrained	Provide fit for purpose education facilities at point of care and in a dedicated education precinct for the campus	Improved educational opportunities for all staff, patients and the community
Research is uncoordinated across the campus and research infrastructure inadequate	A coordinated research program for the campus in partnership with leading universities and other key partners (Health Science Alliance, Academic Health Science Partnership, Translational Cancer Research Network, etc.)	Greater opportunities for research initiatives and implementation of translational research; improved patient outcomes

2.1 What others are doing well around the world

Advances in research and technology and consumer-driven health care are changing the focus of medicine from treating disease, to health care that is "predictive, preventive, personalized and participatory"[33].

The Institute for Healthcare Improvement has been at the forefront of improving health and health care. Advancing this work their focus is in five key areas[34]:

- Improvement Capability: Ensuring that improvement science drives our work and that we extend the reach and impact of the improvement community
- Person- and Family-Centred Care: Putting the patient and the family at the heart of every decision and empowering them to be genuine partners in their care
- Patient Safety: Making care continually safer by reducing harm and preventable mortality
- Quality, Cost, and Value: Driving affordability and sustainability through quality improvement
- Triple Aim for Populations: Applying integrated approaches to simultaneously improve care, improve population health, and reduce costs per capita.

Innovation Unit '10 ideas for 21st century healthcare)
http://www.innovationunit.org/sites/default/files/DIGITAL%20VERSION10%20Ideas%20Final.pdf

Health services provide care to diverse population groups along a continuum of interactions with multiple health care providers. As the demand for ongoing care increases, health care systems have focused on expanding primary care and increasing community based services to reduce demand on acute hospital services. In order to avoid fragmented care and identify people that require ongoing care, particularly those with complex and long term health conditions, high performing health systems provide integrated care that provides coordinated patient and family centred primary, secondary, social and community support.

Reviewing high performing hospitals around the world suggests that common strategies for creating sustainable, high quality, compassionate health care include:

- **Anticipatory and predictive:**
  - o Careful analysis of big data in population health for predictive analytics to identify high risk patients and those in need of health care
  - o The use of risk stratification and decision support tools to identify patients with ongoing care needs and population health needs

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[33] P4 Medicine Institute URL: http://www.p4mi.org/p4medicine
[34] Institute for Healthcare Improvement http://www.ihi.org/Pages/default.aspx

- o The development of population registers
- o Personalisation of care
- **Coordinated and integrated**:
  - o Continuing care processes bridge the gap between primary, secondary and tertiary care by coordinating and integrating care
  - o A whole of system redesign so patients are at the centre of the system to make informed decision-making and supported by a coordinated pathway of health and social care to maximise the healthcare experience for patients, carers and family
  - o Treating the whole patient and integrating this concept into the model of care to recognise individual needs not only relate to the person's physical or clinical condition but also those aspects of a person that impact on their wellbeing, healing and acceptance of the treatment
  - o Integrating care across disciplines, sectors and organisations, to provide standardised workflow management and monitoring, with an emphasis on the whole patient journey to maximise outcomes
  - o Facilitating strong links to primary health care and the provision of appropriate supports to identify high risk patients
  - o Employing care coordinators, to facilitate the development of care plans, care transitions and discharge planning in partnership with patients and families
- **Easier access and navigation:**
  - o Providing seamless patient transitions across services
  - o Forming partnerships between health and social care
  - o Providing a single point of access and health navigation tools
- **A defined care continuum:**
  - o Ensuring the right care in the right place at the right time
  - o Providing care closer to home where appropriate
  - o Expansion of intermediate levels of care to support patient transitions
  - o Expansion of community based levels of care with broader acuity levels
- **Accountable organisations:**
  - o Engaging and empowering the workforce to be flexible and involved in innovation and service improvements to deliver safer and higher quality care
  - o Funding and providing governance for innovative programs in the community setting
  - o Promoting partnerships with other providers, industry, universities and other key stakeholders to improve community health and wellbeing
- **Person centred care:**
  - o Strong community engagement and support to empower people to make decisions that will directly affect their own health and allow them to be more responsible for their own health care
  - o Supporting and maintaining patient independence and supporting healthy active ageing
  - o Emphasising prevention and self-management, with systems in place to support this
- **Comprehensive evidence based services**:
  - o Evidence based service redesign to deliver best practice for patients in the most appropriate setting, e.g. innovative alternative care settings: integrated health and social care hubs in identified areas of need for the supported management of people with long term conditions in a community based setting, increasing the delivery of home based care, care coordination for people living with complex and long term conditions
  - o Improving service delivery with standardised clinical protocols and pathways
  - o Implementing advanced information technology (e.g. EMR, E-Health applications, health apps, tele-health, and ready access to data mega-warehouses) to support evidence based practice and person centred care
  - o Supporting research activity within the facility and across research networks
  - o Ensuring ongoing staff education
  - o Applying translational research and quality improvement activities, ensuring the hospital is a learning organisation and one that promotes connectivity with the community and a healing environment
  - o Using innovative alternative care settings
  - o Diverting non-emergent care to more appropriate and cost-effective settings.

The Connected Health Care System
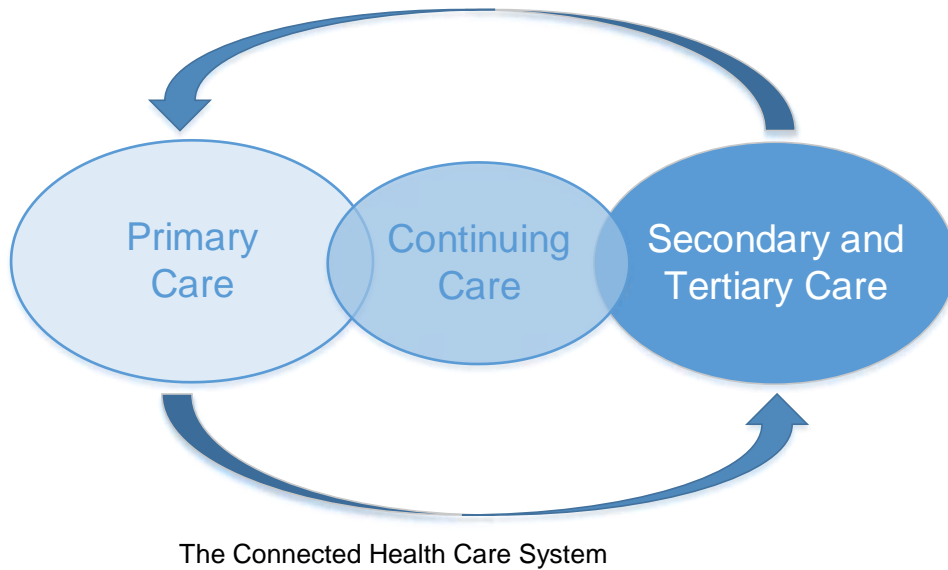
2.2 Our community and their health

2.2.1 Demographic trends in our population

Figure 1: Map of northern SESLHD
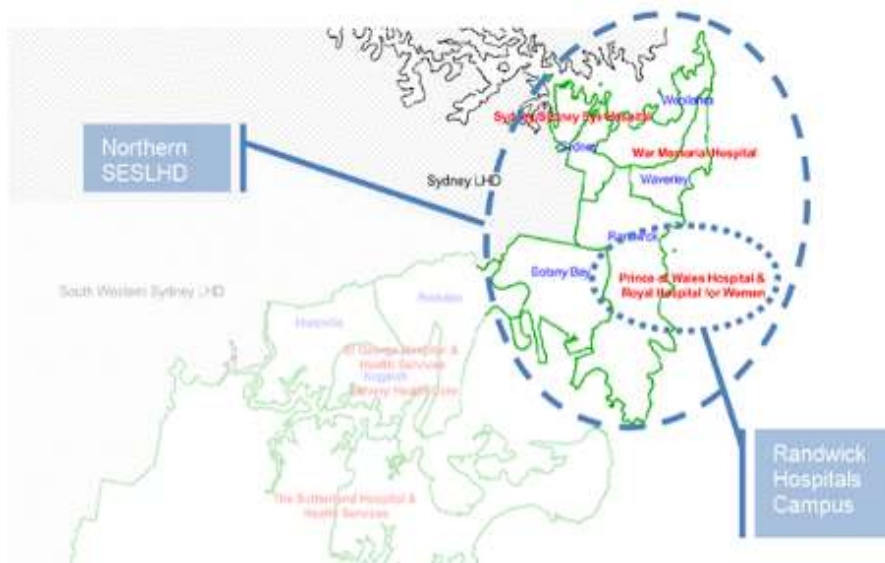
The northern part of SESLHD comprises four Local Government Areas (LGA) from Woollahra to Botany Bay LGA, plus part of Sydney LGA (Sydney Inner and Sydney East Statistical Local Areas (SLA).

Population size, growth and ageing

In 2011, approximately 380,000 people lived in the northern part of SESLHD. In addition, more than 300,000 people travel to this area each day for work[35], with more people coming for study and/or tourism. All are potential users of our health services.

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[35] Transport for NSW, Bureau of Transport Statistics, Journey to Work, 2011, URL: http://www.bts.nsw.gov.au/Statistics/Statistics?FolderID=214

By 2027, the resident population in the northern part of SESLHD is expected to increase by nearly 90,000 people, largely as a result of planned urban consolidation. Sydney and Randwick LGAs are expected to be home to nearly 30,000 additional people each (Figure 2 and Table A1).

It is important to note population projections are based on assumptions that take into account recent and current trends for births, deaths and migration[36]. The population projections also take into account residential development proposals that are submitted to the Department of Planning and Environment. However, population projections can change due to factors such as migration. For example the mooted closure of Long Bay Correctional Centre[37] has potential to release a large parcel of land which could be used for housing, resulting in an increase in the projected number of people living in northern SESLHD[38].

The population is ageing in the northern SESLHD. The 70-84 years age group is expected to be the fasting growing age group to 2027, followed by people aged 85 years and older, then children aged 0 – 15 years (Figure 3 and Table A2).

The current and projected age profile of residents varies across the northern SESLHD (refer to Appendix 6 Additional data). Not surprisingly Sydney LGA has more people of working age while other LGAs have relatively more children and older people.

Figure 2: Population projections by LGA, 2011 through to 2027
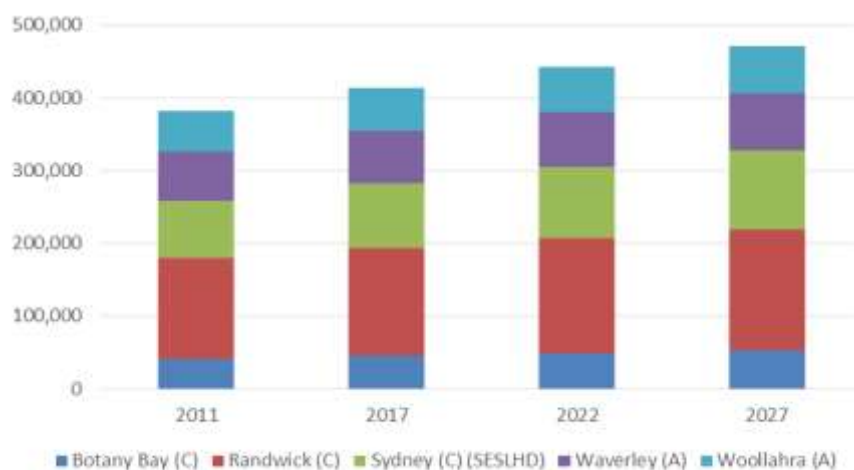
By 2027
- population will increase by nearly 90,000
- largest population Randwick LGA
- fastest growth Sydney SLAs

Source: NSW Department of Planning and Environment, 2014, reformatted by NSW Ministry of Health in Jun 14.
Inclusions: LGAs: Botany Bay, Randwick, Sydney (part), Waverley, Woollahra. All ages
Exclusions: Lord Howe Island
Note: Sydney (part) LGA includes Sydney – Inner and Sydney – East SLA which fall within the geographic boundary of SESLHD

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[36] Population projections are developed by NSW Department of Planning and Environment. URL: http://www.planning.nsw.gov.au/Research-and-Demography/Demography/Population-Projections
[37] URL: http://www.smh.com.au/nsw/developers-hungry-for-sale-of-long-bay-prison-complex-20160506-goo0ya.html
[38] A methodology for determining the impact of the land release applied the population density of Green Square and Pyrmont to the size of the site occupied by the Long Bay Correctional Centre then applied the existing bed utilisation for northern SESLHD population. The impact of the population increasing due to the potential residential land release in Malabar is 10 to 14 additional inpatient beds, which would be off-set by removing the current Corrections Ward (7 beds), leading to an overall impact of an additional 3 – 7 beds. It is acknowledged this is not an exact method as there are many variables that are unknown at this point but provides an indication of the potential impact.

Figure 3: Population estimates by age group, northern part of SESLHD, 2011 through to 2027

By 2027
- largest population 16-44 year olds
- fastest growth 70-84 years olds
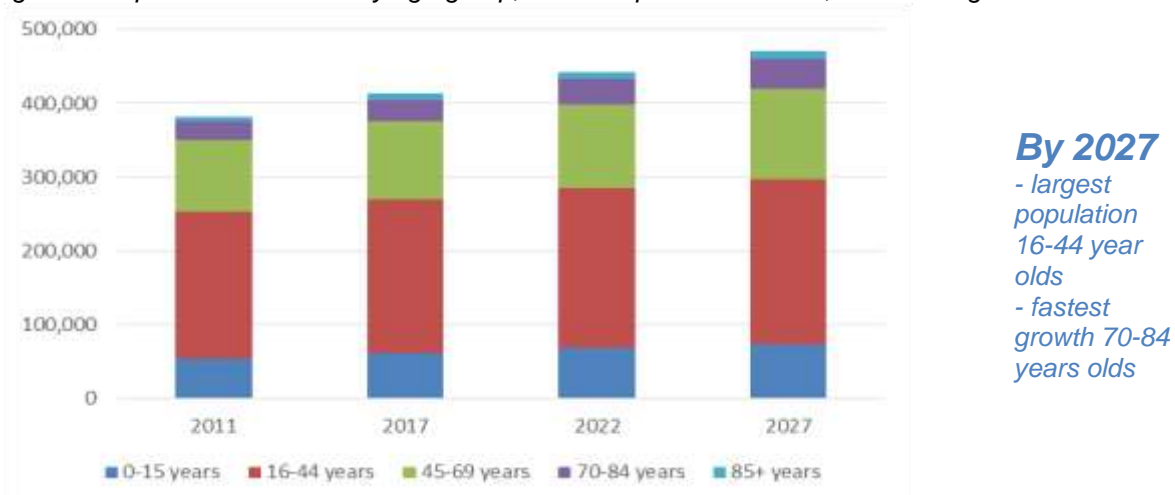
Sources, exclusions and notes refer to Figure 2

Aboriginal population[39,40]

In 2011, there are 173,000 Aboriginal persons in NSW representing 3.7% of the NSW total population. More than 3,000 Aboriginal people live in the northern SESLHD, representing 0.9% of the total population. The highest proportions of Aboriginal residents are in Botany Bay LGA (1.6%) followed by Randwick LGA

The Aboriginal population is young relative to the non-Aboriginal population, due to higher rates of fertility and mortality. In 2011 26% of the Aboriginal population in northern SESLHD were aged less than 15 years, as compared to 14% of non-Aboriginal residents. Conversely only 6% of the Aboriginal population were aged 65 years and older, as compared to 13% of the non-Aboriginal population.

The poor health of Aboriginal people is no secret. While most women in Australia can expect to live to an average age of 82 years, Aboriginal women can expect to live to only 72.9 years. The situation is even worse for Aboriginal men, whose life expectancy is just 67.2 years

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[39] Within this document "Aboriginal" is used to include both Aboriginal and Torres Strait Islander' peoples
[40] For more detailed information refer to SESLHD's 2015 "Didya Know" booklet

Figure 4: Aboriginal and non-Aboriginal residents, northern SESLHD, by age group, 2011
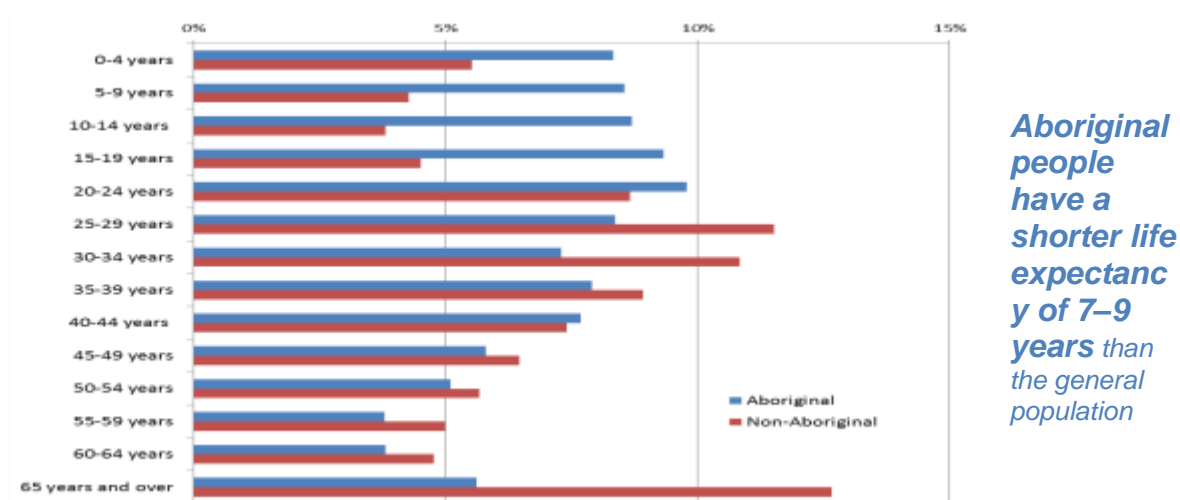
Aboriginal people have a shorter life expectancy of 7–9 years than the general population

Source: ABS 2011 Census of Population and Housing, Table: B07 Indigenous status by age and sex
Inclusions: LGAs: Botany Bay, Randwick, Sydney (part), Waverley, Woollahra
Exclusions: persons who did not state their Indigenous status

Cultural Diversity

The northern SESLHD has a very culturally diverse population. In 2011 44% of the population were born overseas (NSW average 25%)[41], with 29% born in a non-English speaking country (mainly China).

Overall 27% of northern SESLHD residents spoke a non-English language at home (mainly Mandarin, Greek or Cantonese).

Many of our residents born in non-English speaking countries (NESC) are aging, which has implications for aged care services. In the over 65 population:
- Inner East: 33% of residents over 65 are born in NESC
- Woollahra: 28% of residents over 65 are born in NESC
- Waverley: 43% of residents over 65 are born in NESC
- Randwick: 41% of residents over 65 are born in NESC.

Amongst these older people the top non-English languages spoken at home were Greek, Italian, Cantonese, Russian and Spanish.

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[41] ABS, 2011, Census of Population and Housing

Figure 5: "Top 10" languages spoken at home, by Local Government Area, 2011
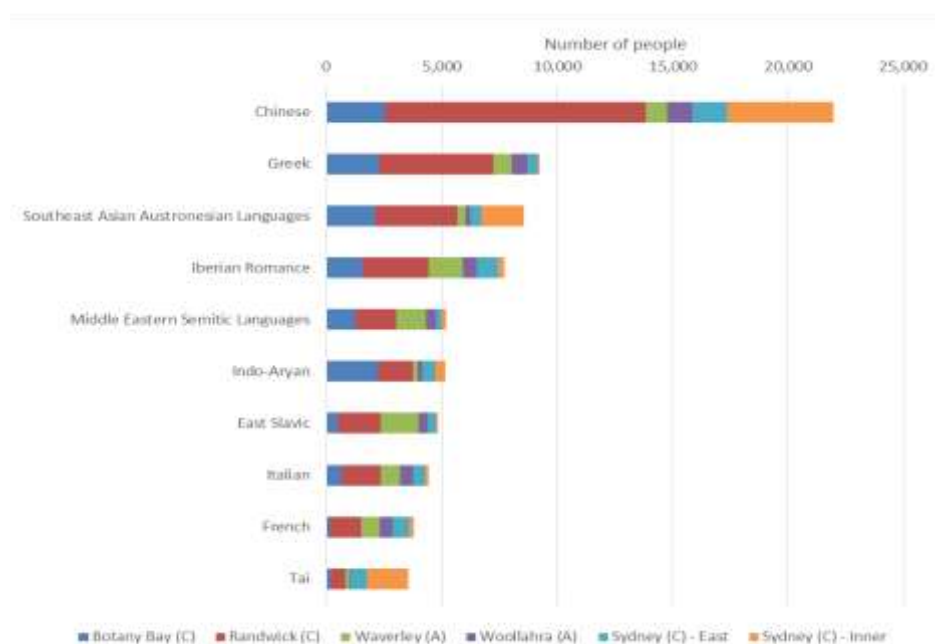
Chinese is the most common non-English language spoken at home for northern SESLHD residents

Source: ABS 2011 Census of Population and Housing,
Inclusions: LGAs: Botany Bay, Randwick, Sydney (part), Waverley, Woollahra
Exclusions: persons who spoke English and those did not state their language

The highest proportions of residents born in non-English speaking countries are in Inner Sydney SLA and Botany Bay LGA[42].

Additional statistics on cultural diversity of local population can be found at http://seslhnweb/POWH/Diversity_Health/statistics.asp.

2.2.2 Drivers of demand on the health system

Projected annual growth rates in hospital activity to 2027 (refer to Section 4.4.2 Base Case Projections) are expected to be in the order of:
- Medical inpatients: +2.5%
- Surgical: +2.1%
- Sub-acute: +9.6%
- Emergency presentations: +4.3%.

Future demands on the health system from a growing and ageing population will require changes to the way care is delivered if our health services are to continue to be sustainable in terms of the required capital and recurrent expenditures.

Some of the key drivers are detailed in the following sections.

Growing population

The population living in the northern SESLHD is expected to increase by 1.3% per year through to 2027. As the number of people increase so will demand for health services.

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[42] Additional statistics on cultural diversity of local population can be found at http://seslhnweb/POWH/Diversity_Health/statistics.asp .

Ageing population

Another significant driver for hospital activity is older people. People aged 70 years and older total more than 33,000, make up 9% of northern SESLHD's population, yet are proportionally high users of some health services.

Population			9% of population
Medical beds			51% medical bed days
Surgical beds			43% surgical bed days
Sub-acute beds			58% of sub-acute bed days
Emergency admissions			15% ED presentations
Outpatients			30% OPD activity
Community health			62% Cmty Hlth activity
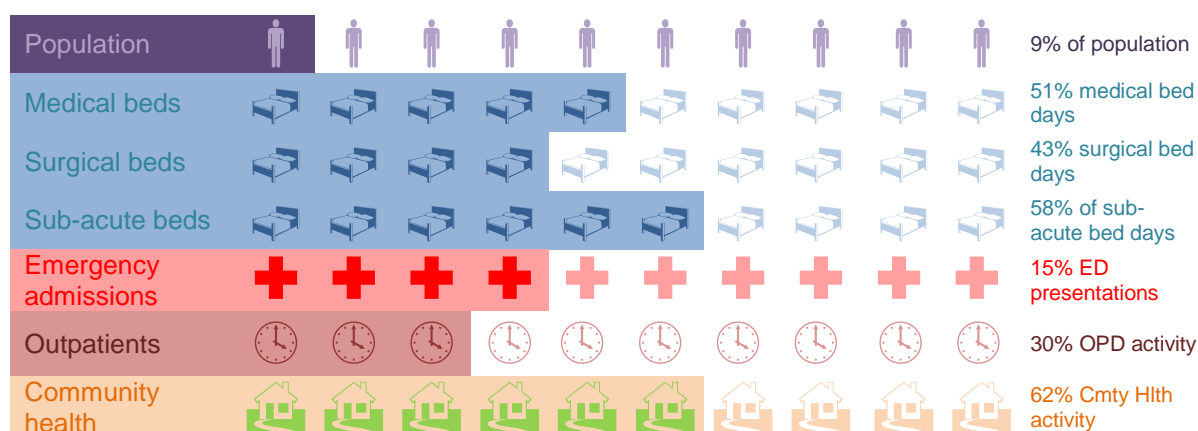
Causes

↑ Long term conditions
↑ Falls and fractures
↑ Prone to delirium
↑ Rate of dementia
↑ Risk of diabetes
↑ Survival rates from long term conditions

Other factors

↑ likelihood of being a carer
↑ Social isolation
↓ Availability of aged care places
↓ Access to transport

As the number of people in this age group increases there will be:

↑ Demand for age related gastrointestinal, orthopaedic and ophthalmic surgery
↑ Demand for management of long term conditions
↑ Need for age related care pathways (e.g. for delirium, orthogeriatric care, etc.)
↑ Demand for access to services in community, home and aged-care settings
↑ Demand for palliative care services, both in the hospital and the community settings.

Frail older people

Frailty is a key issue for modern health and social care services. As the total number of older people increases, so will the number of frail older people. Frailty is common in people requiring care and support at home, those who are housebound, long-term care residents, recipients of home care, and among older people admitted to hospital. They may have greater risks from polypharmacy, under-nutrition, falls and deconditioning, with personal cost to patients, their carers and families. Clinically, older people who are frail have poor functional reserve, so that even a relatively minor illness can present with sudden catastrophic functional decline – causing the person to fall, become immobile or rapidly confused, or to present non-specifically with failure to thrive[43].

However, quantifying the total number of frail older people is problematic, and different degrees of frailty will require different supportive services and interventions.

With clearer identification of frail patients there will be improved patient risk assessment and as a consequence more appropriate care.

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[43] Oliver D. et al. Making our health and care systems fit for an ageing population. The Kings Fund 2014 URL: http://www.kingsfund.org.uk/sites/files/kf/field/field_publication_file/making-health-care-systems-fit-ageing-population-oliver-foot-humphries-mar14.pdf

People with dementia

Dementia becomes increasingly common with age and primarily affects older people. In the absence of effective prevention or cure options, the Australian Institute of Health and Welfare projects that between 2010 and 2050, the number of people with dementia will treble.[44]

While the majority of people with dementia manage to live at home with support from informal carers and family, the disease is steadily progressive and without advances in prevention or treatment of dementia, the demand for health and social services will continue to increase.

The AIHW reports that, in 2009–10, dementia was a diagnosis for 1 in every 100 acute hospitalisations and was the principal diagnosis for 1 in every 1,000, with higher rates for those aged 65 years or older. Common reasons for hospitalisation included hip fractures and other injuries, lower respiratory tract infections, urinary tract infections and delirium.[45] In addition, they often experience adverse outcomes, including physical and cognitive functional decline, under-nutrition, skin tears and falls.[46]

The average length of stay for people with a principal diagnosis of dementia is around 18 days, 6 times higher than the average length of stay of 3 days for all hospitalisations. Almost half (47%) of episodes for people with dementia do not have dementia recorded as a diagnosis and those with dementia have higher associated costs of care.[47]

Figure 6: Age specific dementia rates (per 100 population), by age, Australia, 2011

Likelihood of dementia increases with age
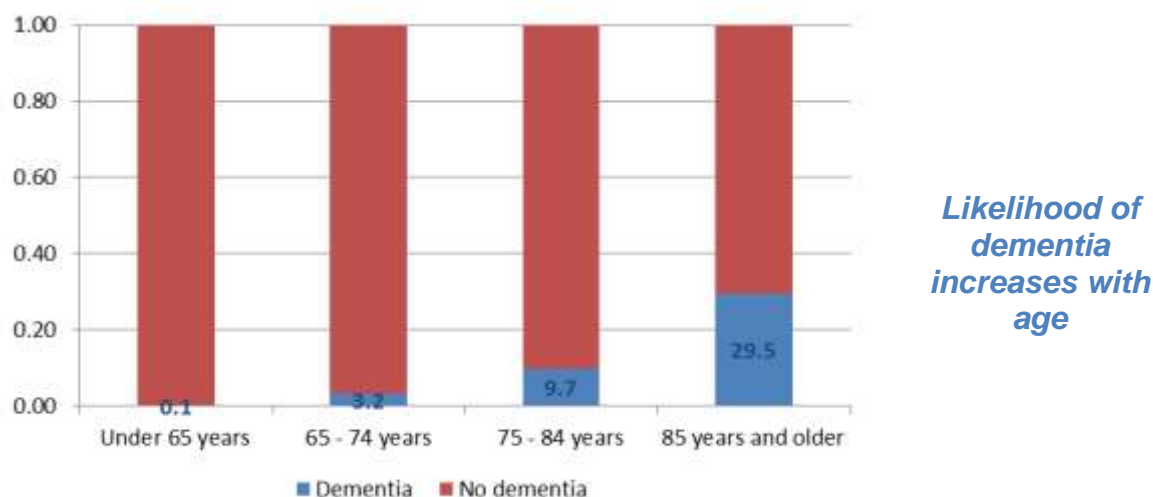
Source: AIHW, 2012, Dementia in Australia[48]

Delirium

Delirium is an acute disturbance of attention and cognition and is most common in people with dementia, though it can affect any older person in hospital.[49] Delirium can be predictive of physical, functional and cognitive decline, leading to a decline in independence and a need for a higher level of care. It can also result in longer length of stay for the patient. Managing delirium in an acute care setting requires prompt identification and treatment of precipitating factors to prevent deterioration.

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[44] Australian Institute of Health and Welfare 2012. Dementia in Australia. Cat. no. AGE 70. Canberra http://www.aihw.gov.au/WorkArea/DownloadAsset.aspx?id=10737422943

[45] Draper B, Karmel R, Gibson D, Peut A & Anderson P. 2011. The Hospital Dementia Services Project: age differences in hospital stay for older people with and without dementia. International Psychogeriatrics 23:1649–58. URL: http://www.ncbi.nlm.nih.gov/pubmed/21902861

[46] Australian Institute of Health and Welfare 2013. Dementia care in hospitals: costs and strategies. Cat. no. AGE 72. URL: http://www.aihw.gov.au/WorkArea/DownloadAsset.aspx?id=60129543386

[47] Ibid

[48] URL: http://www.aihw.gov.au/WorkArea/DownloadAsset.aspx?id=10737422943

[49] NSW Agency for Clinical Innovation. Dementia and Delirium in Hospitals http://www.aci.health.nsw.gov.au/chops

People who are most disadvantaged

SESLHD's Equity Strategy clearly articulates improvements in equity will reduce demand for health services.

> "*People who are most disadvantaged tend to die younger, get sicker, experience more risk factors and use preventive health services less than those who are most advantaged.*
>
> *A wide range of groups across our communities experience disadvantage, [often with overlap between disadvantaged groups]. Not every person in every group has the same experience, but groups most likely to experience inequities in health and wellbeing include:*
> - *People from low socioeconomic backgrounds, including people who are homeless, long-term unemployed, or living in public housing or households in rental stress*
> - *Aboriginal people*
> - *People living in single parent households with dependent children*
> - *Socially isolated, disengaged people (e.g. older people and young people not working or studying)*
> - *People who experience mental illness, particularly moderate to severe mental illness*
> - *People living with a disability*
> - *People from some culturally and linguistically diverse backgrounds, particularly refugees*
> - *People who are gay, lesbian, bisexual, transgender, questioning, queer and in-between.*
>
> *[People in these groups] have increased risk behaviours, such as alcohol misuse, smoking and HIV risk behaviours. As well as contributing to premature death, the increased risks and associated illnesses make difficult situations faced by people [in these groups] even more challenging.*"[50]

It is noted that not all disparities in health are related to the health behaviours of the individuals and therefore cannot be addressed by programs or services that work on modifying individual health behaviours. For example, health issues amongst culturally and linguistically diverse communities, particularly refugees, may be related to experiences of physical and psychological trauma; exposure to infectious diseases; malnutrition and vitamin deficiencies from migration and settlement experiences.

People with long term conditions

Core consumers of health resources are now people with long-term conditions[51], including people with multiple long-term conditions and mental health problems. Chronic disease accounts for a large proportion of the health budget, consultation time, medication use, ED presentations and hospital admissions.

The incidence of diabetes is increasing in the population, reflecting the rising levels of obesity. At POWH, diabetes accounts for 14% of acute inpatient separations (recorded as either a principal or secondary diagnosis) and the average overnight length of stay is double compared to the overall average overnight length of stay (10.1 days compared to 5.5 days in 2014/15)[52]. While the incidence (age-adjusted) of many other chronic conditions (e.g. heart disease, dementia) is not actually increasing, there are simply more people living with these conditions, given that the population is ageing and growing, and people are living longer.

In northern SESLHD, 37% of people reported having a long term health condition.[53] Many people have more than 1 chronic illness or condition at the same time. In SESLHD, an estimated 21% of the resident population live with multi-morbidities, increasing to 82% for those aged 85 years and over.[54]

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[50] SESLHD, 2015, Equity Strategy. URL:
http://www.seslhd.health.nsw.gov.au/HealthPlans/documents/2016/SESLHD%20equitystrategy%20FINAL.pdf
[51] It is noted the definition of chronic disease for Aboriginal people is those "with or at risk of developing the disease" and includes 15 years and older
[52] Source: HIE. Accessed 24 June 2016
[53] National Health Performance Authority. My Healthy Communities: Explore the Data URL:
http://www.myhealthycommunities.gov.au/explore-the-data
[54] SESLHD Integrated Care Strategy 2015 URL:
http://www.seslhd.health.nsw.gov.au/CDM/documents/SESLHD_Integrated_Care_Strategy.pdf

The catchment population for POWH compares similarly with NSW as a whole in terms of risk factors for long term conditions and their outcomes. Over the last decade, however, the prevalence of overweight and obesity, a prime driver for the increasing incidence of diabetes and a risk factor for cardiovascular disease, some musculoskeletal conditions and cancers, has increased by about 5% in our District. All northern SESLHD LGAs are at higher risk than the NSW average for alcohol related hospitalisation.[55]

There is also marked variation between sub group populations. There is over-representation of Aboriginal and Culturally and Linguistically Diverse patients (CALD) with long terms health conditions. A review conducted in 2014 by the SESLHD Multicultural Health and Chronic Disease Management Program concluded that CALD patients presenting to ED are likely to be older, stay for longer and are more likely to be admitted. Those in the lowest socioeconomic status groups are also twice as likely to die from diabetes or chronic obstructive airways disease and 1.5 times more likely to die from lung cancer than those in the highest groups.[56]

Adolescents and young adult health

With the introduction of new models of care and improved treatments and interventions there will continue to be increasing numbers of young people with long term health conditions and disabilities requiring transition from paediatric to adult health services.

For example, patients with congenital spinal deformities routinely had their operation during their early teenage years so were treated in a paediatric hospital. Recently there has been a change in the model of care where the surgery is delayed until late teens, requiring management in an adult hospital. This change is not evident in trend data between 2006/07 to 2012/13 although the number of separations was small. Regardless, the impact will need to be monitored in future years due to the high cost of prostheses used in this surgery.

In addition, increasing numbers of young people with diabetes, cystic fibrosis, thalassemia, etc. will require support as they transition from paediatric family-centred health care to a more independent adult environment. Without this support, some young people find this transition challenging with increased likelihood of non-adherence to treatment or staying well, resulting in unplanned hospital admissions.

Palliative care patients

NSW Health has estimated "*Of the 13,000 people in NSW who die of cancer each year, about two-thirds receive specialist palliative care. A similar number of people die of other conditions where death is predictable. Only about 10 per cent of these people receive specialist palliative care in their last year of life.*"[57] The traditional focus of palliative care for patients with cancer will need to expand to include an increasing number of people with other conditions requiring palliative care.

For the population of northern SESLHD LGAs there appears to be a lack of specialist palliative care services. Assuming there were approximately 750 cancer deaths[58] and a similar number of predictable deaths of people with other conditions a rough estimate (using the NSW Health assumptions noted above) appears to indicate a requirement for an additional 1,000 specialist

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[55] SESLHD Population Health Directorate Plan 2014-2019. URL:
http://seslhnweb/Planning_and_PopulationHealth/documents/Health_Plans/PopulationHealthDirectoratePlan2014-2017.pdf
[56] SESLHD Population Health Report Card, Dec 2014.
http://www.seslhd.health.nsw.gov.au/HealthPlans/documents/PopHealthReportCard_NonConfidentialVersion_Dec14.pdf
[57] NSW Health, 2012, *The NSW Government plan to increase access to palliative care 2012-2016*
[58] Cancer Institute NSW, 2011, *Projections of cancer incidence and mortality 2011 to 2021*. Projected cancer deaths for SESLHD residents in 2011 were 1,531 (page 25), assumed 50% of these deaths were for northern SESLHD residents.

palliative care referrals. With increased medical complexity, and our growing and ageing population, demand for palliative care services will continue to increase.

Palliative care services for residents of northern SESLHD LGAs are provided by an area wide service including St Vincent's Public Hospital, Sydney / Sydney Eye and POWH. Sacred Heart Health Hospice has dedicated palliative care beds with both Sacred Heart Health Hospice and Prince of Wales providing medical palliative care outreach service.

It is noted that although more people in the palliative care service die in hospital (in 2014, hospital was the place of death for 76% of patients in the palliative care service), although many people state they wish to die at home.[59]

Bariatric patients

There are approximately 41,000 obese adults living in northern SESLHD LGAs, with nearly 4,500 of these people considered morbidly obese (having a BMI of more than 40).[60]

Obesity is responsible for an increased burden of disease, particularly for ischaemic heart disease, Type 2 diabetes, many common cancers and obstructive sleep apnoea and as well as increased demand for bariatric as well as hip and knee surgery (both predominantly treated in the private sector).

In addition, "… *obesity was related to a higher risk of mortality after certain procedures, including colorectal resection, colostomy formation, cholecystectomy, hernia repair, mastectomy and wound debridement*"[61]

Incidence and prevalence of obesity is increasing and this trend is expected to continue[62].

Therefore, morbidly obese people are likely to continue being a small but significant cohort of patients with specific treatment and infrastructure requirements.

Corrective Services NSW inmates / patients

Located in the catchment of POWH is the Long Bay Correctional Centre. Long Bay has two main divisions including:

- Long Bay Hospital with 85 beds for Mental Health, Medical Subacute and Aged Care and Rehabilitation, and
- Metropolitan Special Programs Centre housing more than 1,200 inmates with facilities for maximum through to minimum security.

According to Australian Institute of Health and Welfare "*It is widely accepted that prisoners have greater health needs than many others in the general population and that the services made available by prisons provide an opportunity for health intervention*"[63]

The future of Long Bay Correctional Centre has received media coverage citing a proposed closure[64]. It is considered if this proposal proceeded it would require construction of new facilities to relocate inmates. In the interim, it is expected a number of inmates from Long Bay will continue requiring access to health services including inpatient care.

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[59] Swerissen H and Duckett S. Grattan Institute 2014. Dying well.URL: http://grattan.edu.au/report/dying-well/
[60]Centre for Epidemiology and Evidence. Health Statistics New South Wales. Sydney: NSW Ministry of Health. Overweight or obesity, persons aged 16 years and over, SESLHD, 2002-2013, based on self-reported height and weight to calculate BMI. Applied to northern SESLHD LGAs population of people aged 16 years and older.
[61] Bryan A, 2011, Surgery risks for obese overplayed, MJA, 28 November, 2011 URL: https://www.mja.com.au/insight/2011/45/surgery-risks-obese-overplayed
[62] URL: http://www.aihw.gov.au/overweight-and-obesity/.
63 Australian Institute of Health and Welfare 2014. Prisoner health services in Australia 2012. Bulletin no. 123. Cat. no. AUS 183. Canberra: AIHW. URL: URL: http://www.aihw.gov.au/publication-detail/?id=60129548273
[64] Daily Telegraph, 2015, "*Australia's Alcatraz to be 'sold off'*" 25 May 2015

While most health care services provided to inmates of Long Bay are provided by Justice Health and Forensic Mental Health Network within the Correctional Centre, some health conditions or specialised services require interaction with the POWH.

There are around 300 ED presentations per year for inmates with an average length of stay of around 4.5 hours and most are classified as Triage Category 3.

Most inmates/patients are directly admitted to the POWH Corrections Ward with seven designated beds for inmates from Corrective Services. In 2014/15 there were around 380 separations, 1,600 bed days, with an average length of stay of 4.2 days. In addition there are clinical conditions warranting access to other health services including:

- Outliers e.g. inmates/patients requiring critical care services
- Intra-hospital transfers e.g. transferring inmates/patients for diagnostics and/or procedures
- Outpatients clinics (scattered throughout the hospital)
- Outreach clinics (where the Hospital's clinicians provide services to inmates at the Long Bay Correctional Centre).

Accommodating these inmates/patients in POWH is not straightforward, as they not only require clinical treatment and intervention they also require close and constant supervision by Corrective Services personnel and raise security, safety and infrastructure concerns.

Technological change and advances in care

Healthcare is increasingly influenced by the emergence and evolution of technology, with impacts on both clinical practice and costs:

- Diagnostics equipment and tests -expanded capabilities, less invasive and earlier detection
- Information technology – timely access to information across settings e.g. electronic records, telehealth, smart devices
- Appliances and prostheses – new or better alternatives e.g. stents for aortic aneurysms, 3D computer designed prostheses tailored to the user
- Pharmaceuticals – reduced hospitalisations and surgery
- Minimally invasive surgery – fewer major operations, complications.

Changes in practice have and will continue to affect both the volume and mix of clinical services and demand for alternate configurations of theatres, pre-admission and hospital avoidance services, recovery and pre-discharge areas, outpatients and ambulatory care. Refer to Section 4.3.13 for further information on technology shaping future health care.

2.2.3 Health determinants and outcomes

SESLHD's Population Health Directorate Plan 2014 – 2017[65] notes:

> *"While our population as a whole compares favourably with the NSW population as a whole, there is marked variation between various sub-populations resident across our District in terms of risk factors and their outcomes."*

Figure 7 shows variations in risk factors, potentially preventable hospitalisations, potentially avoidable deaths and premature mortality by resident population. Whereas Figures 8 and 9 show these by population groups.

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[65] URL: http://seslhnweb/Planning_and_PopulationHealth/documents/Health_Plans/PopulationHealthDirectoratePlan2014-2017.pdf

Figure 7: Variations in health determinants and outcomes by resident population

SLAs	Risk factors	Potentially preventable hospitalisations	Potentially avoidable deaths	Premature mortality
Botany Bay	↑ Overweight / obesity ↑↑ Smoking ↑ Alcohol	↑ slightly higher rate than NSW	↑ slightly higher rate than NSW	↑colorectal cancer ↑↑ lung cancer ↑ respiratory disease
Sydney (Inner)	↑↑ Alcohol		↑↑ significantly higher rate than NSW	
Sydney (East)	↑↑ Alcohol		↑ slightly higher rate than NSW	↑ diabetes ↑↑ circulatory disease specifically ischaemic heart ↑↑ cerebrovascular disease, ↑↑ external causes, in particular suicide and self-inflicted injuries
Randwick	↑ Alcohol			
Waverley (A)	↑ Smoking ↑↑ Alcohol			
Woollahra (A)	↑↑ Alcohol			↑↑ breast cancer

Source: Public Health Information Development Unit. Social Health Atlas of Australia - Data by Statistical Local Areas, Published December 2014
Notes: ↑ slightly higher rate than NSW, ↑↑ significantly higher rate than NSW

Figure 8: Risk factor variations by population groups, NSW, 2015
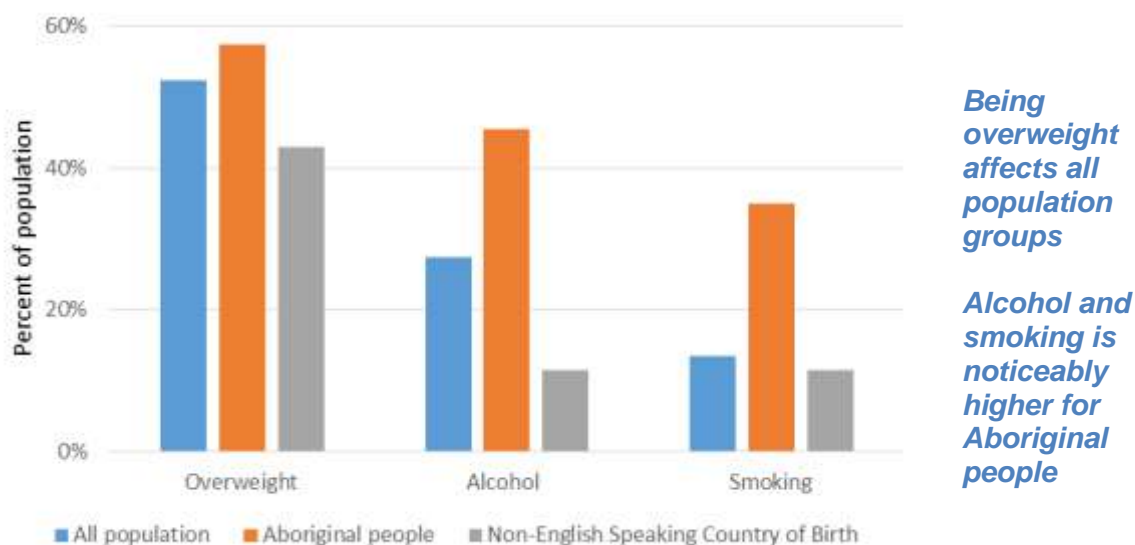
Being overweight affects all population groups

Alcohol and smoking is noticeably higher for Aboriginal people

Source: NSW Population Health Survey (SAPHaRI). Centre for Epidemiology and Evidence, NSW Ministry of Health.

Figure 9: Health outcomes by population groups, NSW, 2015
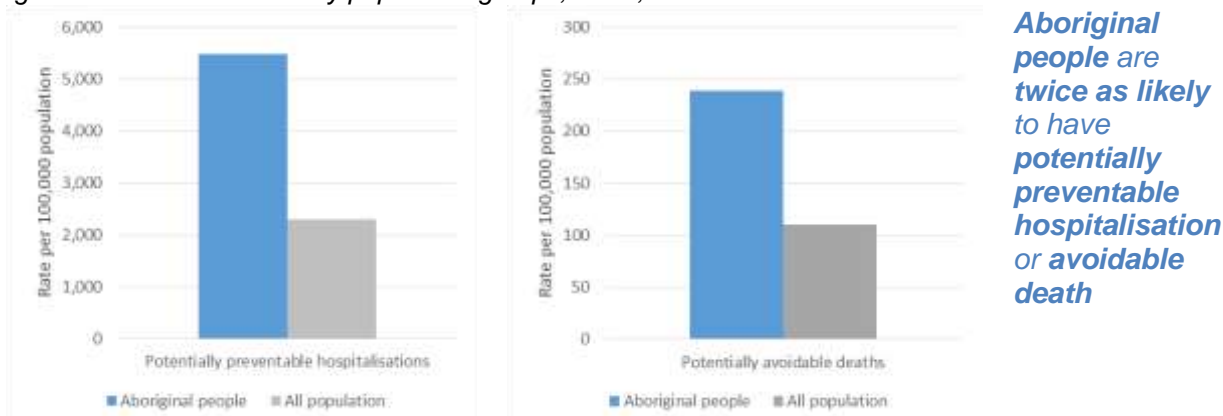
Source: NSW Population Health Survey (SAPHaRI). Centre for Epidemiology and Evidence, NSW Ministry of Health.

Aboriginal people** are **twice as likely** to have **potentially preventable hospitalisation** or **avoidable death

Risk factors and determinants of health

In terms of attributable hospitalisations:
- Overweight / obesity: Botany Bay LGA residents are at higher risk (about 5% higher) than the average NSW resident
- Smoking: Botany Bay LGA residents are at much higher risk (about 17% higher) than the average NSW resident. Waverley LGA residents are also at higher risk (5% higher)
- Alcohol: Residents of all LGAs in northern SESLHD are at higher risk than the average NSW resident. North of Randwick LGA the risk is about 40% higher[66].

Across Australia, Aboriginal adults have high rates of abstinence or no consumption of alcohol in the last 12 months, with abstinence being 1.6 times more common among Aboriginal people than among non-Indigenous people[67]. However, across NSW there is a significantly higher proportion of Aboriginal adults who consume alcohol at levels harmful to health and are current smokers (compared to rest of the NSW adult population).

Potentially preventable hospitalisations

Potentially preventable hospitalisations are those which are considered avoidable through preventive care and early disease management. These rates are used as an indicator of access to, and quality of, primary care.[68]

Within the northern SESLHD, Botany Bay LGA residents are at highest risk of potentially preventable (or `avoidable') hospitalisations, rates are more than 25% higher here than in the lowest risk LGA.

Aboriginal people in NSW have more than double the rate of potentially preventable hospitalisations to all NSW residents.

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[66] SESLHD, 2014, Population Health Directorate Plan 2014 – 2017 URL:
http://seslhnweb/Planning_and_PopulationHealth/documents/Health_Plans/PopulationHealthDirectoratePlan2014-2017.pdf>
[67] Australian Indigenous HealthInfoNet, 2016, Overview of Aboriginal and Torres Strait Islander health status 2015. URL:
http://www.healthinfonet.ecu.edu.au/uploads/docs/2015-overview.pdf
[68] Examples of selected conditions included in the PPH definition are: Vaccine-preventable: vaccine-preventable pneumonia, Acute: urinary tract infections, perforated/bleeding ulcer, cellulitis, Chronic: congestive cardiac failure, diabetes complications, iron deficiency anaemia.

Risk factor attributable hospitalisations

Alcohol attributable hospitalisation rates are higher among residents of all LGAs in northern SESLHD than the NSW average. North of Randwick LGA the risk is about 40% higher. [69]

Within the northern SESLHD, Sydney LGA residents are at highest risk of smoking attributable hospitalisations, rates being more than 25% higher here than in the lowest risk LGA.

Similarly, Botany Bay and Randwick LGA residents are at relatively high risk of smoking and high BMI attributable hospitalisations, rates being about 25% higher than the lowest risk LGA.[70]

Potentially avoidable deaths

Potentially avoidable deaths are deaths that are considered avoidable given our current understanding of causation, and available disease prevention and health care.[71] [72] Variation in these rates reflects "… underlying social and economic determinants of health … [and / or] …high prevalence of disease risk factors... access to primary health care and other health services"[73]

Within the northern SESLHD, Sydney LGA and Botany Bay LGA residents are at highest risk of potentially avoidable death. Rates are 75-80% higher here than in the lowest risk LGA.

Aboriginal people in NSW have more than double the rate of potentially avoidable deaths than all NSW residents.

Reducing these potentially avoidable deaths including harm occurring in health facilities is part of the transformational change this Plan is advocating (see Section 2.4: Creating a new health and care system).

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[69] SESLHD, 2014, Population Health Directorate Plan 2014 – 2017 URL:
http://seslhnweb/Planning_and_PopulationHealth/documents/Health_Plans/PopulationHealthDirectoratePlan2014-2017.pdf>
[70] Centre for Epidemiology and Evidence. Health Statistics New South Wales. Sydney: NSW Ministry of Health. Available at:
www.healthstats.nsw.gov.au
[71] Potentially Avoidable Deaths (PAD) are based on National Healthcare Agreement: PI 16-Potentially avoidable deaths. URL:
http://meteor.aihw.gov.au/content/index.phtml/itemId/559036
[72] Examples of PAD include: Infections (e.g. viral pneumonia influenza, HIV/AIDS), Cancers: (e.g. colorectal, skin, breast, cervix, prostate), Diabetes, Circulatory system (e.g. rheumatic and other valvular heart disease), Selected external causes (e.g. falls, suicide and self-inflicted injuries, misadventures to patients during surgical and medical care), Other external causes (e.g. transport accidents, accidental drowning and submersion)
[73] Centre for Epidemiology and Evidence. Health Statistics New South Wales. Sydney: NSW Ministry of Health. Available at:
www.healthstats.nsw.gov.au

2.2.4 Recognising health inequity

Health inequities

"Where systematic differences in health are judged to be avoidable by reasonable action they are, quite simply, unfair."[74] The northern SESLHD LGAs have some of the healthiest areas in NSW and Australia. However, despite relatively high standards of health and health care, not all residents fare equally well in terms of their health, wellbeing and longevity.

Recognising the differences is an essential first step to addressing inequities. The SESLHD Equity Strategy[75] provides a framework for this to be achieved. Strategies outlined include to:
- Transform our health services to systematically improve equity
- Invest to provide more care in the community and more prevention and wellness programs
- Refocus our work to better address the social determinants of health and wellbeing.

What are the differences in …	Within the northern SESLHD LGAs population, approximately:
Socioeconomic context	• 5,000 people are long term unemployed • 6,000 children live in low-income welfare dependent families • 36,000 people are carers providing unpaid assistance to a person with a disability, illness or frailty • 35,000 adults are pensioners (aged, disability, sole parents)
Exposure - social and physical environment	• 4,500 people are homeless on any night • 15,000 residents aged 65 years and older live alone • 19,000 low income households were under mortgage / rent stress • 48,000 private dwellings have no motor vehicle
Vulnerability	• 11,000 residents were born overseas and do not speak English well or at all • 14,000 residents have a profound or severe disability • 42,000 adults have high psychological distress
Health measures and consequences	• 3,000 residents died prematurely • 20,000 adults consumed alcohol at levels at high risk to health • 48,000 adults self-assessed their health status as fair / poor • 56,000 adults were current smokers • 41,000 adults were obese

Sources: Public Health Information Development Unit, 2015, Social Health Atlas of Australia – Data by Local Government Area
Note: Data includes Sydney LGA including Sydney – West and Sydney – South SLAs which are mapped to Sydney LHD. URL: http://www.adelaide.edu.au/phidu/, URL: http://seslhnweb/Child_Youth_Women_and_Families_Health/Documents/140317_SESLHD%20Homelessness%20Data.pdf, ABS TableBuilder
Health Stats NSW

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[74] WHO Commission on Social Determinants of Health. Closing the gap in a generation: health equity through action on the social determinants of health. Final Report of the Commission on Social Determinants of Health. Geneva: World Health Organization, 2008. http://www.who.int/social_determinants/thecommission/finalreport/en/
[75] http://www.seslhd.health.nsw.gov.au/HealthPlans/documents/2016/SESLHD%20equitystrategy%20FINAL.pdf

Socio-Economic Status

Residents of SESLHD's north are, on average, less disadvantaged than the average NSW and Australian residents.

However, two of the Statistical Local Areas (SLA) within the area are, on average, more disadvantaged than the average (i.e. a Socio-Economic Indexes For Areas (SEIFA)[76] less than 1000).
- Sydney Inner – 973 and
- Botany Bay – 976.

When socioeconomic disadvantage is considered at the suburb level – i.e. smaller geographic area than SLA – even greater variation in socioeconomic disadvantage is evident, as shown in Figure 10. The State Suburbs within northern SESLHD that are more socioeconomic disadvantaged are:
- Barangaroo – 688
- Daceyville – 762
- Eastlakes – 907
- La Perouse – 918
- Hillsdale – 942 and
- Haymarket - 964.

Figure 10: Lowest SEIFA scores (Index of relative socioeconomic disadvantage), by State Suburb, 2011
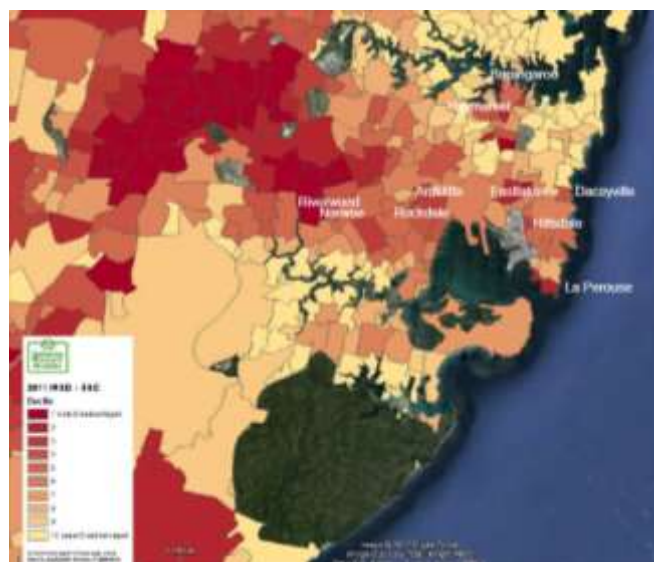
Source: ABS 2011 Census of Population and Housing, 2033.0.55.001 Socio-economic Indexes for Areas (SEIFA) Table 3: SLA, Index of Relative Socio-economic Disadvantage, 2011

The SESLHD is committed to reshaping our entire health system through delivering services and programs which reduce health inequities and lead to better outcomes for vulnerable and marginalised population groups. Our vision is 'working together to improve equity in health and wellbeing, with a focus on those who need it the most.' The goal is to reduce inequities in health and wellbeing within a generation, using engagement of people and communities as equal partners and a population health system approach.

A focus on equity would mean that care might vary based on patient characteristics if certain subgroups need *more* intensive service delivery to improve health outcomes, for example for socially disadvantaged patients with diabetes.[77]

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[76] Socio-Economic Indexes For Areas (SEIFA): is a suite of indexes which uses data from the Census of Population and Housing and summarises a number of variables associated with socioeconomic disadvantage. URL: http://www.ausstats.abs.gov.au/ausstats/free.nsf/4ac2984dfb47af1eca2568a2008320b4/51714fc8ef605c0dca2571f70015a694/$FILE/Pramod%20Adhikari.pdf

[77] Kiran T, Pinto A. Swimming Upstream to tackle the social determinants of health. BMJ Qual Saf doi:10.1136/bmjqs-2015-005008 URL: http://qualitysafety.bmj.com/content/early/2016/01/07/bmjqs-2015-005008.full

Social determinants of health

The social determinants of health are the conditions in which people are born, grow, live, work and age. Much research has demonstrated a close association between an individual's social and economic status and their health status.

The most important social determinants of health for Aboriginal people[78] include those related to:
- Connectedness to family, culture, identity, country and land
- Community functioning and participation
- Access to early childhood services and education
- Access to, participation and levels of attainment in primary, secondary, tertiary and vocational education/ training
- Health literacy
- Access to employment and participation in the labour force
- Income levels
- Housing factors such as overcrowding, homelessness, housing tenure, infrastructure
- Access to transport
- Racism and racial discrimination.

See Appendix 7 for further information on social determinants by postcode.

2.2.5 Balancing health and social care

Health and wellbeing is strongly influenced along the life course by a range of factors outside of the health system. These factors, including access to food security, affordable housing, income security, social support, low education levels and social isolation, shape future health and wellbeing and people's ability to participate in society, and are strongly linked to disadvantage and subsequent health inequities. A recent study by Berkowitz et al[79] showed that people with unmet resource needs were less healthy, had more 'no-show' appointments, more ED visits and were less likely to meet care targets.

To improve health outcomes and reduce demand on acute services, strategies to identify and address unmet health and social needs as part of routine care are required. Avoiding social isolation, particularly among the older population is another important consideration.

In order to support people to stay in their own homes and communities for as long and as independently as possible, it will be necessary to prioritise investment in primary health and social care to allow alternatives to admission to be developed where it is clinically appropriate to do so. This may include investment in hospital-based outreach services to communities. There will need to be a shift in the balance of care from acute hospital services to "comprehensive and responsive primary, community and social care services, along with comprehensive approaches to improving public health and the ability of patients to self-manage their long-term conditions."[80]

Health can therefore not work in isolation, and partnerships between health and other services, such as Family and Community Services (FACS), local councils, Non-Government Organisations (NGOs) and volunteer organisations are required to optimally address these needs. For example, integration of health and social services in Torbay in the UK led to significant system wide change, by working closely with general practice and expanding community services to provide support to older people in need to live independently in the community. Support included the development of care planning for the most vulnerable, and rapid response services for crisis management of problems overseen by health and social care coordinators. This resulted in a reduction in the use of hospital beds, low rates

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[78] Sydney Metropolitan Local Aboriginal Health Partnership Agreement: Aboriginal Health Priorities 2015 – 2016
[79] Berkowitz SA, Hulberg AC, Hong C, et al. Addressing basic resource needs to improve primary care quality: a community collaboration programme. BMJ Qual Saf 2015. Published Online First 30 Nov 2015. doi:10.1136/bmjqs-2015-004521. URL: http://qualitysafety.bmj.com/content/early/2015/11/30/bmjqs-2015-004521.abstract
[80] The Scottish Government 2016. A National Clinical Strategy for Scotland p.26 URL: http://www.gov.scot/Resource/0049/00494144.pdf

of admission for people over 65, minimal delayed discharges, and reduced use of residential and nursing homes. This is balanced by an increase in the use of home care services.[81]

Other partnerships may foster health promotion activities or promote healthy built environments. A recent partnership with Randwick Council and the District's Health Promotion team resulted in an outdoor gym being built at Maroubra to promote physical activity and wellbeing for older people. Further work on promoting healthy built environments in the local community is underway, e.g. cycle ways, footpaths and transport design.

2.3 Places for health care delivery

This Plan recognises that not everyone needs hospital based care, and there is a need for more out-of-hospital care delivered in localities where communities have higher needs due to poorer health and wellbeing to improve access and outcomes. Examples of localities where we need to deliver more prevention and care as well as integrate care with other service providers include the South Maroubra area and Botany Bay LGAs because they have a higher proportion of socio-economically disadvantaged individuals as well as other priority populations residing in these areas and higher rates of hospitalisation and emergency care presentations. See Appendix 7 for further information on social determinants by postcode.

2.3.1 Population health and care in the community

People

A range of factors influence an individual, family and community's health and wellbeing. Many people take an active interest in managing their health and wellbeing. For example:
- Eating a healthy diet
- Exercising regularly
- Sleeping well
- Getting regular check-ups and immunisations as required
- Seeking medical care when needed
- Remaining socially active
- Understanding their medical condition(s) and treatment(s)
- Adhering to treatment and managing their condition.

An important enabler for health is health literacy. Health literacy is the ability to access, understand, and use information in ways that promote and maintain health.[82] Almost 60% of the Australian population have less than adequate (level 1 or 2) health literacy skills.[83] Health literacy is poorest amongst the socially and economically disadvantaged, people from non English speaking backgrounds and older Australians. Low health literacy creates barriers to equitable access to health care, and makes self-care a challenge. Individuals with low health literacy are less responsive to health education, less likely to use disease prevention services and are less likely to successfully manage chronic disease.[84] Thus those with the greatest need are generally least able to respond to the demands of the health system.

Health services thus need to be responsive to the health literacy needs of our community (this includes our health environments, the information we provide and our interpersonal communication skills) and use an asset based approach that recognises that people draw on a range of resources to manage their health. The more complex we make it for people the more health literacy they will need. We need to incorporate health literacy in all service delivery, e.g. in the development of websites,

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[81] Thistlethwaite P. Integrating health and social care in Torbay: Improving the care for Mrs Smith The Kings Fund 2011. URL: http://www.kingsfund.org.uk/sites/files/kf/integrating-health-social-care-torbay-case-study-kings-fund-march-2011.pdf

[82] Nutbeam D. Health Promotion Glossary (1999) Health Promotion International, 13(4): 349-364. 1999 Accessed from slide presentation

[83] Australian Bureau of Statistics: 4233.0 – Health Literacy, Australia 2006 (pub. 2008)

[84] Berkman N D, Sheridan SL, Donahue KE, Halpern DJ, Crotty K. 2011. Low Health Literacy and Health Outcomes: An Updated Systematic Review. Annals of Internal Medicine, 155, 97-107 URL: http://www.ncbi.nlm.nih.gov/pubmed/21768583

information provided and communication between clinicians and patients. The first step is to make information and education easy to understand.

Carers

The effectiveness of health care services in Australia relies heavily on voluntary carers (family members, friends etc.) who directly care for people and play an important role in coordinating and facilitating formal community care services.

Identifying carers and family on patient admission, with their understanding of the person's needs and issues and including them in discharge planning from the start, will help expedite discharge from hospital, help maintain independence at home and contribute to a reduction in unplanned admissions and re-admissions.

The 2011 census[85] identified there were almost 36,000 carers living in northern SELHD. The availability of voluntary carers is expected to decline over the coming decades at the same time as the demand is expected to rise. This could potentially undermine the sustainability of community and home care and increase the demand for acute and residential care.

Carers often have high levels of anxiety and depression, with issues such as financial stress (many carers cannot work or reduce work hours due to their carer role) and social isolation. Many carers are themselves ageing and living with long term health conditions, and will increasingly need to rely on community services to remain independent at home. The NSW Carers Strategy 2014-19[86] identifies needed reforms across areas such as carer health and wellbeing. The NSW Culturally and Linguistically Diverse Carer Framework[87] recognises that culturally and linguistically diverse carers experience additional barriers and do not access services and support at a rate proportional to their numbers.

Inclusion of carers in the planning, provision of health care and discharge supports health staff to provide person centred care, and reduces the readmission rates.

Volunteers

South Eastern Sydney Local Health District has over 900 volunteers, who give their time, energy, compassion and commitment to make a real and enduring difference to the lives of patients, their carers and families and hospital staff, and to the health and wellbeing of our community. Our volunteers provide a range of functions including provision of social and practical elements of care, fundraising and providing community member input into the design, implementation and evaluation of services via committees, working groups and discussion forums. Tailored induction and training programs are essential to ensuring that volunteers know how to perform their roles and are able to work in a safe environment.

The work of our volunteers on the Randwick Hospitals and Health Services' campus includes providing companionship and support to patients, their families and carers, assisting with feeding of patients, assisting with palliative care and community care, providing patient transport and assisting in the operations and management of kiosks and coffee shops, and as community and consumer representatives on committees. An example includes the ReViVe Aged Care volunteer program at the POWH, designed to engage volunteer services for the delivery of therapeutic intervention in elderly patients to prevent delirium and falls and increase the quality of life of elderly patients. Another suggested program is to develop a team of patient advocates who assist patients (particularly elderly patients) who do not have family or friends in their dealings with medical staff.

The benefits of volunteering to the individual, the community and organisations such as health services are well known and documented. Volunteers generally enjoy better physical and mental

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[85] Australian Bureau of Statistics: http://www.abs.gov.au/census
[86] https://www.adhc.nsw.gov.au/__data/assets/file/0017/300077/NSW_Carers_Strategy_2014-19.pdf
[87] NSW Health 2009. Culturally & Linguistically Diverse (CALD) Carer Framework:
Strategies to Meet the Needs of Carers URL: http://www0.health.nsw.gov.au/policies/gl/2009/pdf/GL2009_018.pdf

health, a greater understanding and connection to community as well as a sense of achievement and fulfilment.[88]

Population Health Services and Programs

Population health services and programs recognise that to improve health, determinants outside health have to be addressed.[89] According to the World Health Organisation, the main determinants of health include the social and economic environment, the physical environment, and the person's individual characteristics and behaviours.

The District has a key responsibility to protect and improve community health and wellbeing. As such, the District delivers a comprehensive range of public health and population health programs and activities to prevent disease, illness and injury. These programs and activities target population groups that are at risk of poorer health and wellbeing, such as those who are socio-economically disadvantaged, subject to homelessness, experience severe mental illness and Aboriginal people. The focus is on promoting health and wellbeing through prevention programs that tackle lifestyle behaviours such as smoking, low physical activity and poor nutrition.[90]

Population health services and programs focus on delivering effective population health action through an integrated approach involving partnerships with a broad range of stakeholders including other health providers, other government departments (e.g. education, local government, planning, sport and recreation, and environmental protection agencies), non-government organisations, private industry, universities and research institutions and communities.

It is increasingly being recognised that each life stage influences the next, and social, economic and physical environments interacting across the life course can have a profound effect on individual and community health and wellbeing. Promoting a life course approach to health is thus an important aspect of population health practice. For example being breastfed, having a healthy diet with adequate calcium intake throughout life and participating in regular weight bearing exercise promotes improved bone density and helps prevent osteoporosis and fragility fractures later in life.

Another important population health approach is the promotion of resilience, the capacity to recover quickly from difficulties in life. This can help offset factors that increase the risk of mental health conditions, such as lack of social support and lack of social connection. In order to build resilience, people living in the most inequitable life circumstances, e.g. those who are socially isolated, stigmatised, living with chronic health problems or in difficult economic circumstances, need targeted support. Facilities, resources, programs and services are used to support people to take part in activities that promote wellbeing and social connectedness. Place-based, community development practice and a co-production approach that recognise and leverage the local communities' strengths are also central to the work undertaken by population health services and programs.

Primary and Community Health Services

Primary and Community Health Services are an important provider of a range of services for children and their families, older people, people with disabilities and those at risk of loss of independence, services to people who live in Randwick or Botany Bay local government areas. Some specialist services are also provided to the Waverley, Woollahra and inner City areas. Activity includes community based and home based care, health maintenance, and health promotion[91]. (See Section 3.5.5 Ambulatory Care for more information on data for Prince of Wales Community Health Services).

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[88] NSW Department of Family and Community Services. Volunteering URL:
http://www.volunteering.nsw.gov.au/volunteers/benefits-of-volunteering
[89] Kindig D.and Stoddart G. What Is Population Health? American Journal of Public Health: 2003, Vol. 93 URL:
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1447747/
[90] SESLHD Population Health Directorate Plan 2014-2017 URL:
http://seslhnweb/Planning_and_PopulationHealth/documents/Health_Plans/PopulationHealthDirectoratePlan2014-2017.pdf
[91] For information relating to location and services provided refer to SESLHD Healthcare Services Plan 2012-2017 URL:
http://www.seslhd.health.nsw.gov.au/HealthPlans/default.asp

Community Services work closely with members of the primary care team, Post Acute Care Service (PACS) based at the POWH, other departments within Health, NGOs and community organisations in the provision of quality integrated care across the health continuum.

These services help restore or maintain independence to allow people to remain in their own home, and are essential in helping people to avoid presentation to hospital or early admission to a residential aged care facility.

Services provided by Prince of Wales Community Health include:
- Aboriginal Health Education Officers to provide support and information to Aboriginal people living in the local area
- AIM for Fitness, a community based education and exercise program for older women and men; Annabel House, a day centre for dementia respite care
- Community Health Assessment & Treatment Team (CHATT) for specialist home based assessment, rehabilitation and support services to older people, people with memory loss, younger people with disabilities, family and carers, and people discharged from hospital, the Continence services for women, men and children
- Equipment Service for short term loan of rehabilitation and home healthcare equipment to help clients manage safely and independently in the community; General Counselling Service for short term counselling (up to eight weeks)
- Heartlink, a Chronic Heart Failure Collaborative Care Service which provides support, education, physical activity and counselling to POWH&CHS clients, their families and carers; Community Health Pharmacist provides support, consultation and education to all teams and services in Community Health; the Primary Care Nursing Team provides comprehensive, quality and specialist community health services, available 7 days per week from 8.00am to 7.30 pm
- Transitional Aged Care, to provide multidisciplinary assistance to older individuals who have had a recent hospital admission, and require help to make a smooth transition between hospital and home, and to provide restorative care to optimise the chances of resuming a normal level of functioning
- WAVES provides ongoing gentle water exercises for the frail and well elderly, people with disabilities, carers and people from non-English speaking backgrounds, specific to their physical requirements
- Women's Health Service provides well women's clinic, community education and health promotion programs, and information and referral services to other organisations.

Community services will significantly change over the next few years as a result of integration between health and social care. This offers significant opportunities to support people better at home, using integrated and co-ordinated services.

General Practitioners

There is no widely agreed benchmark as to how many GPs are needed per population. For the purpose of comparing variation in GP access, the NSW average of 1.1 GPs per 1,000 population will be used.

Although the number of GPs in the northern LGAs of SESLHD is generally higher than the NSW average, there is significant variation in the number of GPs within individual LGAs.[92] Botany Bay residents have the lowest ratio of GPs per population at 0.6 GPs per 1,000 population and is below the NSW average. Woollahra and Botany Bay residents also have the lowest number of after-hours GP practices in northern SESLHD.

Treatment and management of long term conditions and the prevention of hospital admission for this cohort requires a ready access to GP services.

Ratio of General Practitioners in Northern SESLHD
NSW Average: 1.1 GPs per 1,000 Population

Woollahra 1.9 GPs per 1,000 Population
Sydney 2.1 GPs per 1,000 Population
Waverley 1.6 GPs per 1,000 Population
Botany Bay 0.6 GPs per 1,000 Population
Randwick 1.2 GPs per 1,000 Population

Community pharmacies

There are over 150 community pharmacies in northern SESLHD, offering a highly skilled network of primary health care professionals providing quality medicine dispensing, advice and services.

Their wide distribution and accessibility provide "…an opportunity to engage people along the health spectrum, including hard-to-reach population cohorts who do not use other health services … to deliver widespread benefits for patients".[93]

The Pharmacy Guild of Australia has identified a number of enhancements including a "… greater focus on utilising community pharmacies for triage and in the treatment of minor ailments, risk assessment and referral, … point of care testing, chronic disease management, … and after-hours care"[94].

Social care providers

Many non-government community organisations work in partnership with the NSW government to provide health services in the community which complement those provided by the public health system.

Currently, there are 54 health-related NGO Grants being administered by SESLHD that provide health and social care in our District, with a total budget over $14.9 million in 2014/2015. These include programs in: Aged and Disability Services, Community Services, Drug and Alcohol, External Health, Health Promotion, HIV / AIDS, Mental Health, Palliative Care, Transport for Health, Victims Support, and Women's Health.

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[92] Source: Eastern Sydney Medicare Local 2013
[93] Pharmacy Guild of Australia, 2015, Submission: Primary Health Care Advisory Group Discussion Paper (August 2015) 'Better Outcomes for People Living with Chronic and Complex Health Conditions through Primary Health Care'. URL: http://www.guild.org.au/docs/default-source/public-documents/tab---the-guild/Submissions/pgoa-submission-primary-health-care-advisory-group-discussion-paper.pdf?sfvrsn=2
[94] ibid

Aged care providers

In the northern part of SESLHD there are nearly 60 aged care providers.

Most of northern SESLHD is significantly below the Commonwealth population target for residential aged care places. Botany Bay, Waverley and Woollahra LGAs have a substantial undersupply of residential aged care places. Overall, there is an undersupply of 535 residential places in the northern part of SESLHD.[95]

In addition, the lack of affordable residential age care places creates demands on length of stay for sub acute beds as the number of people waiting for placement increases, compounded by the number of people transferred for care from residential aged care facilities is expected to grow.

SESLHD Aboriginal Health Services

Aboriginal Health Services are delivered in clinics at the La Perouse Aboriginal Community Health Centre or to individuals and families in their own homes. Workshops, education sessions and discussion forums are also run at the La Perouse Aboriginal Community Health Centre.

Aboriginal Health Education Officers work with Aboriginal and Torres Strait Islander people from the local area to provide care coordination to both mainstream services and Aboriginal specific services. Specialist outreach support is also provided to clinics at the centre.

Integrated Health and Social Care Hubs

This plan proposes the need for integrated health and social care hubs in a number of localities. These purpose-built premises offer a 'one-stop-shop' approach to support the provision of high quality care to the local population and increase access to priority populations, an important step towards reducing health inequities. A wide range of health and social care services may be provided in these centres. Health and social partners working together facilitate the delivery of integrated, sustainable, safe and effective people-centred services. For more information refer to Section 4.2. Integrating across the health and social care system and Section 4.4.3 Capital implications.

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[95] The Commonwealth has set population based targets for providing aged care places.

2.3.2 Randwick Hospitals and Health Services' Campus

Campus Directory

Sydney Children's Hospital (includes Children's Emergency)	1	
High Street Building	2	
The Bright Building (includes cancer services and radiation oncology)	3	
Prince of Wales Community Equipment Service - to pick up/drop off loans of equipment for home care	5	
Parkes Building	7	
Clinical Sciences Building	8	
Euroa (Aged Care Psychiatry)	11	
Diabetes Centre	14	
Billing Services	14A	
Dickinson Building (includes Adult Emergency)	15	
Campus Centre (includes Private Hospital)	16	
Royal Hospital for Women	17	
Palliative Care	18	
Mental Health Intensive Care Unit	19	
Sydney Children's Hospital Community Health	20	
Kiloh Centre (Mental Health Unit)	25	
Black Dog Institute	26	
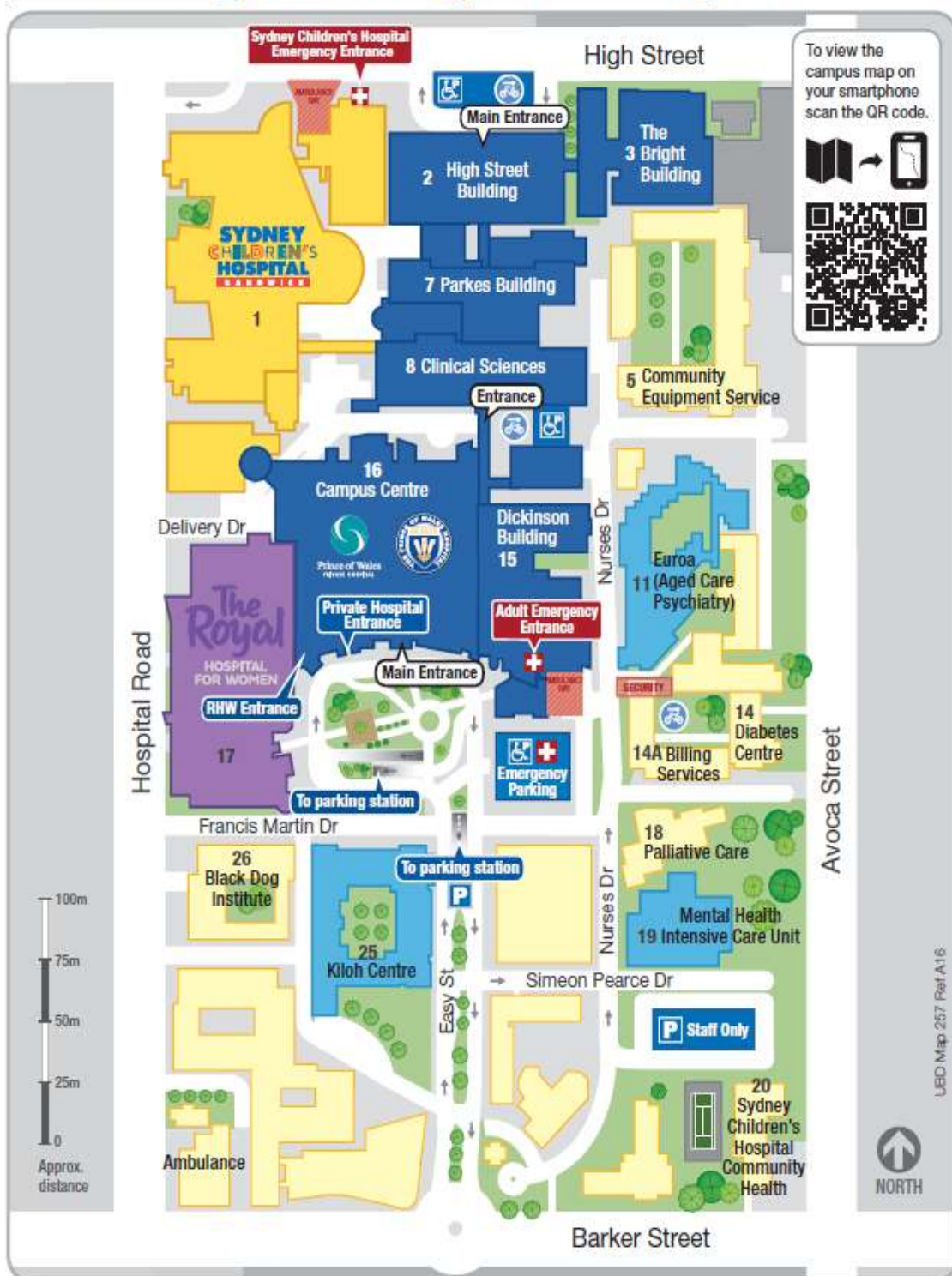
Buildings were first established on the Randwick Hospital's campus in the 1850s, being converted to a hospital in 1915. Today, the campus includes:
- Prince of Wales Hospital and Community Health Services

- RHW
- SCH, Randwick (managed by SCHN
- Prince of Wales Private Hospital (operated by Healthscope).
- Eastern Suburbs Mental Health Service
- Other facilities and providers of healthcare and research.

Numerous capital projects have occurred, most recently:
- Construction of The Bright Alliance, due for completion in early 2017
- Refurbishment of theatres to create a Hybrid Theatre, due for completion in 2016
- Completion of new Mental Health Intensive Care Unit in 2012
- Procurement of SPECT-CT cameras for Nuclear Medicine Diagnostic Services and a flagship dynamic volume CT scanners in Medical Imaging Department in 2010/11
- Upgrade of Hyperbaric Chamber in 2011
- Demolition of Vera Adderley Building completed in 2011, and
- Completion of new Psychiatric Emergency Care Centre in 2010.

In addition, the planning and operation of the following projects involved multiple partnerships with research, education and health facilities:
- Neurosciences Research Australia (NeuRA) integrated clinical research and teaching facility located on the Randwick Campus was completed in 2013 and
- Nelune Comprehensive Cancer and Blood Disorders Centre (CCBDC) and University of New South Wales' Scientia Clinical Research (SCR), which will consolidate cancer services on the Randwick Campus, has commenced construction.

Infrastructure not-fit-for purpose

Demand for health services continues to increase and much of the Hospital's infrastructure lacks functionality to deliver contemporary models of care.

SESLHD *Asset Strategic Plan 2012 – 2017* notes:
> *"The building stock on the [Randwick Hospitals] campus ranges from very old heritage buildings originally constructed for a children's asylum through to modern facilities constructed within the last two decades. Predominantly the older buildings are located on the northern and eastern boundaries of the site [where POWH is located] and the newer buildings are located on the western and southern boundaries with a concentration of new facilities approximately at the geographic centre.*
>
> *Although the buildings are generally well maintained the heritage and older buildings such as Edmund Blacket, Catherine Hayes, High Street, and Parkes Buildings are becoming challenging in terms of achieving adequate patient and public amenity, and functionality.*
>
> *Of significance is the*
> - *Lack of single rooms for higher acuity patients and infection control to deliver safe, quality health care*
> - *Operating theatres not fit for the surgery being performed and the remote location of Murnaghan Urology Centre and Billington Centres from the main theatre complex".*

The Plan goes on to highlight:
> *"In relation to urban planning perhaps the most significant feature of the Randwick Campus as a whole is its proximity to education precincts. To the west of the campus lies the University of NSW and its Faculty of Medicine and to the north is the Randwick campus of the Sydney Institute (TAFE). The south western corner of the Randwick Campus houses several research institutions. There are also five high schools within close proximity to the site. The combination of health, education and research facilities provides a unique opportunity for joint initiatives".*[96]

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[96] SESLHD, 2012, SESLHD Asset Strategic Plan 2012 – 2017 URL:
http://www.seslhd.health.nsw.gov.au/HealthPlans/default.asp>

In response, the *SESLHD Asset Strategic Plan 2012-17* identified the capital priorities for the District, these include:

- New ED at POWH
- Reconfiguration of inpatient accommodation at POWH to improve the safety and quality of integrated care delivered to patients
- Consolidation of mental health services on the Randwick Hospitals Campus
- Relocation of the Helipad at the Randwick Hospitals and Health Service Campus and
- Consolidation and expansion of ambulatory care to create a more sustainable health system by caring for more people in a community setting.
- Staged upgrade of RHW's ward accommodation
- Upgrade and redesign of The Royal's delivery suite accommodation
- Develop a Mental Health Precinct on the Randwick Campus
- Consolidation of Eastern Suburbs adult community mental health to the current Maroubra site, requiring construction of a multilevel new building.

The matters raised in the Asset Strategic Plan were elaborated on during consultation for this Plan with a number of additional issues regarding infrastructure identified. These included:

- Lack of storage facility throughout the campus
- Lack of purpose built ambulatory facilities e.g. day hospital or specialist ambulatory care centre
- Community mental health buildings not fit for purpose and over capacity
- Disjointed theatre/procedural rooms and peri–op services in multiple settings and increasing need for a range of imaging technologies in theatres
- Inadequate parking facilities
- Lack of point of care teaching facilities
- Potential for offsite multi-purpose centre, e.g. for satellite renal dialysis, GP clinics, joint specialist/GP clinics, outreach services
- Potential for inpatient precincts for integrated services, e.g. Aged care and rehabilitation
- Potential for Medihotel to accommodate patients that do not require nursing care
- Lack of step-down beds
- No rooms for community education
- Lack of rooms for staff.
- Need to expand and reconfigure the Newborn Care Centre
- Need for an "Education and Research" precinct on campus including establishment of a training simulation laboratory to enable team based training and drills for emergencies.

The Eastern Suburbs Mental Health Service asset base is in very poor condition overall, and in need of major upgrade or replacement. Service provision is constrained by the following asset deficiencies:

- Facilities are dispersed across the campus, rather than in a defined precinct. This impacts on clinical care and raises occupational health and safety concerns for patient transport.
- Most inpatient facilities are not in line with contemporary mental health facility design.
- Current ward configuration at Kiloh Centre of POWH is not optimised for best practice patient-to-staff ratios
- Buildings for Ambulatory and Community Mental Health services are at or over capacity for both staff accommodation and client space
- Ambulatory and Community Mental Health accommodation is not fit-for-purpose due to poor quality and/or inappropriate design.

2.3.3 Other health and care service providers

Other SESLHD health facilities

Residents of northern SESLHD LGAs access the networked services of SESLHD hospitals, which include those on Randwick Hospitals and Health Services' Campus as well as the War Memorial Hospital Waverley, Sydney/Sydney Eye Hospital, St George Hospital, Calvary Hospital, and Sutherland Hospital.

Most commonly, these residents access specialist care provided by:
- RHW for obstetric, neonate and gynaecology services
- Sydney/Sydney Eye Hospital for Ophthalmology and specialist hand surgery
- St George Hospital for trauma and some specialised services
- War Memorial Hospital Waverley for Aged Care Rehabilitation.

Refer to Section 3.13 Flows to other hospitals for further discussion on activity and flows and Section 3.4 Clinical networking.

Other public hospitals

For residents of northern SESLHD LGAs there are significant flows to non-SESLHD public hospitals based on:
- Proximity of residents to the hospital (St Vincent's Hospital – Public and Sacred Heart and Royal Prince Alfred Hospital)
- Access to specialised services not available in SESLHD hospitals e.g. SCH for paediatric and adolescent services
- Patient preference.

Refer to 'Section 3.13 Flows to other hospitals' for further discussion on activity and flows

Private sector hospitals

There are eight private hospitals[97] in northern SESLHD including:
- St Vincent's Private Hospital (Darlinghurst): approximately 270 beds (320 beds upon completion of new tower)
- Prince of Wales Private Hospital (Randwick): more than 160 beds.

In addition, there are numerous day only hospitals.[98]

In general, residents from the most advantaged areas are significantly more likely to have overnight hospital admissions at private hospitals than other residents of NSW. For residents of the northern SESLHD LGAs compared to all Sydney residents[99]:
- Woollahra residents are twice as likely to have private hospital admissions
- Waverley residents more than 50%
- Randwick residents more than 20%.

Conversely,
- Sydney – Inner SLA is nearly 20% less likely to have private hospital admissions and
- Botany residents are 13% less likely.

Refer to Section 3.13 Flows to other hospitals for further discussion on activity and flows

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[97] Source: http://www.health.nsw.gov.au/resources/hospitals/phc/overnight_pdf.asp
[98] SESLHD, 2011, Health Care Services Plan URL: http://www.seslhd.health.nsw.gov.au/HealthPlans/default.asp>
[99] Compiled by PHIDU using data from the Australian Institute of Health and Welfare, supplied on behalf of State and Territory health departments for 2011/12, and ABS Estimated Resident Population, average of 30 June 2011 and 2012. Excludes well babies and renal dialysis

The Bright Alliance, including the Nelune Comprehensive Cancer Centre

The construction of The Bright Alliance, a new ten level health and research centre in Avoca St, Randwick due for completion in 2016, will house:
- Nelune Comprehensive Cancer Centre (NCCC), for cancer & blood disorder treatment and clinical trials
- Scientia Clinical Research, to support clinical trials across a broad range of disciplines
- SCHN, for research and paediatric and young adult and adolescent clinics
- Radiation bunkers.

The centre *"will retain existing physical and service linkages with the POWH, the RHW and SCH. Health services currently spread across eight sites on the Randwick Hospitals Campus will be consolidated into one centralised main building" … and…"will bring together cancer and blood disorder researchers, clinicians and patients in a unique and innovative environment.*

The Bright Alliance aspires to accelerate the delivery of world class research to patients in a major public hospital. Patients will have greater, faster, more equitable access to treatments and new drug trials. Creating the conduit between Australian and global researchers, and enhanced by greater technological capability, The Bright Alliance promises better clinical care in a publicly accessible hospital setting.

Powered by a partnership between the SESLHD, POWH and UNSW Australia (the University of New South Wales) …. it draws on the proximity, collaboration and global connectivity of its member institutions."[100]

Central and Eastern Sydney Primary Health Network

The Central and Eastern Sydney Primary Health Network (CESPHN) encompasses SESLHD and its role is to "…improve the efficiency and effectiveness of medical services for patients, particularly those at risk of poor health outcomes".[101] Primary Health Networks are an important link between Commonwealth and state health systems in the delivery of integrated health services across primary, acute and extended care, with a focus on improving outcomes for people with chronic disease.

One of the key priorities for the Primary Health Networks is to address health inequities and improve access for disadvantaged populations, and the District is developing partnership arrangements in population health activities such as local health needs assessments to inform overall health planning and data sharing.

In recognition of the importance of primary care in the coordinated management of people living with chronic disease, the Federal Government announced the ***Healthier Medicare Package***[102] in March 2016. This trial primary care package is designed to coordinate the care of people living with multiple long term health conditions and reduce the barriers they face across fragmented health services, with the aim of keeping them well at home and out of hospital.

The District is currently exploring the potential for co-commissioning of services with the Primary Health Network.

Ambulance Service of NSW

The NSW Ambulance has a significant role in our health system and is an entry portal into the health care system. Much more potential is being realised by NSW Ambulance in terms of expanding their role in healthcare spectrum. NSW Ambulance have been developing new models of care that are safe alternatives to hospital based care.

The current range of services NSW Ambulance provides include telephone advice and referral, assessment and service provision in the residence or at the scene as well as the historic "See, Treat

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[100] Bright Alliance website. Accessed at: https://brightalliance.org.au/

[101] https://www.cesphn.org.au/

[102] Australian Government Media Release 20 March 2016 URL:
www.health.gov.au/internet/ministers/publishing.nsf/Content/health-mediarel-yr2016-ley021.htm

and Transport" mode. There is also the Extended Care Practitioner Model of care that involves the assessment and management of patients with minor illnesses and injuries to treat patients in their usual place of residence, with referral to other health professionals if appropriate. In many cases, the patient may have multiple chronic conditions and present as generally unwell. The published evidence to date generally supports an expansion of the role of paramedics to perform this role. A recent pilot study over five sites showed the total rate of ECP patients not transported, including those who could be expected to be not transported either in usual or ECP care, ranged from 65.4% to 78.4%, and the corresponding ED avoidance rates were 46.2% and 59.3%, with significant cost savings for the health service compared to usual care.[103] It is noted that the numbers involved in this study are small, and the evidence is primarily from overseas. More research is required to establish the effectiveness, safety, governance and cost effectiveness of this model in NSW.

NSW Ambulance plans to expand their current models and provide more services which may lead to a reduction ED presentations such as providing in-reach services to residential aged care facilities and advanced planning for end of life. The diagram below represents the proposed NSW Ambulance emergency patient pathways and strategies to respond to patients who do not need an ambulance or transport to ED to 2021.
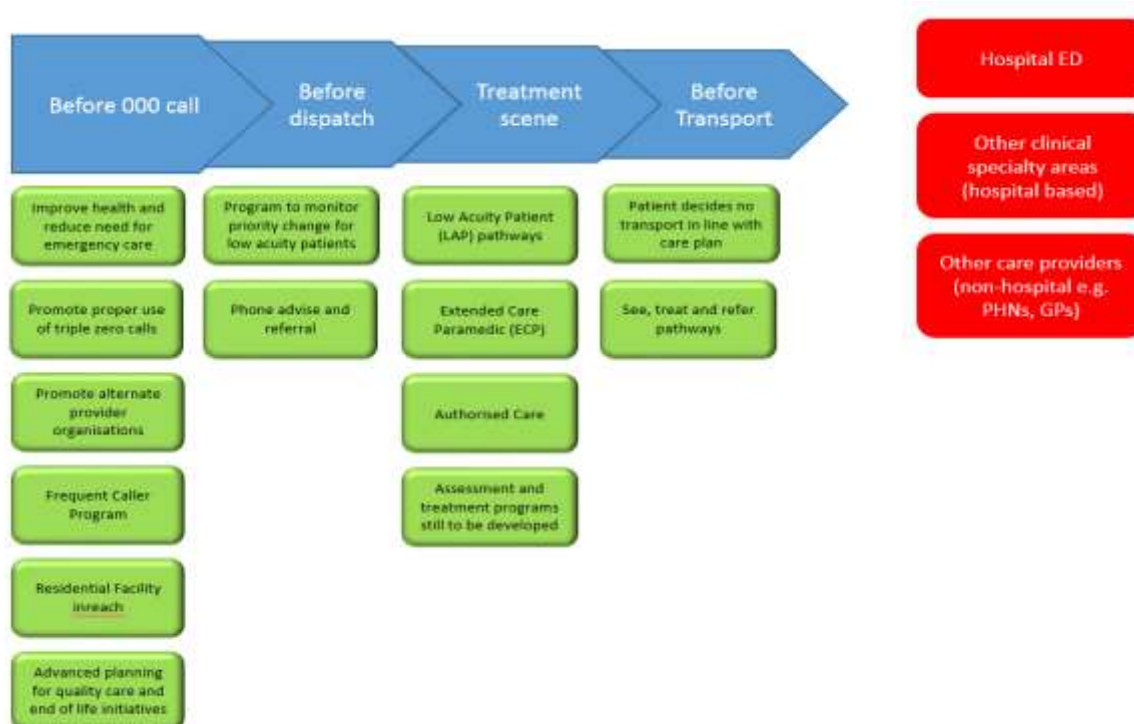
Source: NSW Ambulance Health Service Plan 2013 - 2018[104]

Patient Transport Service

The provision of patient transport is critical to support the delivery of health services to our community for both higher and lower acuity patients and to ensure equitable access to services.

Emergency transport is provided to the campus by Ambulance NSW, by both road and air based service. The Greater Sydney Area Helicopter Medical Service facilitates time-critical interventions and surgery from both out of hospital locations and inter-hospital transfers.

Non-emergency patient transport to and from the Randwick campus is coordinated through a centralised booking hub and provided by:

[103] Thompson C, Williams K, Morris D, Lago L, Kobel C, Quinsey K, Eckermann S, Andersen P and Masso M (2014) HWA Expanded Scopes of Practice Program Evaluation: Extending the Role of Paramedics Sub-Project Final Report. Centre for Health Service Development, Australian Health Services Research Institute, University of Wollongong. URL: http://ro.uow.edu.au/cgi/viewcontent.cgi?article=1383&context=ahsri
[104] Sourced from NSW Ambulance. Not available online

- Non-emergency patient transport (NEPT) fleets, which aim to improve patient flow through EDs and hospitals. NEPT is only available for patients who have been assessed as medically unsuitable for community, public or private transport and are deemed at low risk for deterioration
- NSW Ambulance 'green fleet' managed by HealthShare NSW, for patients not suitable for NEPT transport, e.g. that require stretcher transport or medical observation.

Other subsidised patient transport service options include community transport (provided by Transport for NSW) and NGO provided transport.

NSW Health Pathology

Randwick Campus pathology laboratory at POWH is part of NSW Health Pathology and is a designated referral laboratory for South Eastern Area Laboratory Services (SEALS). The SEALS Network is responsible for the operational management of pathology services provided to South Eastern Sydney and Illawarra Shoalhaven Local Health Districts (LHDs). SEALS operates 11 laboratories and 8 collection centres and supports 21 public inpatient facilities within the South East Sydney and Illawarra Shoalhaven Local Health Districts. The official name of the laboratory is 'SEALS North – Randwick Campus'.

'SEALS North – Randwick Campus' Laboratory provides pathology services to the following health and research facilities on the Randwick site:
- POWH
- Prince of Wales Private Hospital
- SCH
- RHW
- Lowy Cancer Research Centre
- Health Science Alliance Biobank
- Scientia Clinical Research.

NSW Health Pathology's vision is to 'Lead through innovation and collaboration to deliver excellence in service and outcomes'. New South Wales Health Pathology (NSWHP) is committed to delivering the best possible service to customers, who include patients, clinicians, Local Health Districts (LHDs), NSW Police Force, local government agencies and other key external customers.

Pathology services use a range of service delivery models, such as networking arrangements and hub- and-spoke service models, to ensure that clinical services have appropriate and timely access to the pathology services needed to support quality patient care.

Detailed information on SEALS North can be found in Appendix 5.

Other primary health care providers

A large number of allied health providers in northern SESLHD work in a variety of settings, such as private clinics, NGOs, residential aged care facilities, primary care, community based settings and provide domiciliary visits. They provide privately funded and some Medicare rebatable services to community members, delivering services that span the spectrum of health from wellness and prevention, acute and subacute care, long term disease management and palliative care.

New models of care in allied health have been introduced to better service patient's needs and integrate care, for example shared care models between allied health practitioners and primary care for complex care patients, or are being investigated for the future, for example limited prescribing rights for physiotherapists, new Medicare items for allied health services.

2.4 Creating a new health and care system

Our major program of transformational change across the health system is guided and underpinned by:

- **Changing population health needs and expectations**

  Careful analyses of population health, clinical data, information and community needs assessments to identify the communities' needs, expectations and assets are critical to ensuring we deliver the right services at the right time and in the right setting. We need to risk stratify populations by assessing people at risk of ill health and those in need of intervention, adopt proactive healthcare, and have a greater emphasis on prevention and self-management of long term conditions and keeping people healthy. *To achieve these goals we will shift our focus from institutions to people* and *places.*

- **Aligning our services to better address community needs**

  The District is focusing its efforts on delivering more responsive, safe and equitable services to our community. To help achieve this, the role and functions of clinical streams have been strengthened to provide strong leadership and clinical engagement across the organisation. Led by the Medical Executive Director, the clinical streams are identifying opportunities for service improvements through identifying unwarranted clinical variation, waste and duplication through a Service Rationalisation project. The project uses clinical evidence-based methods to guide services to identify opportunities for service realignments to better meet the community's needs.

- **Health equity**

  A focus on reducing health inequities is crucial to achieving better population health outcomes for vulnerable and priority population groups. In South Eastern Sydney there is wide variation in health status between different population groups. Although this is most evident for Aboriginal people, there are many other disadvantaged groups, including the unemployed, individuals living in social housing or subject to homelessness, marginalised youth and people with a disability or mental illness who tend to have poorer health and mental and social wellbeing compared with the general population. The District has developed an Equity Strategy which takes a systematic and whole of system approach to improving the health and wellbeing of our most disadvantaged groups and focuses on both people and the places where they live.

- **Patient, community and agency partnerships**
  Partnering with patients, consumers, carers and family, volunteers and other community members and other service providers and agencies are critical to improving healthcare and community health outcomes. Co-producing with patients, communities and agencies is vital to strengthening opportunities for our community to have a greater say about the services we deliver and to identify barriers and opportunities to promote wellbeing and foster community resilience.

- **Advances in research and technology**
  Keeping pace with new technologies and continuous advances in research, whilst balancing this with fiscal responsibility, requires careful planning to ensure get best value for money and are moving in a direction consistent with strategic priorities and emerging models of care. There will

be an increasing role for clinical informatics, predictive analytics and digital technologies to support decision-making and re-design models of care and re-engineer our systems. These considerations are outlined in this Plan. A Research Strategy is also underway with a focus on translational research to foster higher quality care being delivered to those in need. For more information see Section 4.3.8: Translating research into practice.

⁜ Whole system redesign and care integration

In this Plan the hospital episode is viewed as an episode within a broader system that supports other clinical and care pathways in the community, providing planned and unplanned health care, customised according to their 'whole' needs and values, is integrated across care disciplines, sectors and organisation, where needs are anticipated and where the individual is at the centre of the system and decision making. Leadership in outstanding research and evidence-based clinical care will underpin the delivery of healthcare to patients.

⁜ Value and sustainability

SESLHD is making a significant investment in building capacity and capability across the system to develop whole-of-system improvements. Driving affordability and sustainability through continuous quality improvement services will be co-designed and coproduced with communities/consumers and other agencies. It will be aligned to provide the appropriate allocation of resources to deliver best practice care for our community members in the appropriate setting.

⁜ Building capability and capacity, continuous improvement and innovation

SESLHD is making a significant investment in building capacity and capability across the system to develop whole-of-system improvements. Along with other internal services and departments, the newly established Improvement and Innovation Hub and Improvement Academy are building an improvement culture through optimising staff engagement and investment in innovation, organisational development, improvement and quality and safety. The SESLHD Improvement Academy, aims to build a centre for lifelong learning within the District and to foster a culture of staff-led, continuous improvement. This will be achieved through building capacity and capability in improvement using customised education for the entire workforce at all levels of the organisation.

The Improvement Academy is also focusing on ensuring improvement science and other methodologies are integrated into staff's core business to drive and extend the reach and impact among our community, making care continually safer and more reliable by reducing harm and preventable mortality.

A key strategy that has also been established in 2016 and will continue on into the future is the SESLHD Acute and Mental Health Safety Program – Towards Zero Together. The program aims to reduce harm to patients in hospital and those accessing our mental health services through initiatives, such as improving the reliability of our clinical processes.

The District is also investing in innovation, through funding of a range of local innovative projects designed to improve health outcomes for our patients, staff and communities. Ten projects were supported between 2013 and 2015, and were highly successful in implementation and demonstrated sustainability for ongoing delivery. One of these projects was the establishment of the Mental Health Recovery College, in partnership with local community colleges and universities. The Recovery College, a first of its kind in New South Wales, combines clinical knowledge and lived experience within an adult education framework to provide a curriculum of recovery-based courses for people with mental health issues, their families and friends, as well as mental health staff.

⁜ A changing workforce

The workforce must be engaged, empowered and adaptable to respond to continuous change in environments, emerging needs and aspirations of communities and changes in information systems, technologies and healthcare practices. There is a need to shift resources from in-hospital care to out-of-hospital care settings. The workforce needs to be values driven, well trained and supported by ongoing professional development.

To build a high performing health service, we need to build a targeted, world-class, ongoing education program for our staff, to enable them to maintain the standards that we aspire to.

Education attracts good staff, and aids retention and performance of our staff, who then go on to provide more education to their colleagues, patients and communities. Education of staff drives us to the forefront of the health care evolution.

SESLHD is also identifying and nurturing its current and future leaders and clinicians through offering a range of leadership and professional development programs. We are also taking the time to hear from our staff on ways we can improve service and system performance and find out what is important to them. Initiatives such as the 'Big Conversation' allow us to hear from staff members to find out what matters most to them. The feedback has helps to identify themes within the current culture that can be improved to support staff and in turn deliver better patient care.

✚ Data driven organisation

SESLHD is committed to supporting the use of clinical information in a way that drives patient quality-of-care outcomes and patient safety while equipping clinicians to carry out their clinical duties in an effective and efficient way. This strategy also aligns with the eHealth NSW's vision to provide, "a digitally enabled and integrated health system delivering patient-centred health experiences and quality health outcomes". The end result of current strategy will be that clinical information is available to our clinicians at the point of care. Information for clinical management, quality / safety management and research will be freely available to clinicians and supported by the provision of improved Information technology and tools.

In addition, an online integrated management planning and management system (MAPS) is being developed for aligning and managing business, quality improvement and project management linked to the strategic priorities of the LHD. It not only serves as a repository of information, it has the capacity to link documents and generate reports. Other sites can be mapped and linked into MAPS, making it a "one stop shop" across the LHD.

2.4.1 Improving population health and wellbeing

Evidence indicates that we could achieve greater improvements in health outcomes, at a much lower cost, by increasing population health activity.[105] Population health programs and activities use approaches that target population groups rather than individuals, particularly among vulnerable communities, and aim to identify and reduce differences in health among population groups. This is achieved by using data analysis to identify populations at risk, and through evidence to inform program need and design.

The evidence demonstrates that there is a critical need to improve health literacy levels, which are generally low within the general population. This can be achieved by giving people the information, skills and confidence to make better choices about their health and improve self-management and compliance for improved clinical outcomes.

Achieving improved outcomes requires more:
- Modifications to communication, and mixed-strategy interventions (for example combining adapted communications with behavioural skills coaching)
- Use of simplified text and teach-back methodologies that have been shown to be effective in other literacy interventions
- Use of plain language, involving consumers in the development of information, wayfinding and education materials
- Use of new technologies, e.g. video based interpreting.

Fundamental to providing health care is the need to engage people to find out what matters to them to improve their health and wellbeing and take an asset-based approach which focuses on people's abilities and assets rather than just their needs. Often health professionals focus on the physical health condition rather than the whole person. New, empowering models of care which bring about a fundamental shift of power from providers to patients include the integration of care around the patient, peer support and care networks, asset-based community development models, and technology-enabled care plans.

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[105] Krogsbøll LT, Jørgensen KJ, Grønhøj Larsen C, Gøtzsche PC. General health checks in adults for reducing morbidity and mortality from disease. Cochrane Database Syst Rev. 2012 Oct 17,10:CD009009.

International evidence has found patient activation can be used to reduce health inequities and deliver improved outcomes, better quality care and lower costs. It "… provides a simple, evidence-based mechanism for establishing the capacity of individuals to manage their health – and then using that information to optimise the delivery of care"[106]. It increases individual's knowledge, skill, and confidence for self-management with research showing that appropriately designed interventions can increase patients' levels of activation, with associated health benefits.

It is increasingly being recognised that each life stage influences the next, and social, economic and physical environments interacting across the life course can have a profound effect on individual and community health and wellbeing. Promoting a life course approach to health and wellbeing and increasing resilience is thus an important aspect of population health practice.

Strengthening collaborations between communities and health-care providers also promotes community health and healthy behaviours, can improve health literacy, provides more accessible and direct care, and focuses the health-care system on improving and sustaining population health.[107] For example, collaborations with local councils to promote safe and healthy environments, with easy access to public transport, and the provision of healthy built environments that promote physical and social activity will influence health and wellbeing.

The SESLHD *Road Map to the Delivery of Excellence – 2014–2017*[108] describes priority areas for action to improve population health for our community.

Promoting Wellness

Wellness is a philosophy that focuses on whole of system support to maximise a person's independence and autonomy.[109] It encompasses the connected physical, social, career, emotional and financial aspects of wellbeing and is based on the premise that even with frailty, chronic illness or disability, people generally have the desire and capacity to make gains in their physical, social and emotional wellbeing and to live autonomously and independently. Service design needs to support an individual's aspirations to maintain and strengthen their capacity to continue with their activities of daily living and social and community connections along the life course, with an emphasis on prevention and optimising physical function and active social participation.

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[106] Hibbard J and Gilburt H, 2014, Supporting people to manage their health An introduction to patient activation. King's Fund URL: http://www.kingsfund.org.uk/sites/files/kf/field/field_publication_file/supporting-people-manage-health-patient-activation-may14.pdf

[107] Bauer UE, et al. Prevention of chronic disease in the 21st century: elimination of the leading preventable causes of premature death and disability in the USA. Lancet. 2014 Jul 5,384(9937):45-52.URL: http://www.ncbi.nlm.nih.gov/pubmed/24996589

[108] SESLHD Road Map to the delivery of excellence – 2014–2017 URL: http://www.seslhd.health.nsw.gov.au/Planning_and_Population_Health/documents/RoadMaptothedeliveryofexcellence2014-2017.pdf

[109] Australian Govt. Dept. of Social Services Discussion Paper: Key directions for the Commonwealth Home Support Programme https://www.dss.gov.au/ageing-and-aged-care-programs-services-commonwealth-home-support-programme/discussion-paper-key-directions-for-the-commonwealth-home-support-programme

Preventive Health Care

The increasing prevalence and cost of long term health conditions means that prevention, whether primary, secondary or tertiary, is important at all ages, including among the elderly, to ensure that further increases in life expectancy translate, as far as possible, into healthy years where the need for hospital and other health services is minimised. There is also an economic imperative to ensure the health of the working population is maintained as it ages.

Building in prevention as a part of normal activity in service delivery should be a priority e.g. in the management of smoking cessation, communicable disease prevention, healthy lifestyle (healthy weight and physical activity advice and interventions), and osteoporosis and falls prevention activity.

Healthy Life Pathways[110]
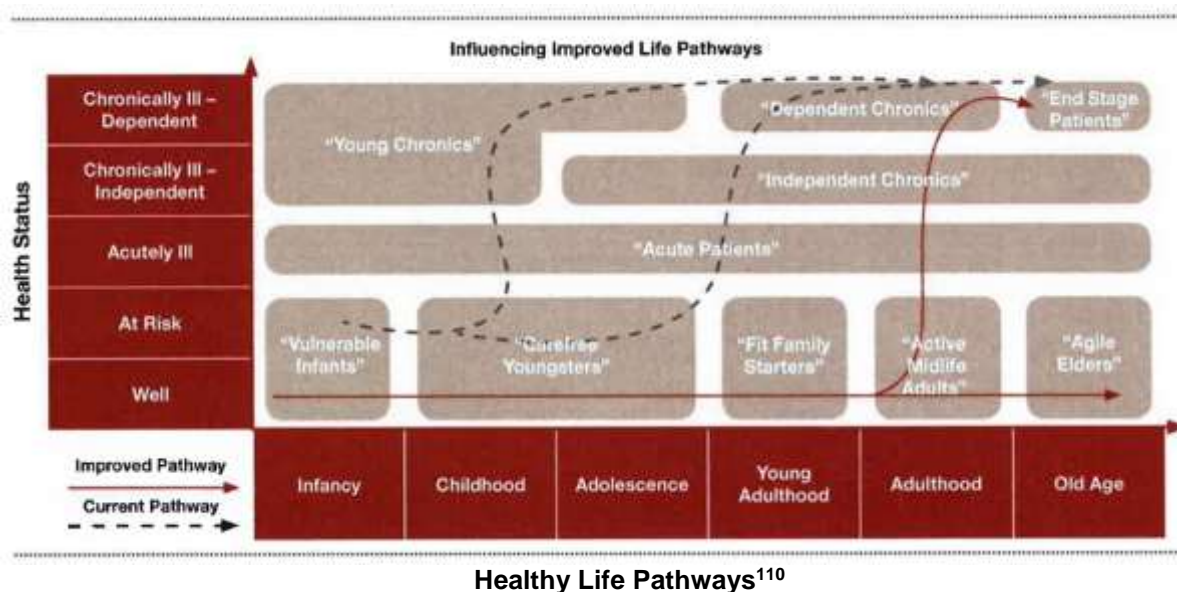
2.4.2 Providing exemplary, safe and reliable care

Safe, high quality Clinical Services are[111]:
- Person centred: Putting patients first and striving to increase patient satisfaction with the clinical services
- Technically proficient and safe: Ensuring that clinicians are appropriately credentialed for their services and that identified clinical risks are managed effectively
- Based on best available evidence: Ensuring that services are delivered according to up to date evidence on their effectiveness and safety. This is usually achieved through using updated clinical guidelines
- Prevention focused: Where possible patients /consumers are provided with information and /or services to avoid morbidity and /or complications of their conditions
- Well managed for efficiency, and equity and continuous improvement: Services provided are fairly distributed, aim to achieve equity of outcome and opportunities for improvement are constantly sought.

The aim of the SESLHD Patient Safety Program is to reduce harm within SESLHD by 30% and increase the reliability of care to 95%. This will be achieved using the internationally recognised Breakthrough Collaborative model.[112]

Strategies to reduce harm include:
- Reducing variation, e.g. with standardised clinical pathways for agreed conditions
- Developing targets that focus on outcomes

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[110] PWC. Strategy and Reimagining Health Reform in Australia. URL: https://pwc.docalytics.com/v/strategy-reimagining-health-reform
[111] SESLHD Patient Safety & Quality Plan 2012-2015
[112] The Breakthrough Series: IHI's Collaborative Model for Achieving Breakthrough Improvement. IHI Innovation Series white paper. Boston: Institute for Healthcare Improvement, 2003. URL: www.IHI.org

- Implementation and evaluation of effectiveness of business rules
- Reducing avoidable admissions
- Reducing hospital acquired infections
- Avoiding discharge delay
- Reducing inappropriate polypharmacy to reduce drug interactions, risk of delirium, and risk of falls
- Reducing unnecessary interventions
- Ensuring joint decision making with patients and clinicians
- Improving health literacy
- Evaluation of strategy implementation, then monitoring, data analysis and feedback.

Good Practice Examples:
- Intermountain Healthcare (IHC) have standardised care processes to reduce variation in outcomes, e.g. care for patients on ventilators, thereby reducing the average number of days for each patient on a ventilator by more than a day. These improvements were associated with a 10% reduction in the rate of ventilator-associated pneumonia over two years. More appropriate ventilator use at IHC is also associated with a shorter length of stay in ICU and a reduction in cost by more than $3,000 per ICU patient.[113]
- A Quality Improvement Strategy, e.g. Salford Royal Hospital, UK launched a three-year Quality Improvement Strategy in 2007 which has resulted in: 100% reduction in MRSA blood stream infection, 90% reduction in Clostridium difficile infections, 51% reduction in cardiac arrests, and 45% reduction in Grade 2 pressure ulcers.[114]

2.4.3 Building value and sustainability across the system

"Communities value affordability, accessibility, personalisation and quality, service deliverers seek quality, patient satisfaction, professional reward and remuneration, and governments merit quality, safety and cost–benefit return."[115]

Randwick Hospitals and Health Services' Campus partners are expected to deliver consistently high quality care at lower cost and against rising expectations and demand. Meeting these rising demands within existing funding and staffing resources will require new evidence based treatments, technologies and models of care to enable the delivery of the best care at an acceptable cost. To deliver sustainable health care into the future, this means that "*the continuation or the integration of new practice ……… becomes a routine part of care delivery and continues to deliver desired outcomes"[116],* and that what people see as valuable to them is recognised.

Safety, quality and reducing waste and inefficiency are also important areas of focus in order to deliver sustainable health care into the future. This requires:
- An ongoing continuous improvement of processes and systems to define the appropriateness of care, i.e. low versus high value care, and an effective system to monitor progress
- Using state wide, national and international healthcare datasets to measure value and the benefit of change
- Identifying low value models of care currently in use and considering their service implications and potential for rationalisation
- In cooperation with consumers, staff, key partners and stakeholders, co-create new models of care aimed at reducing waste and improving integrated, person centred care
- Providing Research funding that is pertinent to:
  o Population health programs to keep people healthy along the life course

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[113] Baker G.R., et al 2008. "Intermountain Healthcare." High Performing Healthcare Systems: Delivering Quality by Design. 151-178. Toronto: Longwoods Publishing. URL: http://www.longwoods.com/content/20146

[114] Salford Royal NHS Foundation Trust Service Development Strategy 2014/15 to 2018/19 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/390716/SALFORD_Publishable_Summary_StrategicPlan_1415.pdf

[115] Jackson C and Hambleton S. Value co-creation driving Australian primary care reform. Med J Aust 2016, 204 (7 Suppl): S45. URL: https://www.mja.com.au/journal/2016/204/7/value-co-creation-driving-australian-primary-care-reform

[116] Doyle et al. Making change last: applying the NHS institute for innovation and improvement sustainability model to healthcare improvement. Implementation Science 2013, 8:127 Page 2. URL: http://www.implementationscience.com/content/8/1/127

> o An aging population, e.g. for Dementia and conditions of increased morbidity and disabling conditions in the latter stages of life.

SESLHD is currently undertaking a service rationalisation project to ensure the efficient and appropriate allocation of resources within the District to deliver best health practice for our patients, on the foundation of evidence based models of best practice. This project provides opportunities to reduce costs of many target services, improve safety and quality, and improve access to & equity of delivered services. There are presently a number of projects underway investigating variation, best practice processes and potential efficiencies including POWH/Sydney/Sydney Eye Hospital's "Better Care Costs Less – A shared care approach to older surgical patients" a specialist tracking system for ophthalmology outcomes.

A sustainable health system also requires a sustainable workforce. We rely on a range of highly skilled staff that are crucial to the delivery of health services and the increased demand from a growing and ageing population will require more staff. The health workforce is ageing and it will be challenging to replace these experienced people. It is thus important to create and grow an effective, skilled workforce with both generalist and specialist skills to allow transformation of care into the future.

Evidence suggests that few of the care models developed for high need, high cost patients have demonstrated net cost savings in the short term.[117] However the incentives created by accountable care and other value-based purchasing initiatives (such as the new Medicare funding model for people with long term conditions managed by primary care – *Health care Homes*[118]) may prove cost effective in reducing emergency presentations and hospital admissions in the longer term. Securing greater value and sustainability for health services of the future is largely contingent on better models of care, support and treatment for these high need groups, including at the end of life.[119]

Funding and budgetary arrangements need to also consider the savings that ultimately accrue to society or consumers by improving outcomes for patients, rather than siloed delivery and funding models. Taking a values-based approach to health makes improved wellbeing, independence, social connectedness, choice and control a priority, and supports people to manage their own care. Value and sustainability is thus based on what is best for the patient and health system, with a focus on achieving agreed outcomes that benefit whole communities.

Good Practice example:
In Canterbury, NZ, alliance contracting has shown ongoing benefits in health and social care, with community and acute care provider collaboration to address complex health and social care problems and taking a whole-of-system approach to planning and decision making to avoid hospitalisation.[120]

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[117] McCarthy D et al. Models of Care for High-Need, High-Cost Patients: An Evidence Synthesis. The Commonwealth Fund Issue Brief, Oct 2015. URL: http://www.commonwealthfund.org/publications/issue-briefs/2015/oct/care-high-need-high-cost-patients

[118] Aust. Govt. Media Release 31 March 2016. Health Care Homes to keep chronically-ill out-of-hospital. URL: http://www.health.gov.au/internet/ministers/publishing.nsf/Content/B54E87C87AA06842CA257F8700210C62/$File/SL024.pdf

[119] NHS Sept 2015 Realising the Value How should we think about value in health and care? URL: https://www.nesta.org.uk/sites/default/files/how_should_we_think_about_value_in_health_and_care.pdf

[120] Timmins N and Ham C. The quest for integrated health and social care A case study in Canterbury, New Zealand. The Kings Fund 2013 URL: http://www.kingsfund.org.uk/sites/files/kf/field/field_publication_file/quest-integrated-care-new-zealand-timmins-ham-sept13.pdf

3. Current State of Play

Key points
There are a broad range of health, research, teaching and education services delivered from Randwick Hospitals and Health Services' Campus. Many of these services are limited by infrastructure, technology, and funding, constraining the ability to provide evidence based models of care.

3.1 Services and programs delivered to the local and broader population of NSW

Overview of Prince of Wales Hospital and Community Health Services

Prince of Wales Hospital and Community Health Services is a Sydney tertiary referral centre serving NSW, with an international reputation for research and is part of the Randwick Health and Education Precinct. It is a teaching hospital for multiple universities including the University of NSW, Sydney University, University of Technology Sydney, etc. The clinical programs for adults cover the full spectrum of inpatient and outpatient medical and surgical subspecialties, aged care and community health.

Community Based Services are at:
- Waverley
- Bondi Beach
- Double Bay
- Mascot
- Paddington
- Randwick
- Eastgardens (Pagewood)
- Kings Cross (Potts Point).

POWH provides statewide services for adults including:
- NSW Complex Epilepsy Service (state-wide specialist referral service)
- Acute spinal injury services and rehabilitation
- Hyperbaric medicine (the only public chamber in NSW).

In addition, POWH also provides a number of specialist services for adults including
- Complex neuroscience (including Interventional Neuroradiology, Moods Disorder Unit)
- Lithotripsy (only NSW service)
- Renal transplantation
- Rural outreach ophthalmology services
- Toxicology
- Drug and alcohol services
- Neuropsychiatric Institute.

POWH is working towards attaining statewide stroke centre status, subject to final approval by the NSW Ministry of Health.

Overview of Royal Hospital for Women

The RHW provides maternal and newborn services for mothers and babies and for women with gynaecological, gynaecological oncology and breast disorders residing within the local South Eastern Sydney area, as well as specialist state-wide maternity, neonatal and gynaecological and gynaecological oncology services. The Hospital also provides midwifery group practice, delivery and postnatal care and an Aboriginal maternal and infant health service.

The Royal provides a number of designated statewide services:
- Neonatal Intensive Care which is part of the NSW State-wide Perinatal Services Network and has a focus on neonatal surgery because of its co-location with SCH
- Mothersafe, an evidence based information and telephone counselling service about exposures during pregnancy and lactation.
- Gynaecology oncology – a multi-disciplinary service for the treatment of women with gynaecological malignancy
- NSW Fetal Therapy Centre including Maternal-Fetal Medicine (MFM) – provides care for women with complex pregnancies.

The Royal also provides quaternary services in:
- Reproductive Medicine – fertility services for men and women
- Paediatric and Adolescent gynaecology.

Overview of Eastern Suburbs Mental Health Service

Eastern Suburbs Mental Health Service, a division of SESLHD Mental Health Services, is a comprehensive, population-based mental health service comprising inpatient, community (ambulatory), rehabilitation and specialist programs for consumers with a range of developing or existing mental health illnesses. Services are provided in inpatient, ambulatory and community settings and relate to prevention, early diagnosis, early intervention, care coordination, integrated care planning, emergency response, triage, assessment, acute care and sub-acute care.

Eastern Suburbs Mental Health Service provides the following inpatient services:
- Prince of Wales Acute Unit (Kiloh Centre, 50 beds)
- Mental Health Rehabilitation Unit (14 beds)
- Aged Care Psychiatry (Euroa Centre, 6 beds)
- Neuropsychiatry (Euroa Centre, 2 beds)
- Psychiatric Emergency Care Centre (4 beds)
- Mental Health Intensive Care Unit (12 beds) – a statewide networked service.

Community services are delivered out of the following locations:
- Randwick Hospitals and Health Services Campus (Euroa Centre, MHICU, McNevin-Dickson Building, Sydney Children's Community Health Centre, Black Dog Institute)
- Maroubra Community Mental Health Centre
- Bondi Junction Community Mental Health Centre
- *headspace* Bondi Junction.

The Mental Health Service system continues to move away from an historical model of institutional-based mental health care towards the primacy in the care continuum of community and ambulatory-based models with a psychosocial and recovery-oriented approach. In line with this direction, investment in specialist mental health services is to be complemented by investment in a range of formal and informal community supports and services with a focus on early intervention and recovery.

3.2 Role delineation

Role delineation[121] is a tool developed by NSW Health to provide a means to categorise the complexity of services required for the needs of the population (level 6 is the most complex level of service, whereas Level 0 means the service is not available). It also recognises that for each level of clinical service provision, a corresponding level of clinical support services and staff profile are required to ensure services are delivered in a safe, efficient and appropriate manner.

Many specialities provided by POWH and the RHW are Level 6, recognising the highly specialised care the Hospitals provide.

Specialty		Prince of Wales		Royal Women's		Sydney Children's Hospital		Sydney/ Sydney Eye		War Memorial	
		Current	Future	Current	Future	Current	Future	Current	Future	Current	Future
Clinical Support Services	Pathology	6	6	6	6	6	6	3	3	1	1
	Pharmacy	6	6	4	4	6	6	6	6	3	3
	Diagnostic Imaging	6	6	6	6	6	6	4	4	2	2
	Nuclear Medicine	6	6	6	6	6	6	0	0	0	0
	Anaesthetics	6	6	6	6	6	6	4	4	0	0
	Intensive Care Unit (ICU)	6	6	6	6	6	6	2	2	0	0
	Coronary Care Unit (CCU)	6	6	0	0	6	6	3	3	0	0
	Operating Suite	6	6	6	6	6	6	4	4	0	0
Emergency	Emergency	6	6	0	0	6	6	3	3	0	0
Medical & Surgical	General Medicine	6	6	4	4	6	6	4	4	0	0
	Cardiology	6	6	0	0	6	6	3	3	0	0
	Dermatology	6	6	0	0	6	6	3	3	0	0
	Endocrinology	6	6	5	5	6	6	3	3	0	0
	Gastroenterology	6	6	0	0	6	6	3	3	0	0
	Haematology	6	6	0	0	6	6	3	3	0	0
	Immunology	6	6	0	0	6	6	3	3	0	0
	Infectious Diseases	6	6	0	0	6	6	3	3	0	0
	Neurology	6	6	0	0	6	6	3	3	0	0
	Oncology - Medical	6	6	5	5	6	6	0	0	0	0
	Oncology - Radiation	6	6	4	4	6	6	0	0	0	0
	Renal	6	6	0	0	6	6	3	3	0	0
	Respiratory	6	6	0	0	6	6	3	3	0	0
	Rheumatology	6	6	0	0	6	6	3	3	0	0
	General Surgery	6	6	6	6	6	6	0	0	0	0
	Burns	3	3	0	0	4	4	0	0	0	0
	Cardiothoracic Surgery	6	6	0	0	6	6	0	0	0	0
	Day Surgery	4	4	4	4	6	6	3	3	0	0
	Ear, Nose & Throat	6	6	0	0	6	6	4	4	0	0
	Gynaecology	0	0	6	6	6	6	0	0	0	0
	Neurosurgery	6	6	0	0	6	6	0	0	0	0
	Ophthalmology	6	6	0	0	6	6	6	6	0	0
	Orthopaedics	6	6	0	0	6	6	6	6	0	0
	Plastic Surgery	6	6	4	4	6	6	0	0	0	0

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[121] NSW Health, 2016, NSW Health Guide to Role Delineation, URL: http://www.health.nsw.gov.au/services/Pages/role-delineation-of-clinical-services.aspx

Greater Randwick Integrated Health Services Plan

Specialty		Prince of Wales		Royal Women's		Sydney Children's Hospital		Sydney/ Sydney Eye		War Memorial	
		Current	Future	Current	Future	Current	Future	Current	Future	Current	Future
	Urology	6	6	0	0	6	6	0	0	0	0
	Vascular Surgery	6	6	0	0	6	6	0	0	0	0
Maternal / Child	Maternity	0	0	6	6	0	0	0	0	0	0
	Neonatology	0	0	6	6	6	6	0	0	0	0
	Paediatric Medicine	0	0	6	6	6	6	0	0	0	0
	Paediatric Surgery	0	0	6	6	6	6	0	0	0	0
	Family & Child Health	0	0	0	0	4	4	0	0	0	0
Integrated Community & Hospital Services	Adolescents	0	0	0	0	4	6	0	0	0	0
	Adult Mental health IP	6	6	0	0	0	0	0	0	0	0
	Adult Mental Health Com Care	6	6	0	0	0	0	0	0	0	0
	Child Adol Mental Health IP	0	0	0	0	6	6	0	0	0	0
	Child Adol Mental Health Com Care	5	5	0	0	6	6	0	0	0	0
	Older Adult Mental Health IP	5	5	0	0	0	0	0	0	0	0
	Older Adult Mental Health Com Care	5	5	0	0	0	0	0	0	0	0
	Child Protection Services	6	6	0	0	6	6	0	0	0	0
	Drug & Alcohol Services	2	2	2	2	1	1	6	6	0	0
	Geriatrics	6	6	0	0	0	0	3	3	5	5
	Health Promotion	2	2	2	2	4	4	2	2	2	2
	HIV/AIDS	6	6	0	0	6	6	2	2	0	0
	Palliative Care	6	6	4	4	6	6	0	0	0	0
	Rehabilitation	6	6	0	0	6	6	0	0	4	4
	Sexual Assault Services	4	4	0	0	6	6	0	0	0	0
Community Based Services	Aboriginal Health	5	5	3	3	2	2	3	3	3	3
	Community Health - General	6	6	0	0	2	2	0	0	2	2
	Community Nursing	5	5	0	0	4	4	4	4	0	0
	Oral Health	6	6	0	0	6	6	0	0	0	0
	Multicultural Health	5	5	5	5	4	5	5	5	5	5
	Sexual Health Services	5	5	1	1	5	5	5	5	0	0
	Women's Health	4	4	6	6	0	0	0	0	0	0
	Genetics	6	6	6	6	6	6	0	0	0	0

Note: Grey text recognises the clinical networking with Sydney / Sydney Eye Hospital and War Memorial

3.3 Shared services on the Campus

Shared clinical services

The hospitals on the Randwick Hospitals and Health Services' Campus and associated health services are unique in NSW in the extent to which numerous shared services operate in conjunction with one another across the Campus.

Table 1 denotes shared clinical services on the Campus, including the management, operation and utilisation of the various services.

In addition to the shared clinical services, there is also sharing of corporate services across the Campus.

This collaborative approach has been fostered over many years, is well established and is due to several factors including multiple organisations on the Randwick Hospitals and Health Services' Campus, professional collegiality, historical development of services and cost effective and efficient use of high cost infrastructure and services.

Table 1: Randwick Hospitals and Health Services' Campus current shared clinical services

	Prince of Wales Hospital	Royal Hospital for Women	Eastern Suburbs Mental Health Service	Sydney Children's Hospital, Randwick	Prince of Wales Private Hospital	Sydney / Sydney Eye Hospital	Justice Health and Forensic Mental Health Network
Aboriginal Health Clinic	*	*		✓		*	
Anaesthetics	✓			✓			
Audiology	*			✓			
Cardiac Perfusion	✓			✓			
Child and Family (Mental Health Service)	*	*	*	✓			
Child and Family Health / Community Child Health	*	*		✓	*		
Child Protection Unit	*	*		✓			
Clinical Engineering	✓	*		*			
Clinical Neurophysiology	✓	*		*	*	*	*
Dental and Maxillofacial	✓			*			
Dermatology	✓	*					
Diabetes	✓	*					
Diving and Hyperbaric Medicine	✓	*		*			
Emergency Department	✓	*					
Forensic patients	✓						*
Gastroenterology	✓	*					
Haemodialysis	✓			*			
Infectious Diseases Services	✓	*		*		*	*
Intensive care	✓	*			*		
Interventional radiology	✓			*			
Liaison Psychiatry	*	*	✓	*			
Medical Imaging	✓	✓		*			
Medical oncology	✓	*					
Medical records	✓	*				*	
Mortuary	✓	*		*	*		
Nuclear medicine	✓	*		*		*	
Operating theatres	✓	*		*	*		
Ophthalmology	✓			*			

	Prince of Wales Hospital	Royal Hospital for Women	Eastern Suburbs Mental Health Service	Sydney Children's Hospital, Randwick	Prince of Wales Private Hospital	Sydney / Sydney Eye Hospital	Justice Health and Forensic Mental Health Network
Orthotics	*			✓			
Palliative care	*	*					
Pharmacy	✓	*		*			
Radiation oncology	✓			*		*	
Refugee Health Clinic	*	*		✓	*	*	
Spinal Monitoring	✓			*			
Sterilising	✓	*		*			
Transition of adolescent and young adults (including Trapeze)	*			✓			
Urology	✓			*			

✓: This symbol denotes the primary service provider for the clinical service
*: This symbol denotes that the clinical service is utilised by the hospital, but is not the primary service provider.

Contracted clinical services

In addition to shared services, there are contracted services (collaborative care arrangement) for invasive cardiac diagnostic and interventional procedures from Eastern Heart Clinic.

3.4 Clinical networking

Clinical networking across SESLHD is based on role delineation and a sound understanding that maximising patient outcomes with finite resources requires a coordinated system where clinicians, patients, carers and families work together to provide high quality and appropriate services.

The impact of the various clinical networking arrangements is quantified below (refer Section 3.5.4: Inflows).

Clinical Networking – from other LHDs and private hospitals to Randwick Hospitals and Health Services' Campus

The speciality services provided by the POWH which result in inflows from other LHDs and private hospitals include:
- Spinal neurosurgical service
- Renal transplant
- Interventional Neuroradiology
- Pain management.

RHW has a number of speciality services drawing patients from other LHDs
- Neonatal Intensive Care
- Mothersafe
- Gynaecology oncology
- NSW Fetal Therapy Centre
- Reproductive Medicine – fertility services for men and women.
- Paediatric and Adolescent gynaecology.

The Mental Health Intensive Care Unit is also a statewide networked service on campus.

Clinical Networking – within SESLHD

The Randwick Hospitals and Health Services' Campus also has clinical networks across the District:
- Trauma (St George Hospital: SGH)
- Surgical Oncology (including Peritonectomy) (SGH)
- Complex Critical Care Services (for example, head injury, interventional radiology, ECMO) (SGH)
- Lutate Therapy (SGH)
- Breast Brachytherapy (SGH)
- Prostate Brachytherapy (SGH)
- Pain Medicine (SGH and Port Kembla Hospital)
- Complex hand surgery (SSEH)
- Ophthalmic surgery(SSEH)
- Toxicology (SESLHD)
- Rehabilitation, maintenance and Geriatric Evaluation Management (War Memorial Hospital Waverley).

Clinical Networking – with other LHDs and health care providers

In addition, the Randwick Hospitals and Health Services' Campus has clinical networks with other LHDs, private hospitals and other health care providers:
- Some traumatic spinal cord injury (NSLHD)
- Transplant surgery (other than renal transplant) (SLHD)
- Paediatrics (SCHN)
- Burns (SLHD)
- Palliative care (SVHN)
- Heart and lung transplant services (SVHN)
- Blood and marrow transplant services (SVHN)
- HIV/Hepatitis C services (SVHN)
- Trauma (SVHN)
- Planned surgery in multiple specialties (private hospitals)
- Interventional cardiology (Eastern Heart Clinic)
- Primary health care (Central and Eastern Sydney Primary Health Network), and
- Aged care (aged care providers including residential facilities).

3.5 Activity at Prince of Wales Hospital

3.5.1 Acute inpatient activity

In 2014/15 POWH had more than 30,000 acute separations, more than 120,000 bed days equating to a requirement for approximately 390 beds, with an average length of stay of 4.0 days, an average NWAU of 1.45 and an average Public Equivalent Model (NWAU excluding private)[122] 1.68 and (Table 2).

Recent trends indicate between 2008/09 and 2014/15:
- Separations have been trending up, most noticeably in the past four years
- Bed days were variable but, since 2012/13 there was a notable decrease. This was due improvements in type changing between the acute and subacute sectors. This resulted in reduction in the length of stay across most SRGs
- Average NWAU and average Public Equivalent Model has been variable.

The annual average growth rate in separations exceeds the population growth rate over the same period (1.85% and 1.3% respectively).

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[122] The Public Equivalent Model (PEM) is the National Weighted Activity Units (NWAU) without the application of private patient status discounts, therefore is a more accurate reflection of cost and complexity of care than NWAU.

Table 2: Trends in acute inpatient activity for Prince of Wales Hospital, 2008/09 to 2014/15

Values	2008/2009	2009/2010	2010/2011	2011/2012	2012/2013	2013/2014	2014/2015	Trend	Change	AAGR
Separations	27,076	27,630	26,384	27,528	29,609	30,611	30,226		3,150	1.85%
Bed days	127,482	129,971	127,185	132,055	124,840	120,547	122,290		-5,192	-0.69%
Av length of stay	4.7	4.7	4.8	4.8	4.2	3.9	4.0		-0.7	-2.50%
NWAU 15	40,053	42,568	41,808	43,846	44,885	45,204	46,656		6,603	2.58%
Av NWAU v 15	1.48	1.54	1.58	1.59	1.52	1.48	1.54		0.06	0.71%
Public Equivalent Model 15	43,568	45,892	44,868	47,452	48,377	48,991	50,897		7,329	2.63%
Av PEM v 15	1.61	1.66	1.70	1.72	1.63	1.60	1.68		0.07	0.76%

Source: CaSPA FlowInfo v 15.0
Inclusions: POWH including Collaborative Care separations
Exclusions: SRGs – chemotherapy, renal dialysis, unqualified neonates, psychiatry - acute, psychiatry - non acute. ED Status: excluding ED only activity. ABF Service type: Acute Mental Health, Non-Acute Mental Health, Sub and Non Acute Other
Note: PEM is Public Equivalent Model, it is a National Weighted Activity Units (NWAU) without the application of private patient status discounts

More detailed data analysis of POWH acute inpatient activity (Table 3 and Appendix 6: Additional data) indicates:
- Age: patients aged 70 years and older accounted for 38% of separations, 47% of bed days
- Source of referral: 62% of separations were admitted via the ED, the remainder, predominantly planned, were coded as being referred from outpatients (29%) and from medical practitioners (7%)
- Urgency of Admission: 63% were emergency and 36% were planned
- Medical activity accounted for 62% of all separations, 53% of all beddays and a relatively low cost and complexity (0.98 average PEM (NWAU excluding private)). Of this activity:
  - People aged 70 years and older accounted for more than 30% of separations and more than 50% of bed days
  - Emergency admissions staying multiple nights accounted for 39% of medical separations and 70% bed days
  - Emergency admissions staying one night or less accounted for 42% of medical separations and less than 15% of bed days
  - Planned admissions accounted for nearly 20% of medical separations and more than 15% of bed days
- Surgical / Procedural activity accounted for 38% of all separations, 47% of all beddays and had a relatively high cost and complexity (2.85 average PEM (NWAU excluding private)). Of these:
  - People aged 70 years and older accounted for more than 30% of separations and more than 40% of bed days
  - Planned admissions staying one night or less accounted for nearly half of surgical separations (47%) and less than 10% of bed days
  - Planned admissions staying multiple nights accounted for nearly 20% of surgical separations and more than 30% of bed days
  - Emergency admissions staying multiple nights accounted for more than 25% of surgical separations and 55% bed days
- Length of Stay:
  - Day only patients accounted for more than 30% of separations and were low cost and complexity (average PEM (NWAU excluding private) 0.37)
  - Overnight patients were more than 20% of separations with an average PEM (NWAU excluding private) of 0.91
  - Multiple night patients were nearly 50% of separations, occupied the vast majority of beds (87%) and were high cost and complex care (average PEM (NWAU excluding private) 2.97)
- ICU and/or HDU involvement: very few patients were admitted to either ICU and/or HDU (5% and 2% respectively), not surprisingly these patients had high average PEM (NWAU excluding privates) (9.77 for patients with ICU involvement and 9.37 for HDU involvement)
- Hospital in the Home: very few patients (3%) accessed Hospital in the Home. Of those patients who did access HITH 20% were for cellulitis, followed by a range of ESRGs including Knee replacement/revision, Other orthopaedics – surgical, Injuries to limbs – medical, Hip replacement/revision, etc.
- Enhanced Service Related Groups: Other orthopaedics – surgical accounted for the highest

number of separations (4%) and occupied the most bed days (6%) (see Figures 11-13)
- At POWH, diabetes accounts for 14% of acute inpatient separations (recorded as either a principal or secondary diagnosis) and the average overnight length of stay is double compared to the overall average length of stay (10.1 days compared to 5.5 days in 2014/15)
- Separation mode: the vast majority of patients were discharged home (88%) and
- Insurance Status: most patients were non-chargeable (70%).

Table 3: Inpatient activity by ABF Service Type, Prince of Wales Hospital, 2014/15

ABF Service Type Name	Seps	Bed days	ALoS	NWAU 15	Av NWAU v 15	Public Equivalent Model 15	Av PEM v 15
Acute Medical	18,839	64,981	3.4	16,499	0.88	18,452	0.98
Surgical	11,387	57,309	5.0	30,157	2.65	32,444	2.85
Acute Other Surgery	3,195	30,452	9.5	14,605	4.57	16,120	5.05
Acute Planned Surgery	5,471	18,724	3.4	12,600	2.30	13,048	2.38
Acute Procedural	2,721	8,133	3.0	2,953	1.09	3,276	1.20
Total	30,226	122,290	4.0	46,656	1.54	50,897	1.68

Sources, inclusions and exclusions refer to Table 2

Figure 11: "Top 15" separations by Enhanced Service Related Groups, Prince of Wales Hospital, 2014/15

Other orthopaedics (both surgical and non-surgical) account for 7% of all separations
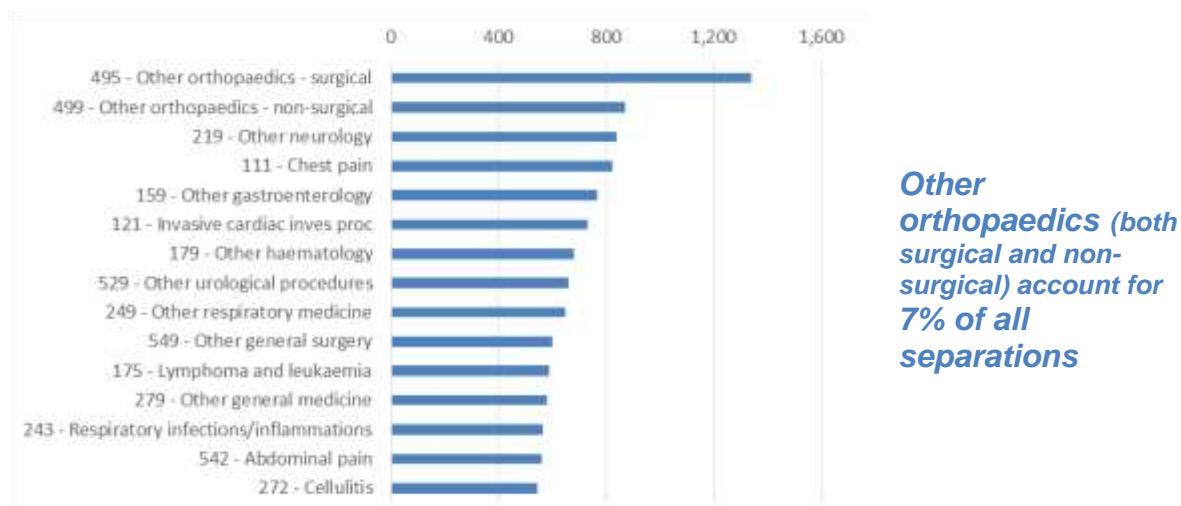
Source, inclusions and exclusions refer to Table 2
Notes: Data is limited to the 15 ESRGs with the highest number of separations. For breakdown of ESRGs into Diagnostic Related Group (DRG) refer to Appendix 6

Figure 12: "Top 15" bed days by Enhanced Service Related Groups, Prince of Wales Hospital, 2014/15
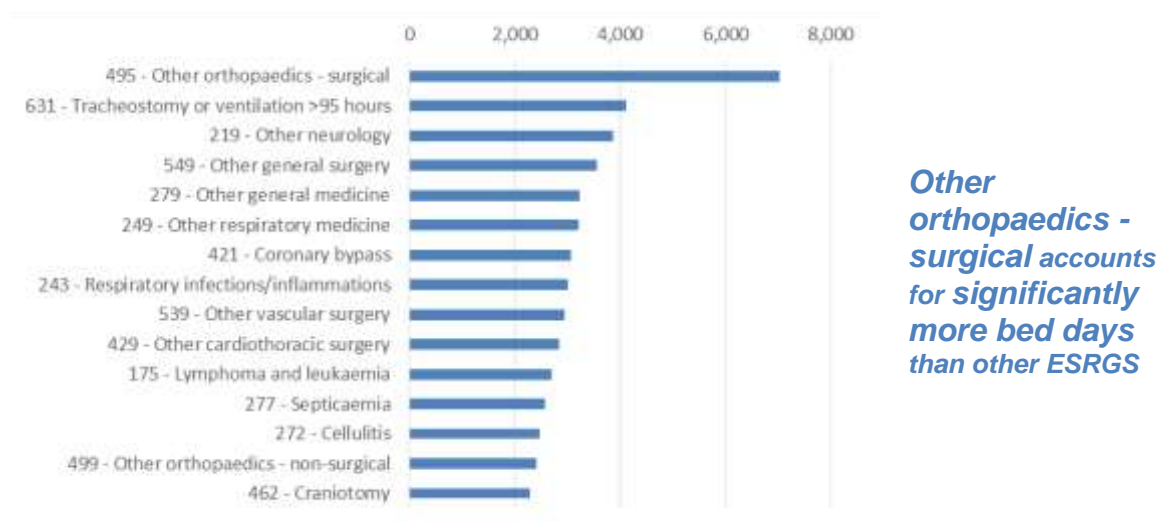
Other orthopaedics - surgical accounts for significantly more bed days than other ESRGS

Source, inclusions and exclusions refer to Table 2
Note: Data is limited to the 15 ESRGs with the highest number of bed days. For breakdown of ESRGs into Diagnostic Related Group (DRG) refer to Appendix 6

Figure 13: "Top 15" PEM (NWAU excluding private) by Enhanced Service Related Groups, Prince of Wales Hospital, 2014/15
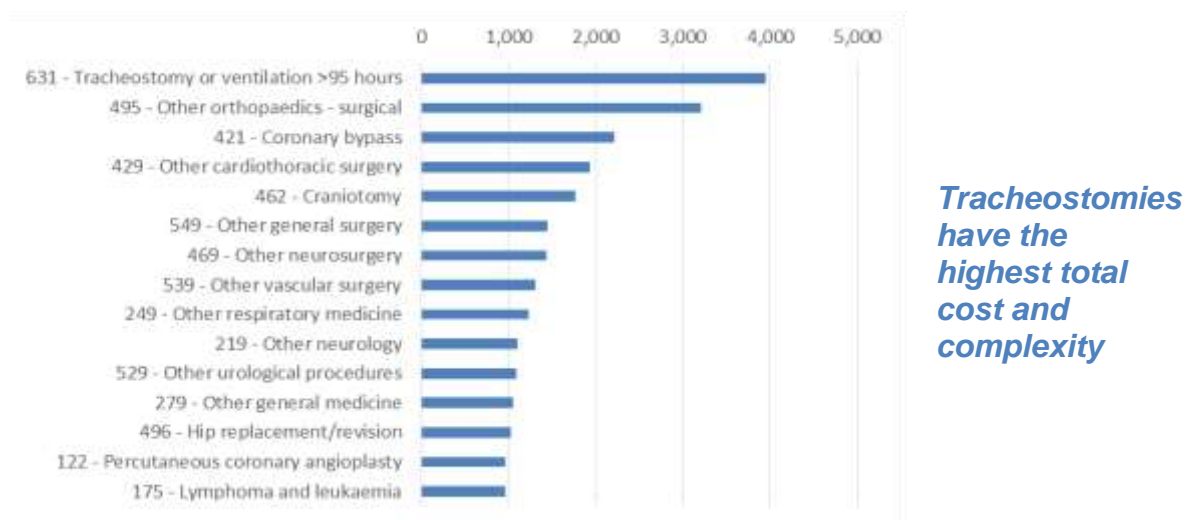
Tracheostomies have the highest total cost and complexity

Source, inclusions and exclusions refer to Table 2
Note: Data is limited to the 15 ESRGs with the highest PEM. For breakdown of ESRGs into Diagnostic Related Group (DRG) refer to Appendix 6

3.5.2 Collaborative Care

POWH has collaborative care arrangements / contracted services (where public patients have procedures in private facilities) with Eastern Heart Clinic.

This public /private partnership is in place predominantly for day only interventional cardiology (there are no overnight beds) with a 24 hours per day, 7 days per week emergency angioplasty service.

This model of care has been successfully in place for many years, is evidence based and is expected to continue with any expansion of these arrangements tested in the market in terms of cost benefit analysis.

Each year, the existing arrangements account for approximately 1,400 interventional cardiology separations.

3.5.3 Sub-acute inpatient activity

In 2014/15 POWH had nearly 1,500 sub-acute separations, nearly 23,000 bed days equating to a requirement for more than 70 beds, with an average length of stay of 16.1 days (Table 4).

Recent trends indicate between 2008/09 and 2014/15 shows:
- Separations have been trending up in the past three years
- Bed days were trending upwards
- Average length of stay has been trending down
- Bed requirements have increased by three beds - the increase in separations has only been partially offset by the decrease in the average length of stay.

The annual average growth rate in separations significantly exceeds the growth rate in the population over the same period (11.0% and 1.3% respectively). However, the increase in separations appear to be the result of additional COAG funding for sub-acute care and improved type changing of patients from acute to sub-acute care.

Table 4: Trends in sub-acute inpatient activity (including spinal rehabilitation) for Prince of Wales Hospital, 2008/09 to 2014/15

Values	2008/2009	2009/2010	2010/2011	2011/2012	2012/2013	2013/2014	2014/2015	Trend	Change	AAGR
Separations	752	740	784	663	997	1,172	1,404		652	11.0%
Bed days	21,776	21,818	22,353	21,888	22,114	21,823	22,620		844	0.6%
Av length of stay	29.0	29.5	28.5	33.0	22.2	18.6	16.1		-12.8	-9.3%

Source: CaSPA FlowInfo v 15.0
Inclusions: POWH including Collaborative Care separations, ABF Service type: Sub and Non Acute Other
Exclusions: ED Status: excluding ED only activity. ABF Service type: All other Service Types, ESRG: 851 Psychogeriatric care
Note: FlowInfo does not generate a NWAU for sub-acute activity

More detailed analysis of POWHs sub-acute inpatient activity in 2014/15 indicates:

- Age: patients aged 70 years and older accounted for 71% of separations, 58% of bed days
- Source of referral: 96% of separations were type change from acute to sub-acute care
- Emergency: approximately 86% were coded as emergency admissions
- Enhanced Service Related Groups:
    - Maintenance accounted for 39% separations and 24% of bed days
    - Rehabilitation (excluding spinal Cord Injury) accounted for 35% of all sub-acute separations, 44% of all bed days
    - Palliative care accounted for 16% of separations and 5% of bed days
    - Spinal Cord Injury Rehabilitation accounted for 10% of separations and 27% of bed days
- Length of Stay:
    - Day only patients accounted for 1% of separations
    - Overnight patients were 7% of separations
    - Multiple night patients were the vast majority of separations (92%)
- Separation mode: 47% of patients were discharged by the hospital, 20% were type changes (presumably returning to acute care), while 12% were transferred to a nursing home
- Insurance Status: most patients were non-chargeable (59%), with 33% being private and 6% DVA.

3.5.4 Inflows to Prince of Wales Hospital

Inflows (residents living outside of northern SESLHD[123] and treated in POWH) reflect clinical networking outlined in Section 3.5.4 Inflows.

Note: Outflows/reverse flows are discussed at Section 3.13 Flows to other hospitals

These inflows accounted for less than 30% of all acute and sub-acute inpatient activity (Table 5). The patients tended to have higher average NWAUs and PEMs (NWAUs excluding private) reflecting access to tertiary and quaternary services. This is most evident for rural and interstate residents whose average length of stay was longer (6.8 days versus 4.4 days for northern SESLHD residents) and required more costly and/or complex care (average PEM (NWAU excluding private) 3.27 versus 1.34 for residents of northern SESLHD).

The high cost and complex care SRGs being accessed by residents from other LHDs are aligned with clinical networking (see Appendix 6: Additional data).

T*able 5: Activity (acute and sub-acute) for Prince of Wales Hospital, by location of residence, 2014/15*

Residence LHD	Seps	Bed days	ALoS	NWAU 15	Av NWAU v 15	Public Equivalent Model 15	Av PEM v 15
Northern SESLHD	22,645	98,548	4.4	27,508	1.21	30,446	1.34
Southern SESLHD	1,594	7,486	4.7	3,123	1.96	3,389	2.13
Other metro LHD residents	5,281	24,568	4.7	9,468	1.79	10,165	1.92
Rural & interstate residents	2,110	14,308	6.8	6,556	3.11	6,897	3.27
Total	31,630	144,910	4.6	46,656	1.48	50,897	1.61

Source, inclusions and exclusions refer to Table 2 and 4

Figure 14: Separations for Prince of Wales Hospital, by SRG and location of residence, 2014/15

Local residents account for most patients across most specialities
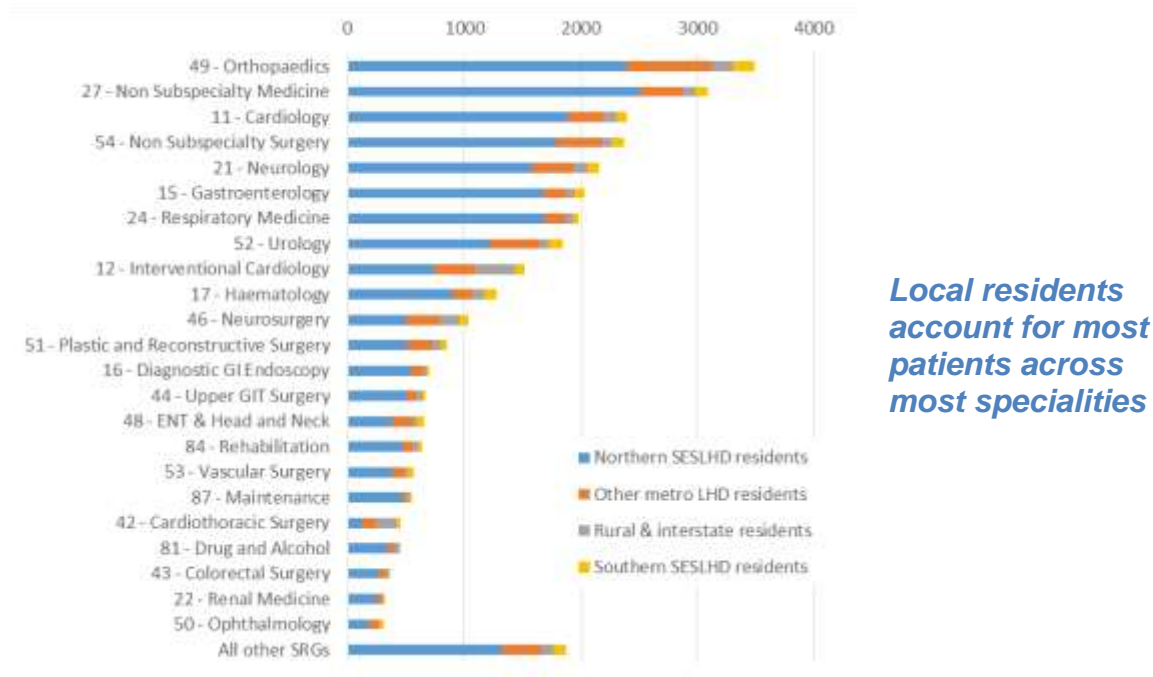
Source, inclusions and exclusions refer to Table 2 and 4

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[123] Residents of northern SESLHD include those living in Botany Bay, Randwick, Sydney (Inner and East SLA), Waverley, Woollahra LGAs

3.5.5 Ambulatory care

In 2014/15 there were more than 300,000 occasions of service for more than 40,000 non-admitted patients attending outpatients and/or being seen by community health.

It is acknowledged ambulatory care data is not necessarily complete and recording data in previous years has been problematic. However, in recent years SESLHD has undertaken a vigorous campaign to improve recording of non-admitted activity and while the 2014/15 data is considered to be a reasonably accurate reflection of activity (with negligible missing data), prior years data is not as robust so is unreliable for trend analysis. It is envisaged data recording will continue to improve enabling more detailed trend analysis to be conducted in future years.

Hospital Outpatient Clinics

Analysis of outpatient occasions of service indicates:
- Number of patients: approximately 36,000 patients
- Age: patients aged older than 70 years accounted for nearly 30% of activity
- Aboriginal and/or Torres Strait Islander people accounted for 1.7% of all occasions of service
- Local Government Area: most patients came from surrounding Local Government Areas of Randwick (45%), Botany (13%), Waverley (6%) and Woollahra (4%).
- Frequency of attendance: on an average five face-to-face occasions of service per patient
- Number of clinics: 74% of patients attend a single clinic, 17% attend 2 clinics, while the remaining 3,278 patients attend 3 or more clinics
- Modality of care: overwhelmingly face-to-face with an individual (90%)
- Provider: Medical / Surgical Specialist provided 49% of occasions of service, followed by allied health professionals 29%, and nurses providing 22%
- Clinic Type: the clinics recording the most occasions of service were Orthopaedics, Medical Oncology (Consultation), Ophthalmology, Nephrology, Oncology, Respiratory, Endocrinology
- Financial Group: nearly 70% of activity was non-chargeable
- Other measures such as Source of Referral appear to be unreliable with more than 57% of clients coded as "Other referral, not elsewhere classified".

Hospital outpatient clinics are spread across more than 40 separate locations and are delivered from clinic rooms, treatment and/or procedure rooms as well as clinician's offices.

Figure 15: "Top 20" Outpatient occasions of service by Clinic Type and modality of care, Prince of Wales Hospital, 2014/15
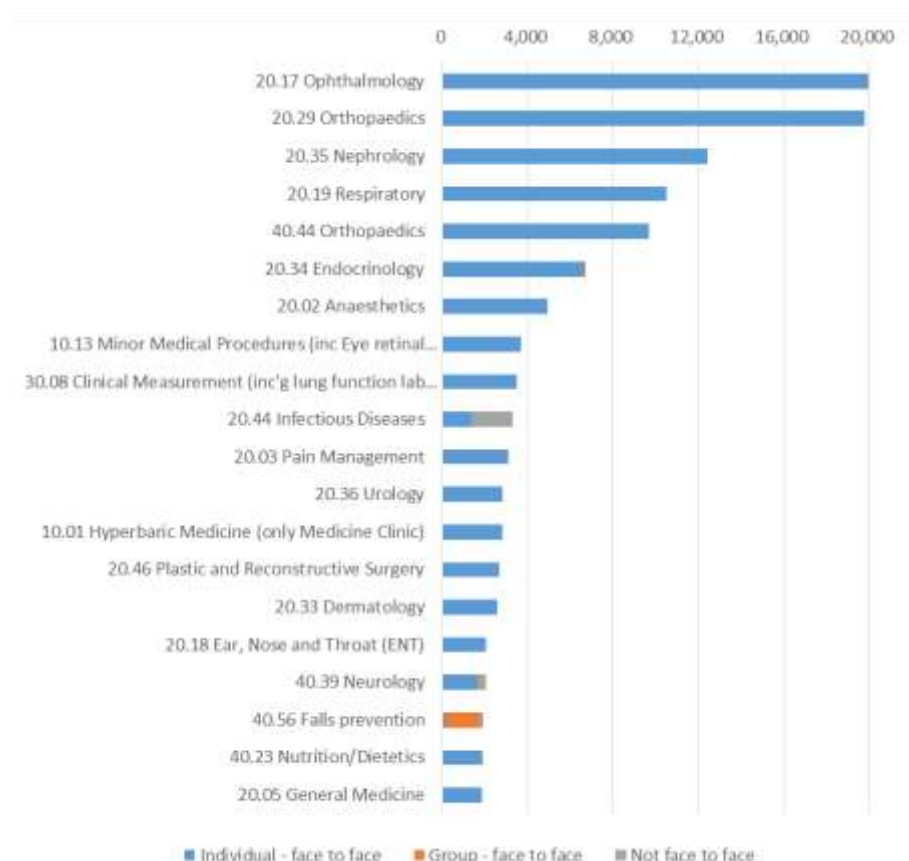
Source: EDWARD data. Inclusions: POWH.
Exclusions: Service Unit Full Name: SESLHD Area Wide HIV Community Team, The Albion Centre Infectious Diseases, The Albion Centre Infectious Diseases AH/CNS, The Albion Centre Psychology, The Albion Centre Sexual Health. Clinic Type: 10.01 Hyperbaric Medicine (only Treatment Clinic), 10.03 Minor Surgical, 10.06 Endoscopy – Gastrointestinal, 10.10 Renal Dialysis, 10.11 Chemotherapy treatment, 10.12 Radiation therapy treatment, 10.13 Minor Medical Procedures (inc Cancer services - Haematology Treatment)), 10.20 Radiation Oncology - Simulation and Planning, 30.05 Pathology (Microbiology, Haematology, Biochemistry), 40.05   Hydrotherapy, 20.10 Haematology, 20.42 Medical Oncology (Consultation), 20.43 Radiation therapy – consultation, 40.48   Haematology and immunology, 40.52 Oncology

Community Health Services (including home based care)

Community health services differ from outpatient services:
- Number of patients: approximately 6,000 patients
- Age: patients aged older than 70 years accounted for nearly 68% of activity
- Aboriginal and/or Torres Strait Islander accounted for 4.3% of all occasions of service
- Local Government Area: most patients came from surrounding Local Government Areas with 74% from Randwick (rate of 357 occasions of service per 1,000 population) and 18% from Botany (at a rate of 299 occasions of service per 1,000 population). Note: St Vincent's Hospital provides community health services to residents of Waverley and Woollahra
- Source of referral: 65% of activity was recorded as "Public hospital", with a further 12% referred by "Other government agency"
- Frequency of attendance: on an average 15 face-to-face occasions of service per patient
- Number of clinics: 78% of patients attend a single clinic, 18% attend 2 clinics, while the remaining 267 patients attended 3 or more clinics
- Modality of care: face-to-face with an individual accounted for 57%, telephone individual 14%, followed by face-to-face with a group 13%
- Provider: nurses provided most other occasions of service (53%), followed by allied health professionals
- Clinic Type: the clinics recording the most occasions of service were Post-acute care (35%),

Aged Care Assessment (22%), followed by Primary Health Care (19%)
- Financial Group: 92% of activity was non-chargeable.

Figure 16: Community health occasions of service by Clinic Type and modality of care, Prince of Wales Hospital, 2014/15
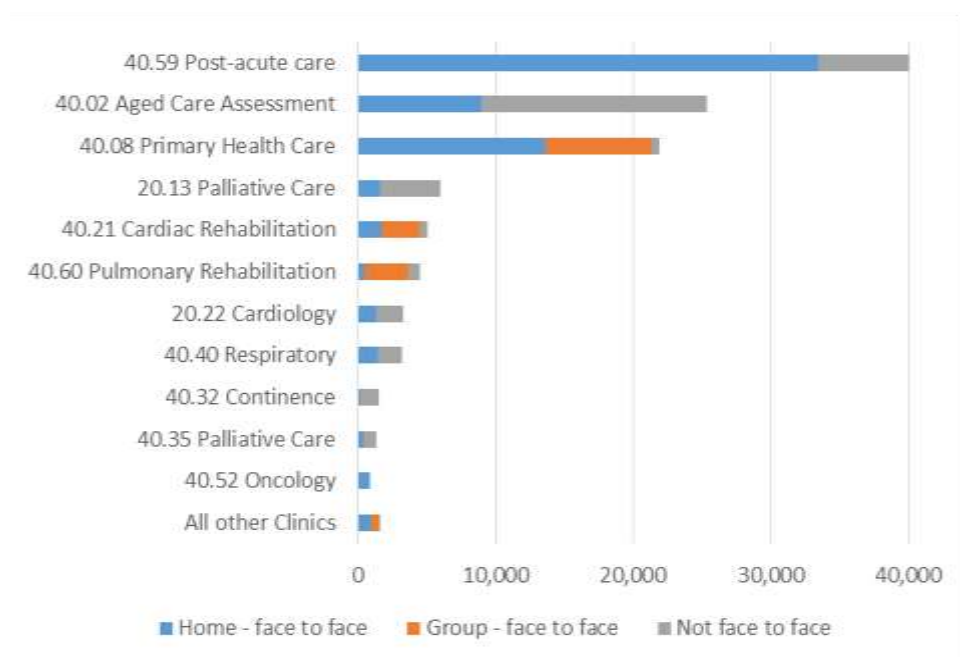
Source: EDWARD data. Inclusions: POWH.
Exclusions: Service Unit Full Name: SESLHD Area Wide HIV Community Team, The Albion Centre Infectious Diseases, The Albion Centre Infectious Diseases AH/CNS, The Albion Centre Psychology, The Albion Centre Sexual Health.

3.6 Activity at Royal Hospital for Women

3.6.1 Inpatient activity

In 2014/15 RHW had more than 12,000 separations, more than 40,000 bed days equating to a requirement for approximately 130 beds, with an average length of stay of 3.3 days, an average NWAU of 1.13 and an average Public Equivalent Model (NWAU excluding private)[124] 1.27.

Recent trends indicate between 2008/09 and 2014/15:
- Separations have been trending up
- Bed days were variable
- The average length of stay has been trending down
- Average NWAU and average Public Equivalent Model have had an overall downward trend.

The annual average growth rate in separations exceeds the population growth rate over the same period (2.1% and 1.3% respectively).

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[124] The Public Equivalent Model (PEM) is the National Weighted Activity Units (NWAU) without the application of private patient status discounts, therefore is a more accurate reflection of cost and complexity of care than NWAU.

T*able* 6: *Trends in acute inpatient activity for Royal Hospital for Women, 2008/09 to 2014/15*

Values	2008/2009	2009/2010	2010/2011	2011/2012	2012/2013	2013/2014	2014/2015	Trend	Change	AAGR
Separations	11,024	11,187	11,650	11,843	11,988	12,606	12,482		1,458	2.09%
Bed days	42,744	41,662	40,972	41,786	41,404	42,697	41,235		-1,509	-0.60%
Av length of stay	3.9	3.7	3.5	3.5	3.5	3.4	3.3		-0.6	-2.63%
NWAU 15	14,105	13,844	12,715	13,943	13,859	14,048	14,083		-21	-0.03%
Av NWAU v 15	1.28	1.24	1.09	1.18	1.16	1.11	1.13		-0.15	-2.07%
Public Equivalent Model 15	15,592	15,285	14,231	15,242	15,053	15,421	15,840		248	0.26%
Av PEM v 15	1.41	1.37	1.22	1.29	1.26	1.22	1.27		-0.15	-1.79%

Source: CaSPA FlowInfo v 15.0
Inclusions: RHW
Exclusions: SRGs: chemotherapy, renal dialysis, unqualified neonates, psychiatry - acute, psychiatry - non acute, ed only
Status: Note: PEM is Public Equivalent Model, it is a National Weighted Activity Units (NWAU) without the application of private patient status discounts

More detailed data analysis of RHW inpatient activity indicates:
- Age: patients aged 70 years and older accounted for 2% of separations, 3% of bed days
- Aboriginal: 2.5% of all patients identified as Aboriginal and/or Torres Strait Islander
- Source of referral: 71% of separations were referred from Outpatients, 11% by a medical practitioner and a further 10% from another hospital
- SRGs (Table 7):
  - Obstetrics accounted for 63% of all separations, 47% of all beddays. Of this activity:
    - Day only patients accounted for 39% of activity and had a very low cost and complexity (0.15 average PEM (NWAU excluding private))
    - Overnight patients were 12% of separations with a higher cost and complexity (0.80 average PEM (NWAU excluding private))
    - Multiple nights patients were nearly 50% of separations with a cost and complexity of 1.45 (average PEM (NWAU excluding private))
  - Gynaecology accounted for 22% separations, 11% of beddays. Of this activity:
    - Day only patients accounted for 58% of activity and had a relatively low cost and complexity (0.50 average PEM (NWAU excluding private))
    - Overnight patients were 20% of separations with a higher cost and complexity (1.05 average PEM (NWAU excluding private))
    - Multiple nights patients were 22% of separations with a cost and complexity of 2.05 (average PEM (NWAU excluding private))
  - Qualified neonates accounted for 7% separations and 12% of bed days. Of this activity 87% of separations stayed multiple nights and had a cost and complexity of 1.71 (average PEM (NWAU excluding private))
  - Perinatology accounted for 3% separations and 24% of bed days with the vast majority staying multiple nights with a very high cost and complexity of 12.29 (average PEM (NWAU excluding private))
- HDU involvement: very few patients were admitted to HDU (5%), those who did had a relatively high average PEM (NWAU excluding privates) (2.36)
- NICU and/or SCN involvement: 40% of patients aged less than 1 year were admitted to SCN, 8% were admitted to NICU with a further 34% spending time in both SCN and NICU. Not surprisingly babies spending time in NICU had a very high average PEM (NWAU excluding privates) (9.30)
- Separation mode: the vast majority of patients were discharged home (97%) and
- Insurance Status: most patients were non-chargeable (69%).

Table 7: Inpatient activity by Service Related Group, Royal Hospital for Women, 2014/15

SRGv4.0	Seps	Bed days	ALoS	NWAU 15	Av NWAU v15	PEM 15	Av PEM v15
72 - Obstetrics	7,831	19,438	2.5	5,939	0.76	6,805	0.87
71 - Gynaecology	2,714	4,660	1.7	2,358	0.87	2,603	0.96
73 - Qualified Neonate	653	3,758	6.1	753	1.15	870	1.33
75 - Perinatology	505	11,055	28.5	4,247	8.41	4,677	9.26
All other SRGs	776	2,323	3	786	1.01	886	1.14
Total	12,482	41,235	3.3	14,083	1.13	15,841	1.27

Sources, inclusions and exclusions refer to Table 6

3.6.2 Ambulatory activity

In 2014/15 RHW had more than 85,000 occasions of service. Analysis of this activity shows:
- Settings: the vast majority of activity was provided in hospital based outpatients departments
- Modality: all was provided face-to-face
- Groups (based on the predominant nature of the health service being provided) included allied health and/or clinical nurse specialist intervention (Series 40 clinics) (accounting for 59% of all occasions of service), medical consultations (Series 20 clinics) (accounting for 40%). Note some Procedural (Series 10 clinics) and Diagnostic (Series 30 clinics) were excluded as that activity was included in other Sections of this Plan or does not require a clinic space (refer to Section 4.4.2 Base case and scenario projections).

Figure 17: Occasions of service by clinic type, Royal Hospital for Women, 2014/15

Midwifery and maternity clinics account for 45% of all ambulatory care
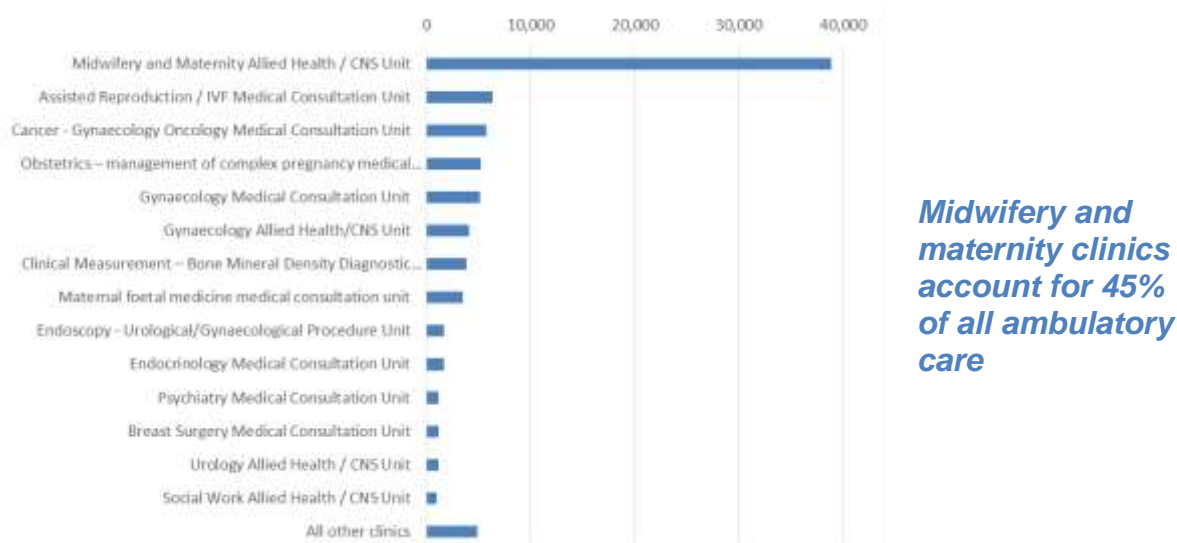
Source: HIE
Inclusions: RHW
Exclusions: Clinic Class: 10.02 Interventional imaging, 10.03 Minor surgical (Procedure Clinic), 10.11 Chemotherapy treatment; 30.01 Radiology / General Imaging Diagnostic Unit, 30.02 Magnetic Resonance Imaging (MRI) Diagnostic Unit, 30.03 Computerised Tomography (CT) Diagnostic Unit, 30.05 Pathology (Microbiology, Haematology, Biochemistry).

It is acknowledged ambulatory care data for The Royal is:
- Not necessarily complete. However, in recent years SESLHD has undertaken a vigorous campaign to improve recording of non-admitted activity and while the 2014/15 data is considered to be a reasonably accurate reflection of activity, where there has been known missing data a "best guess" using booking data has been used
- Recording data in previous years has been problematic. This has meant prior year's data is not robust so is unreliable for trend analysis. It is envisaged data recording will continue to improve enabling more detailed trend analysis to be conducted in future years. In the interim

projections have used 2014/15 data as the base year then applied a growth rate.

For more information refer to Section 4.4.2 Base case and scenario projections.

Obstetrics Ultrasound service (RHW)

In 2015, there were nearly 17,000 ultrasound scans. The overall trend shows that inpatient scans are increasing while outpatient scans are declining. The proportion of outpatient and inpatient scans has also changed in the previous six years with more inpatient scans being performed. Inpatient scans are increasing by 3.0% per year. While outpatient scans are declining it still represents the majority of activity at 84%. It is important to note that outpatient's scans have declined because of safety concerns regarding the ultrasound machines so activity was forced to reduce over previous years. The ultrasound machines were replaced recently and is reflected in the recent data which shows outpatient activity increasing.

3.7 Activity at Eastern Suburbs Mental Health Service

3.7.1 Inpatient activity

In 2014/15 Eastern Suburbs Mental Health Service had nearly 1,500 inpatient mental health separations, nearly 25,000 bed days with an average length of stay of 17.1 days (Table 8).

Recent trends indicate between 2008/09 and 2014/15 shows:
- Separations has been relatively flat
- Bed days has remained relatively stable with a slight decline
- Average length of stay has been stable but overall trending down. Routinely the average length of stay is not used as measure for analysing mental health activity as the diversity of patients seen in the service is enormous, however, the slight decline in the average length of stay is generally reflective of the trends
- Average annual growth rate of separations is 1.3% and bed days have declined by 0.8%.

Table 8: Trends in Mental Inpatient activity for Eastern Suburbs Mental Health Service, 2008/09 to 2014/15

Data	2008/2009	2009/2010	2010/2011	2011/2012	2012/2013	2013/2014	2014/2015	Trend	Change	AAGR
Separations	1,334	1,393	1,371	1,307	1,465	1,683	1,432		98	1.2%
Bed days	25,710	25,253	23,571	22,961	25,118	25,739	24,478		-1,232	-0.8%
Average length of stay	19.3	18.1	17.2	17.6	17.1	15.3	17.1		-2	-2.0%

Source: Flowinfo V15.0
Inclusions: 82 Psychiatry Acute SRG
Exclusions: ED only

More detailed analysis of Eastern Suburbs Mental Health Service inpatient mental health activity in 2014/15 indicates:
- Age: patients aged between 16 and 44 accounted for 59% of separations, 49% of bed days
- Source of referral: 79% of separations were referred from emergency
- Complexity: The average PEM has overall slightly declined but has remained fairly consistent at 3.8 and the average NWAU has followed the same trend at 3.7.
- Length of Stay: overnight night patients were the vast majority of separations (90%)
- Flow: nearly half of the presentations came from Randwick LGA at 49% followed by Botany Bay at 14%
- Diagnosis: Within the 82 Psychiatry Acute SRG Schizophrenia Disorders and Major Affective Disorders DRGs account for 45% of activity
- Insurance Status: the majority patients were non-chargeable (90%).

It is important to note that the very long stays are not captured well in the data as their length of stay can exceed 365 days.

3.7.1 Ambulatory activity

In 2015/16 Eastern Suburbs Mental Health Service had more than 51,000 face-to-face visit client contacts (the number of visits by a client) for ambulatory mental health services for more than 8,000 clients.

These services were provided from four locations including
- Randwick Campus
- Maroubra Junction Community Mental Health Centre
- Bondi Junction Community Mental Health Centre and
- Headspace at Bondi Junction.

Similar to other ambulatory care data it is acknowledged the
- Data set is incomplete. Factors that have impacted the under reporting of activity include:
  - Clinics not recording notes and activity in CHOC eMR and
  - Data entry practices of clinicians
  - The quantum of underreporting, based on clinic availability and throughput, has been estimated by Eastern Suburbs Mental Health Service at 10%. This additional activity has been accounted for in the projected activity
- Recording data in previous years has been problematic so is unreliable for trend analysis.

Analysis of client contacts indicates:
- Number of patients: approximately 8,000 patients
- Age: patients aged older than 70 years accounted for less than 15% of activity
- Aboriginal and/or Torres Strait Islander people accounted for 4.9% of all client contacts
- Financial Group: nearly 99% of activity was non-chargeable
- Preferred language: 90% of clients identified their preferred language was English, with 2.8% requiring an interpreter
- Service Unit: the service units recording the most client contacts were ES Acute Care Team POWH (34%), ES Older Persons Ambulatory Mental Health POWH (11%), ES Adolescent Mental Health Service POWH (9%), ES Adult Ambulatory Mental Health POWH (9%), ES Child & Family Mental Health Service POWH (8%) and ES Case Management Assessment Team MCMH (7%).

Figure 18: Non-admitted client contacts, by clinic, Eastern Suburbs Mental Health Service, 2015/16
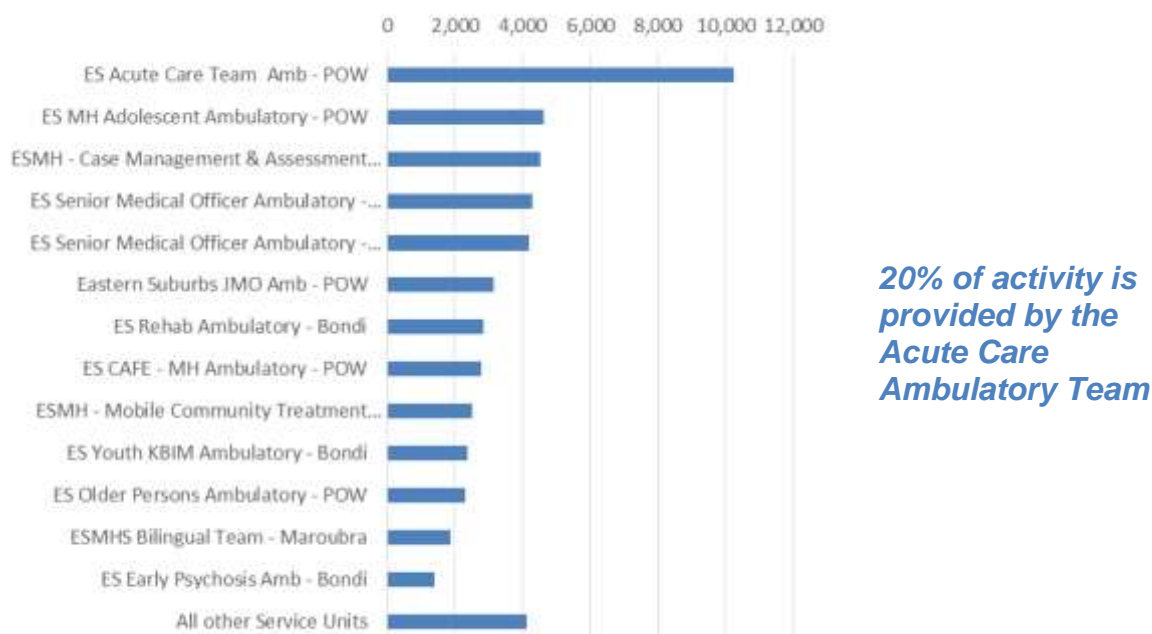
20% of activity is provided by the Acute Care Ambulatory Team

Source: HIE. Inclusions: Eastern Suburbs Mental Health Service, Client present status: present.
Locations: •Randwick Campus, Maroubra Junction Community Mental Health Centre , Bondi Junction Community Mental Health Centre and Headspace at Bondi Junction.

3.8 Emergency department activity

In 2014/15 POWH had more than 55,000 presentations to its ED.

Recent trends indicate between 2008/09 and 2014/15 presentations have been trending up, most noticeably in the past four years (see Table 9). More recent data suggests this trend is continuing.

The annual average growth rate (4.2%) is higher than the population growth rate (Section 2.2.1: Demographic trends in our population) and inpatient separations over the same period (Section 3.5.1: Acute inpatient activity).

Table 9: Trends in emergency department presentations for Prince of Wales Hospital, 2008/09 to 2014/15

Triage Category	2008/2009	2009/2010	2010/2011	2011/2012	2012/2013	2013/2014	2014/2015	Trend	Change	AAGR
0	15	32	7	268	98	15	130		115	43.3%
1	573	548	433	387	418	448	716		143	3.8%
2	2,958	3,280	2,581	2,752	3,173	4,492	4,958		2,000	9.0%
3	17,808	18,996	18,767	19,283	21,145	24,659	25,796		7,988	6.4%
4	18,060	17,922	18,457	18,384	20,007	22,026	22,466		4,406	3.7%
5	4,298	3,376	3,525	4,536	6,098	2,253	1,981		-2,317	-12.1%
Total	43,712	44,154	43,770	45,610	50,939	53,893	56,047		12,335	4.2%

Source: NSW Health's CaSPA_ED_Activity_Analysis_Tool_v1_1

Of people presenting to emergency in 2014/15[125]:
- The majority of ED presentations came from surrounding LGAs at 82%. 48% came from Randwick LGA and 16% came from Botany Bay LGA, 10% from Waverley and 3% Woollahra and 2% from Sydney
- The residents from Botany Bay LGA have a higher presentation rate than the residents from Randwick LGA despite the greater volume of presentations from Randwick LGA. For example,

[125] NSW Health's CaSPA_ED_Activity_Analysis_Tool_v1_1

there were just over 8,000 presentations from the residents of Botany Bay with population size of 41,000 people compared with 24,000 presentations from the residents of Randwick with a population size of 137,000 people

- Most people presenting were aged 16 to 44 years (51%), followed by 45 to 69 year group (27%) with 70 to 84 year olds (15%) and 85 year old and older (7%)
- Most people arrived using a used private vehicle at 72%, with a further 25% arriving by ambulance
- 70% arrived between 9.00am and 9.00pm, with the peak time between 9am and 3pm (Figure 21). The busiest day is Monday followed by Sunday
- Triage Category 3 has the highest proportion of presentations at 46% and nearly half of these presentations are subsequently admitted. Triage Category 4 represents 40% of total presentations which is significant proportion of presentations, however, the growth in demand is in the higher acuity triage categories of 2 and 3
- Presenting problem by major diagnostic block: 18% Injury single site, 12% Digestive System Illness, 10% Circulatory System Illness (Figure 22)
- There are around 2,500 Mental Health presentations per year, which equates to on average 7 presentations per day and annually represents 5% of ED presentations. The overall length of stay for Mental Health presentations is 4.5 hours and those who are subsequently admitted have longer length of stay of 5.8 hours
- Most patients stayed in emergency less than 4 hours (69%) accounting for 43% of all admissions from emergency (Figures 19-21)
- The admitted average length of stay was significantly higher than those not admitted 2.7 hours vs. 5.8 hours. The data also shows that the length of stay has declined substantially for both admitted and non admitted. Since 2009/10, the admitted length of stay has declined from 8.3 hours to 5.8 hours in 2014/15 and for non admitted 4.1 hours to 2.7 hours in 2014/15
- The admission rate is 35% compared to the peer group average of 37%
- Presentations that were subsequently admitted to an inpatient; 25% were admitted into EDSSU, 9% to MAU and the rest were admitted to other wards in the hospital
- Admitted to Medical Assessment Unit (MAU) regardless of the type of MAU (cardiac, geriatric or respiratory)
  - Average age for these patients was 76 years (with people aged 70 years and older accounting for 75% of MAU activity
  - Average length of stay was 2 days consistent with the NSW MoH policy directives for this bed type (although there is significant variation in the length of stay between the different MAUs)
  - 56% of MAU patients are discharged home after their MAU ward stay.
- Admitted to the Short Stay Unit (SSU)
  - Age profile differs from the MAUs, the SSU have a younger age profile with the average age at 58 years old, the 16-69 age group accounting for 60% of activity
  - The overall length of stay for is 16 hours which is consistent with the NSW MoH policy directives for this bed type
  - 99% of EDSSU patients are discharged home after their EDSSU ward stay
- The ED representation rate is 2.7%.

Figure 19: Average length of stay (hours) for emergency department presentations by Triage Category, Prince of Wales Hospital, 2014/15
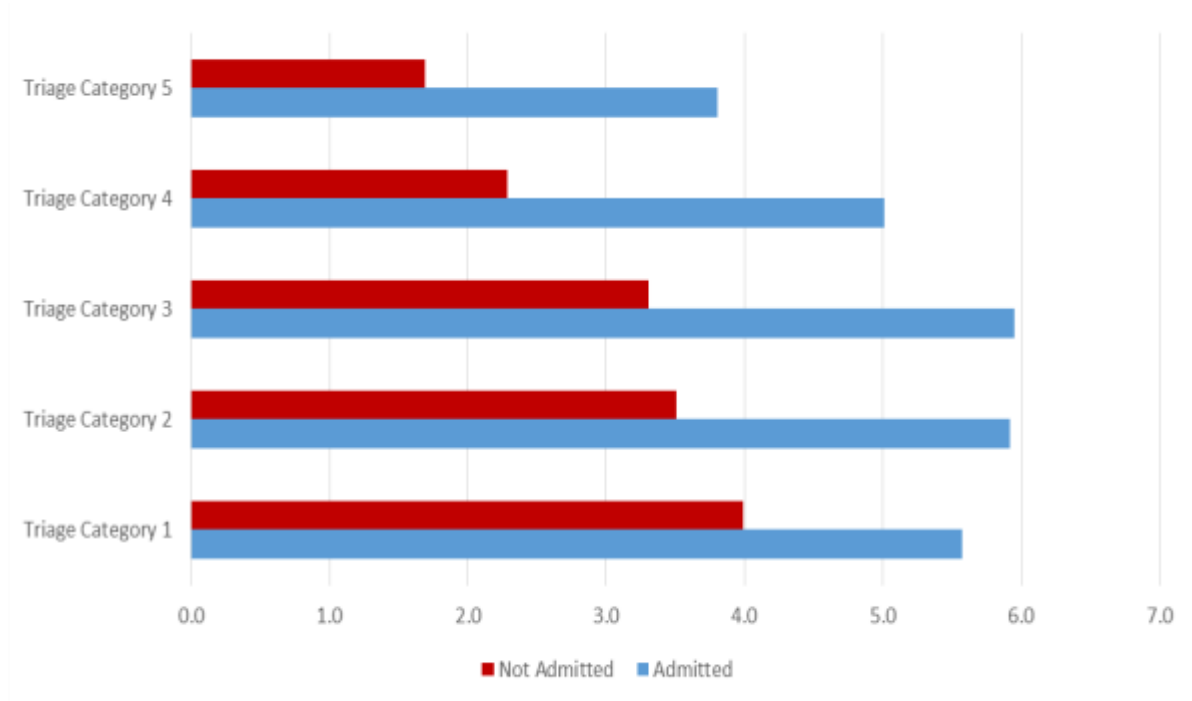
Source: NSW Health's CaSPA_ED_Activity_Analysis_Tool_v1_1

Figure 20: Average length of stay for emergency department presentations, Prince of Wales Hospital, 2014/15
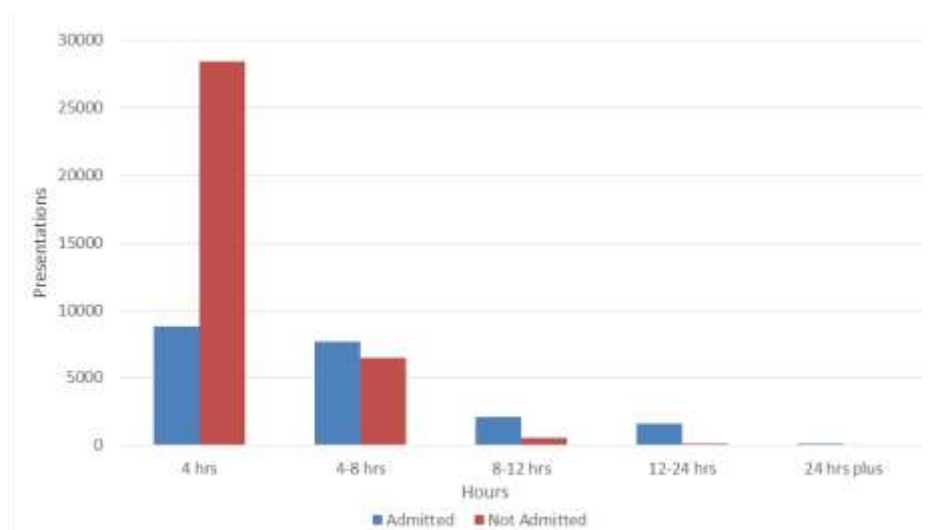
Most patients are treated in under four hours

Source: NSW Health's CaSPA_ED_Activity_Analysis_Tool_v1_1

Figure 21: Emergency presentations by time of arrival and time in emergency, Prince of Wales Hospital, 2014/15
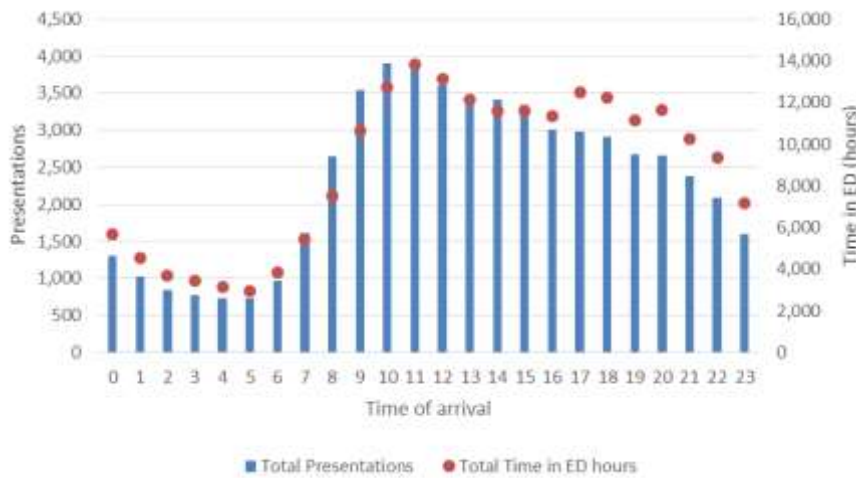
Most presentations occur during the day, with a similar pattern for time in ED, except for a lag in the evening

Source: NSW Health's CaSPA_ED_Activity_Analysis_Tool_v1_1

Figure 22: Emergency department presentations by Major Diagnostic Block, Prince of Wales Hospital, 2014/15
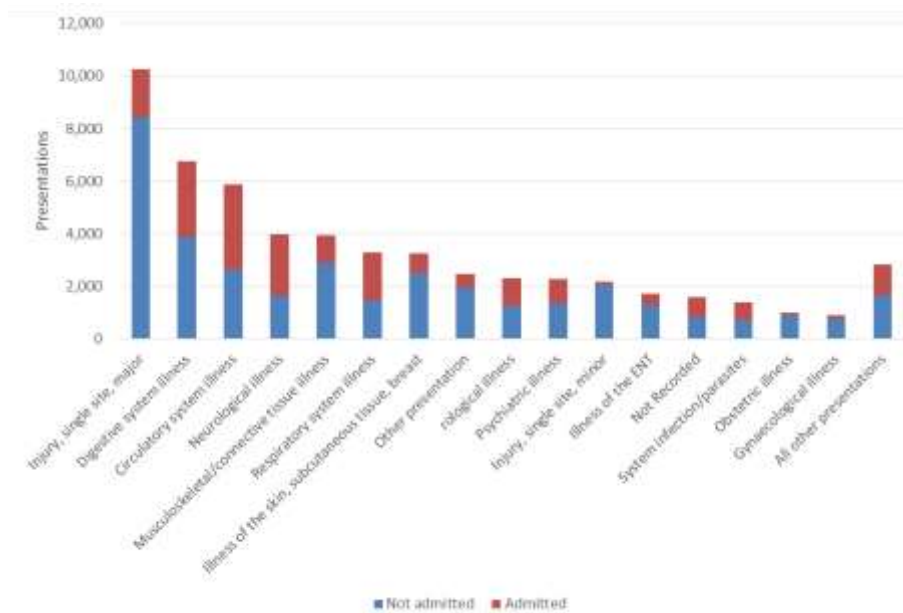
Single site injuries, digestive and circulatory system diseases account for nearly 40% of all presentations

Source: NSW Health's CaSPA_ED_Activity_Analysis_Tool_v1_1

3.9 Diagnostic and procedural services

3.9.1 Operating theatres / procedure rooms / recovery

In 2013/14 there were more than 10,000 theatre case for patients from POWH (including Murnaghan Urology Centre) with 60% being elective cases.

In addition, more than 5,000 non-admitted patients attended the Billington Centre for gastrointestinal scopes.

It is noted the number of cases exceeds the number of surgical separations due to some patients requiring multiple operations in a single episode of care (e.g. for SRGs neurosurgery, wrist and hand surgery, gastrointestinal surgery, head and neck surgery and tracheostomy, etc) and a very small number of non-admitted patients requiring surgery without being admitted.

The main theatre complex also accommodates patients from RHW, SCH, Eastern Heart Clinic, and Prince of Wales Private Hospital.

Table 10: Operating theatres and Procedure Rooms, Randwick Hospital's Campus, 2013

	Facility	Physical Rooms	Rooms in use	After hours (hours of operation)
Randwick Operating Suite	POWH	8	8	4 teams to 6pm 2 teams 6-10pm 1 team overnight
	RHW	5	3.5 1 emergency caesarean	1 team 6-10pm 1 team overnight
	SCH	6	6.5	
Murnaghan Urology Centre	POWH / SCH	5	3.5	No after-hours / emergency
Billington Centre (Endoscopy Suite)	POWH	3	2	On-call after hours & weekend
Cardiothoracic	POWH / SCH	3	2	On-call after hours & weekend
	POWPrivate			7 sessions / week
Private Hospital	POWPrivate	9	Not known	Not known
Eastern Heart Clinic		Not known	Not known	Not known

3.9.2 Medical imaging

Shared medical imaging

Medical imaging provides a comprehensive range of diagnostic, consultative and interventional services to POWH, RHW and SCH 24 hours per day

In 2014/15 there were around 129,000 medical imaging scans performed (including mobile exams), general X Ray account for 47% of activity followed by CT exams (14%).

From 2009/10 to 2014/15, Ultrasound examinations are increasing the most at 7.4% per year followed by interventional exams at 4.4% per year (see below for interventional radiology). The significant growth in ultrasound services is attributable to increased demand from the adult inpatient cohort (8.8% growth per year) and paediatric outpatient cohort growing at 22.4% per year (from 990 to 2,700 examinations, an average increase of around 350 examinations per year) and this growth is expected in the continue into future, particularly for the paediatric cohort as this modality (and MRI) does not use or produce ionising radiation which is an consideration for clinicians as children are more radiosensitive than adults and they also have a longer life expectancy over which they may develop cancer from exposures to ionising radiation.

CT examinations are increasing by 2.2% per year. While CT examinations are third highest growth it represents a significant volume of work for the Department with over 18,000 CT exams performed per year. MRI examinations are overall slightly decreasing, however when the data is segmented,

inpatients are growing substantially from 4,552 to 5,955 examinations representing an overall 5.5% growth per year (adults 8.5% growth per year and 2.8% growth per year for paediatrics) while outpatients has declined slightly over the previous six years. The nature of the inpatient scans are often more complex, the patients are generally sicker, the resources required greater and therefore they generally take longer.

The data also shows that on average 58% of examinations are for inpatients (averaging 1 examination for every inpatient (including POWH, RHW and SCH) with many emergency presentations have imaging during their hospital stay.

Therefore any increases in hospital activity or the complexity of patients will flow on to greater demand for medical imaging.

Please note that the activity data analysed includes POWH, RHW and SCH.

Interventional Radiology

Interventional radiology has increased at 4.4% per year to over 3,000 procedures a year and interventional neuroradiology activity has nearly doubled from 500 to nearly 1,000 procedures a year equating to 14.1% increase per year and this growth is expected to continue into the future.

There has been tremendous advances in interventional radiology which has been due to the emergence of new imaging technologies and interventional devices. Interventional radiology is increasingly being applied to a vast number of medical conditions that are otherwise performed using invasive methods. Interventional neuroradiology is also expected to increase significantly in the future as the patient cohort requiring access to thrombolysis and thrombectomy for stroke needs is likely to expand with the aging of the population, positive patient outcomes for this intervention and additionally the District's intent on attaining statewide stroke centre status.

Table 11: Medical Imaging Activity by Paediatric and Inpatient proportions, Randwick Hospitals Campus 2014/15

Modality	No. Examinations Paediatrics	% Paediatrics	No. Examinations Inpatient	% Inpatient
General X-Rays	15,091	25%	30,078	49%
Fluoroscopic Exams	1,795	29%	4,900	78%
CT Exams	1,439	8%	12,177	67%
Ultrasound Exams	4,381	36%	4,915	41%
Interventional	302	9%	1,989	58%
MRI Exams	4,007	35%	5,955	52%
Mobile Exams	4,397	27%	15,032	93%
Mammography Exams	0	0%	91	7%
Total	31,362	24%	75,137	58%

Source: Radiology Information System, December 2015. The above table excludes INR procedures.

Figure 23: Prince of Wales Hospital Medical Imaging Activity, Randwick Hospitals Campus*, 2010/11 to 2014/15*
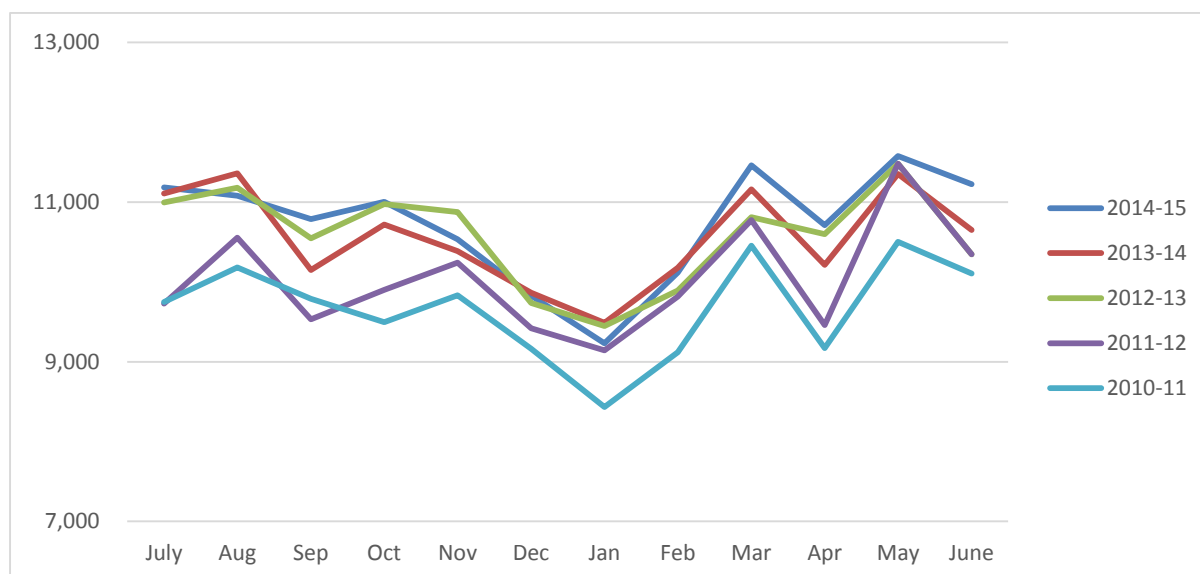
3.9.3 Nuclear Medicine

Nuclear Medicine is a shared service for POWH and SCH, and also provides services to the other hospitals on Randwick Campus (RHW and Prince of Wales Private Hospital), as well as for Sydney/Sydney Eye Hospital, War Memorial Hospital Waverley and Justice Health.

In 2014/15, there were just over 4,000 examinations with around 34 different examinations performed. The proportion of adult and paediatric activity has remained fairly stable over the previous five years with the adults representing the majority of activity at 77% (n=3,000).

In 2014/15, PET scans and bone scans represented the highest volume of activity around 1,100 scans and 950 scans respectively followed by cardiac stress tests and renal function examinations.

Between 2010/11 and 2014/15, the overall growth for the department is 3.4% per year, from 3,500 to 4,000 examinations. Segmenting the data by adult and paediatric shows that paediatric activity has increased by 3.6% per year from 830 to 950 examinations. Lymphoscintigraphy and thyroid investigations (for adults) have experienced the highest growth over the period at 24.6% and 20.4% per year respectively.

The Department provides services to outpatients (approximately 60% of patients), inpatients and those referred from the ED.

Similar to medical imaging, any increase in hospital activity and/or the complexity of patients will flow on to greater demand for nuclear medicine.

3.10 Other clinical services

3.10.1 Renal dialysis

The number of people being dialysed in the northern SESLHD catchment was 215 in 2014[126]. Of these patients, more than 50% had their dialysis managed by Prince of Wales / War Memorial Waverley, with the remainder of people being managed by either St Vincent's Public Hospital or SCH.

Table 12: Renal dialysis chairs, northern SESLHD hospitals, 2015

Facility	Beds/ Chairs	Home training
POWH Dialysis, 3 West	12	
War Memorial – Satellite dialysis unit	10	3
Total northern SESLHD dialysis chairs	22	3

Source: POWH bed table report 2015

3.10.2 Chemotherapy

In 2014/15 POWH and RHW combined had more than 5,800 occasions of service for non-admitted chemotherapy services[127] and an additional 450 day only inpatient separations for chemotherapy.

The patient activity related to delivering chemotherapy was provided from both chemotherapy chairs and inpatient beds.

It is planned that the chemotherapy beds/chairs will relocate from POWH and RWH to the Nelune Comprehensive Cancer Centre (in the Bright Alliance Building) once commissioned. The Nelune Comprehensive Cancer Centre has been designed for a total capacity of 45 bed/chairs.

Table 13: Chemotherapy chairs and beds, northern SESLHD geographic area, 2016

Facility	Chairs/Beds
Northern SESLHD facilities	
POWH Oncology Day Clinic	16 (Monday to Friday) 10 (Saturday)
POWH Haematology Short Stay Unit	6
RHW Chemotherapy Unit	18 (Monday to Friday) 12 (Saturday)
Sub-total northern SESLHD facilities	28-40
Other facilities**	
St Vincent's Kinghorn Cancer Centre	19
Sydney Children's Randwick, Kids Cancer Centre	12
Prince of Wales Private Oncology Day Unit	6
Total	37

Source: POWH Cancer Services 2016.

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[126] ANZData, 2015, Australian and New Zealand Dialysis and Transplant Registry Annual Report, Appendix B: Prevalent Data Tab A6, 2014. URL: http://www.anzdata.org.au/v1/report_2015.html . Accessed: 28 September 2015
[127] Source: OrBiT. Inclusions: Prince of Wales Hospital and Royal Hospital for Women; Establishment Type: Cancer - Chemotherapy / Other Cancer Treatment Procedure Unit (NHDD Code 10.11)

3.10.3 Radiotherapy

The Department of Radiation Oncology is a multidisciplinary service providing care to adults and children with both malignant and non-malignant conditions. Predominantly an outpatient/ ambulatory service, the department provided more than 20,000 non-admitted occasions of service in 2014-2015[128] as well as a small number of inpatient separations.

Radiotherapy services are being provided from The Bright Alliance Building.

3.11 Comparative Peer Group analysis

In relation to Peer Group hospitals (classified as other Principal Referral Hospitals[129]), POWH inpatient care is comparable.

POWH provides approximately 7% of total separations and bed days of these Peer Group hospitals (Refer to Appendix 6: Additional data).

Variances that do exist between Prince of Wales and Peer Group Hospitals show Prince of Wales:
- Age Groups (excluding 0-15 years age group): treats similar percentages of age groups but all age groups had a shorter length of stay, particularly patients aged 85 years and older (5.0 days versus 5.9 days for Peers)
- Source of referral: is similar for Emergency (61% versus 60% for all Peer Group Hospitals), with a significantly higher percentage of patients referred by Outpatients (30% versus 9%), offset by a significantly lower percentage of patients were referred by a Medical Practitioner (7% versus 23%)
- Urgency of admission: there is a slightly higher percentage of planned admissions (36% versus 30% for Peers)
- Hospital in the Home: slightly higher percentage of patients accessing Hospital in the Home (3% versus 2% for Peers)
- Length of Stay: there is a higher percentage of patients staying day only and/or less than 24 hours (54% versus 50% for Peer Groups)
- Patients who stay multiple nights: have higher average acuity (average Public Equivalent Model (NWAU excluding private) 2.97 versus 2.69 for Peers) but the average same length of stay
- Planned and unplanned surgery: has higher average acuity but the same average length of stay as Peer Hospitals.

3.12 Patient perspectives of care

Patient survey results show patients attending POWH or the RHW either as an adult inpatient or ED presentation have a slightly better overall experience than patients attending other Principal Referral Hospitals.

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[128] Source: OrBiT. Inclusions: Prince of Wales Hospital; Establishment Type: Cancer - Radiation Oncology Treatment Procedure Unit (NHDD Code 10.12)
[129] Principal Referral Hospitals include: Bankstown/Lidcombe, Concord, Gosford, John Hunter, Liverpool, Nepean, Royal North Shore, Royal Prince Alfred (including Institute of Rheum and Orthopaedics), St. George, St. Vincents – Public, Westmead, Wollongong (inc'g Coll. Care)

3.12.1 Adult Admitted Patient Survey – Prince of Wales Hospital[130]

Most patients reported their overall experience of care in POWH as 'very good' (65%) or 'good' (29%), with 80% saying they would speak highly of their hospital experience if asked by family or friends.

Patients gave mainly positive ratings for communication and information, being treated with kindness and respect, comprehensive and whole-person care, trust and confidence.

Although similar to other principal Referral Hospitals, there appears to be room for improvement in terms of some aspects of access and timeliness, physical environment and comfort, communication and information, engagement and participation, coordination and continuity, assistance and responsiveness, safety and hygiene.

The least positive ratings were given for questions that focused on hospital food including suitability for dietary needs, information regarding patient's rights, ability to get assistance in a reasonable timeframe, opportunity to discuss worries and fears.

3.12.2 Adult Admitted Patient Survey – Royal Hospital for Women[131]

Most patients reported their overall experience of care in RHW as 'very good' (73%) or 'good' (24%), with 88% saying they would speak highly of their hospital experience if asked by family or friends.

Patients gave mainly positive ratings for access and timeliness, communication and information, being treated with respect, dignity and kindness, comprehensive and whole-person care, trust and confidence.

Although similar to other principal Referral Hospitals, there appears to be room for improvement in terms of some aspects of physical environment and comfort, information regarding medication side effects, engagement and participation, coordination and continuity, assistance and responsiveness, safety and hygiene.

The least positive ratings were given for questions that focused on hospital food particularly not being suited for dietary needs, information regarding patient's rights, correspondence between hospital and family doctor, ability to get assistance in a reasonable timeframe, opportunity to discuss worries and fears, doctor's hand hygiene.

3.12.3 Emergency Department Patient Survey[132]

Most ED patients reported their overall experience of care as 'very good' (77%) or 'good' (23%). A majority of patients rated the doctors and nurses who treated them as 'very good' (70% and 69% respectively) and nearly three quarters (74%) said they would speak highly of their ED experience if asked by family or friends.

Patients gave positive ratings for questions about being provided with the 'right amount' of information about their condition or treatment, their interactions with ED health professionals such as being treated with respect, kindness and care and expressed confidence and trust in ED health care professionals.

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[130] NSW Bureau of Health Information, Adult Admitted Patient Survey results for All Inpatients Jan – Dec 2014. URL: http://www.bhi.nsw.gov.au/healthcare_observer
[131] NSW Bureau of Health Information, Adult Admitted Patient Survey results for All Inpatients Jan – Dec 2014. URL: http://www.bhi.nsw.gov.au/healthcare_observer
[132] NSW Bureau of Health Information, Emergency Department Patient Survey results for April 2014 to March 2015. URL: http://www.bhi.nsw.gov.au/healthcare_observer

There appears to be room for improvement in some aspects of access and timeliness, physical environment and comfort, communication and information, engagement and participation, taking account of family and home situation when discharge planning, coordination and continuity of care, assistance and responsiveness.

Less positive ratings were generally given for questions focusing on interactions with reception staff, information regarding patient's rights, discussion of medication side effects, sharing of medical history between health professionals, discussion of worries or fears, hand washing by health professionals.

In terms of care needs of the patients surveyed 68% thought their condition could not have been treated by a GP

Reasons for attending emergency
- 28% said they attended emergency as they needed advice from a health professional
- 28% thought their condition was serious
- 21% because their GP was closed or they couldn't see them
- 20% were brought by ambulance GP was closed
- Only 1% attended as it was cheaper than other options.

3.13 Flows to other hospitals

3.13.1 Outflows to private hospitals and day procedure centres

When residents of northern SESLHD are hospitalised, more than 50% do so in private hospitals or day procedure centres (Table 14 and Figure 24).

These outflows totalled nearly 65,000 separations (approximately 70% planned surgery / procedure) equating to nearly 390 beds so are critical in relieving demand at POWH.

However, the northern SESLHD residents treated in private hospitals receive less complex and /or costly care than those treated at POWH. This is evident in privately hospitalised patients having:
- A significantly shorter average length of stay (1.9 days versus 4.4 at POWH)
- A lower average PEM (NWAU excluding private) (0.82 versus 1.34 at POWH), and
- The "Top 10" SRGs by separation being:
  - 84 - Rehabilitation
  - 16 - Diagnostic GI Endoscopy
  - 50 - Ophthalmology
  - 15 - Gastroenterology
  - 71 - Gynaecology
  - 49 - Orthopaedics
  - 54 - Non Subspecialty Surgery
  - 52 - Urology
  - 72 - Obstetrics
  - 48 - ENT & Head and Neck.

3.13.2 Outflows to other public hospitals

There were more than 34,000 separations of northern SESLHD residents attending other public hospitals (Table 14 and Figure 24) in 2014/15. Most of these patients were treated at public facilities within or near the District's geographic boundaries, namely:
- St Vincent's Public Hospital nearly 14,000 separations predominantly for residents in close proximity to the hospital (i.e. Sydney East SLA and Woollahra and Waverley LGAs)
- Royal Hospital for Women (part of SESLHD) nearly 9,000 separations overwhelmingly for obstetrics with some gynaecology

- SCH (part of SCHN) more than 3,500 separations solely for children
- Sydney/Sydney Eye (part of SESLHD) nearly 2,000 separations predominantly for ophthalmology and hand surgery and
- Royal Prince Alfred Hospital (part of Sydney Local Health District) more than 1,500 separations for a range of SRGs for residents of Sydney East SLA and Randwick LGA.

Table 14: Activity for residents of northern SESLHD LGAs, by hospital, 2014/15

	Seps	Bed days	ALoS	NWAU 15	Av NWAU v 15	Public Equivalent Model 15	Av PEM v 15
Private hospitals*	64,590	120,425	1.9	34,918	0.54	52,813	0.82
Non SESLHD public hospitals	22,826	99,035	4.3	23,492	1.03	26,877	1.18
POWH (inc'g Coll Care)	22,628	98,456	4.4	27,477	1.21	30,413	1.34
Other SESLHD hospitals	11,640	43,639	3.7	9,982	0.86	11,207	0.96
Total	121,684	361,555	3.0	95,868	0.79	121,308	1.00

Source: FlowInfo v 15.0
Inclusions: Residents of northern SESLHD LGAs Botany Bay, Randwick, Sydney (part), Waverley, Woollahra
Exclusions: SRGs – chemotherapy, renal dialysis, unqualified neonates, psychiatry - acute, psychiatry - non acute. ED Status: excluding ED only activity. ABF Service type: Acute Mental Health, Non-Acute Mental Health
* Private hospitals including day procedure centres

Figure 24: Separations for residents of northern SESLHD LGAs, by SRG and hospital, 2014/15
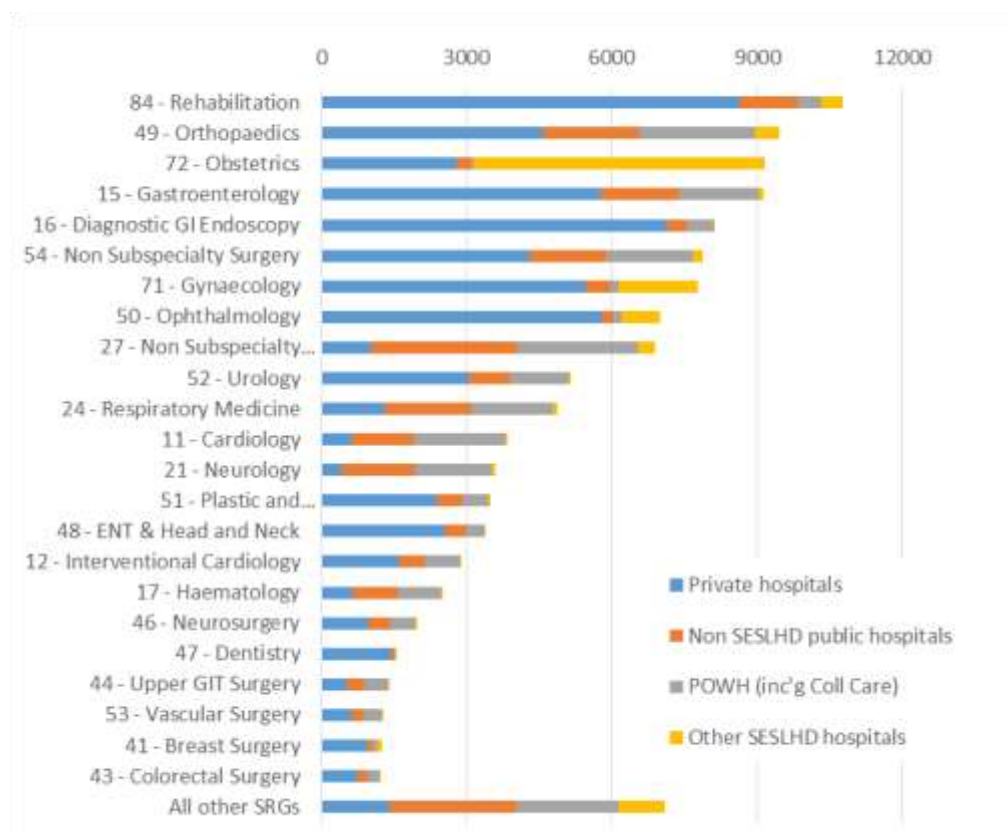
Source, inclusions and exclusions refer to Table 14

3.14 Research

"We are committed to research. Research is the backbone of our ability to provide leading-edge healthcare to our patients and communities."

Michael Still, Chair of the Board, SESLHD

Research is key to enhancing clinical care for several reasons. Firstly, the best clinicians are research active, so a strong research environment helps attract the best clinicians. Secondly, leading research active clinicians provide training and mentoring to the workforce, thus reinforcing a research culture. And thirdly, a research culture creates a workforce that is willing to both question the orthodoxy and more importantly to implement evidence-based improvements to clinical practice and patient care.[133]

Current Status

Randwick Hospitals and Health Services' Campus is committed to producing and increasing the range of high quality research in partnership with universities and other peer organisations, including in tertiary specialist centres that are recruitment sites for nationally significant work in Oncology, Haematology and Neurology as well as niche areas such as spinal cord injury, hyperbaric medicine and kidney transplantation.

The campus has strong links with Universities, principally UNSW and UTS, Sydney University, Australian Catholic University and Macquarie University, and is a co-founder (with UNSW) of the three campus independent Medical Research Institutes. There are also linkage and inputs to major national databases such as ICNARC, AUSCR, SNAP and Biogrid, and to Emergency Care Institute and Agency for Clinical Innovation Networks e.g. stroke, respiratory, transition, urology, as well as access to a wide range of data, including patient personal health records, medication records, biochemistry, haematology, radiology, human specimens – the HSA biobank, staffing/ workforce data, MosaiQ (cancer data), all with data linkage potential.

The SESLHD Research Office supports the Human Research Ethics Committee, supports HREC applicants with study design, manages research governance reviews across the District and manages arrangements with the University of NSW under the Affiliation Agreement.

Alliances and networks that facilitate timely translational research to practice on the campus include:
- Health Science Alliance[134], which represents a unique partnership between 14 independent entities, located at the Randwick Hospitals Campus, UNSW and the University of Technology, Sydney (UTS)
- Academic Health Science Partnership[135], which links three Universities (UNSW, UTS and Western Sydney University) with three Local Health Districts (South East, South West and St Vincent's Health Network) and SCHN, and seven Medical Research Institutes (Garvan Institute of Medical Research, Victor Chang Cardiac Research Institute, Neuroscience Research Australia, Black Dog Institute, Children's Cancer Institute, Ingham Institute of Applied Medical Research and Centre for Eye Health)
- Translational Cancer Research Network (TCRN),[136] supports translation of research into improvements in cancer patient care and outcomes. Membership includes UNSW, cancer service providers across the SESLHD, as well as Border Medical Oncology and UTS.

Current Constraints

There is currently no campus-wide strategic direction and integration of research and translation activities. Research activities are delivered by and through autonomous clinicians and their teams or specialist interest groups, with little communication or coordination beyond the stakeholder networks. Good research that is world class, multidisciplinary and high impact is being done, in spite of the lack of any cohesive campus plan or support, but consequently lacks the processes to spread successful effort to all groups on campus.

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[133] Comments from Prof Peter R Schofield, Executive Director & CEO, NeuRa
[134] Health Science Alliance URL: https://thehealthsciencealliance.org/
[135] Academic Health Science Partnership URL: https://research.unsw.edu.au/node/126956
[136] Translational Cancer Research Network URL: www.tcrn.unsw.edu.au

This results in inefficient duplication of resources, lack of advantages of scale, inability to learn from each other and reputational disadvantage. The result for our staff is restricted research training and mentoring which impacts our ability to attract and retain the best, research-oriented staff, and restrains their career options and trajectories.

Many of our patients miss out on the recognised advantages of recruitment in trials, with patients referred to other centres for access to clinical trials unavailable at this campus. Overall, the organisation suffers, and lags behind peer organisations. Planning to remove/reduce obstacles known to decreased access to trials should be addressed so that patients can locally access these trials.

Barriers to implementation of Campus research identified in the consultation process for this Plan include:
- Lack of a research culture at many levels of the organisation. Commitment is required at all levels to deliver a culture that values research as essential and integral to core business
- Lack of staff development opportunities for academic-clinical career frameworks or research career training and development
- Siloed hospitals and specialties on campus
- Lack of support and infrastructure, e.g. technology, research database, research governance, research support personnel, clinical trials coordination and time
- Lack of streamlined and coordinated grant administration functions.

The Randwick Hospitals and Health Services' Campus redevelopment, in concert with the Health Science Alliance, the Academic Health Science Partnership and its links with a number of Universities provides an opportunity to move Research forward in a coordinated and more sustainable way into the future to create a world class translational research facility. The campus-wide coordinating body for research could be the Health Science Alliance.

A Research Strategy for the District is currently under development.

3.15 Teaching and Education

Current Status
POWH&CHS is an eminent provider of clinical educational activities for medical, nursing, and allied health students at undergraduate and postgraduate levels, of orientation and training programs for new or junior clinicians, and of continuing and professional development programs.

There is considerable educational expertise available in the hospital across all clinical disciplines, with dedicated medical and nursing education facilities, and specialist educators for social work, physiotherapy and occupational therapy. Many staff have experience in designing, conducting and evaluating educational activities, and are experienced and active health education researchers. A range of multi-disciplinary activities are run, including sessions conducted by the Randwick Inter-Professional Education (RIPE) group.

There is currently a wide range of clinical education service delivery modes, ranging from bed side or "point of care" teaching with the involvement of patient, student and educators, small group tutorials or discussion groups, computer training activities, lectures, conferences, clinical skills training, formal multi-disciplinary simulation activities, and on-line education e.g. HETI modules, in a variety of teaching spaces including but not limited to the northern wing of the heritage listed Edmund Blacket building.

Current constraints
Issues identified include:
- Infrastructure at the hospital is ageing and not fit for purpose for modern education and training methods, with inadequate space, internet access, facilities, equipment and technology. This results in constraints in potential education activity, unmet demand, and problems for students and educators in the delivery of and access to modern modes of teaching and learning
- Changes in the nature of hospital medicine, with a reduction in the length of hospital stays and

the increase in acuity of patients, increasing shift work and busy clinical loads for trainees and limited protected time for education for both trainees and educators, results in limited opportunities for face to face teaching, increasing the need for dedicated educational spaces adjacent to or in close proximity to clinical areas to facilitate opportunistic teaching on the run

- Vocational training program accreditation often relies on exposure to hospital outpatient clinics, and this is currently limited. Infrastructure constraints limit opportunities for teaching in Outpatients, as clinics spaces are in high demand and there are no appropriately equipped, dedicated facilities for teaching. Programs for trainees are being formulated to gain appropriate experience, e.g. by rotation through different clinical and community settings, and 'training days' where patients with relevant conditions are brought into the hospital for clinical education purposes. Programs for more junior students include patient presentations on video, and the use of simulated activities e.g. virtual patients
- Gaps in services may restrict teaching and education opportunities. Access to a wide range of specialties is required for student education, and for advanced trainees a comprehensive range of clinical experience is required to meet accreditation and registration standards. For example, POWH lost its trauma service in the state review of distribution of trauma services. Consultation with clinicians at POWH suggests that this has follow on effects in regard to emergency medicine, anaesthetics and surgical education and training, and indirectly affects the ability to recruit the best staff
- There is limited access to and incentives for clinicians with a busy caseload to spend time on supervision and education activities
- There is little support for on the floor education, and little recognition of teaching as a core activity
- There is continuing pressure to increase the intake of nursing and allied health students, with a high demand for placement opportunities
- It is noted that nursing and allied health is affiliated with multiple universities. As a teaching hospital, all POWH clinical staff need to have the same access to available educational resources, while maintaining their tertiary relationships with their relevant universities.

Currently these issues hamper the effective provision of education on the campus, and the redevelopment of the Randwick Hospitals and Health Services' Campus provides an opportunity to address these issues to create a world class educational environment.

3.16 Information technology

Current Status
POWH&CHS uses Information Technology to manage patient bookings, hold patient information and monitor the patient journey.

POWH&CHS Information Technology is managed by the Local Health District. The key clinical information system is the Electronic Medical Record (EMR). The EMR receives patient demographic data from the Patient Administration System (PAS) and clinical data from attached modules. Examples of these modules are the Patient Flow Sheet, FirstNet (ED specific), SurgiNet (operating theatre specific), Outpatient Scheduling, Electronic Medications Management, Community Health and Outpatient Care, Mental Health and Drug and Alcohol. In addition to the EMR, there are a number of localised information systems across the district which hold clinical information which have no linkage to the Electronic Medical Record. Examples are the Electronic Record Intensive Care (ERIC) used in the ICU and the Cancer Patient data system, MosaiQ.

A number of EMR modules allow direct data entry and therefore are paperless. However, there are still a large number of paper based systems at the POWH such as the Patient Record. Paper will begin to be scanned into the system in late 2016 so it can viewed electronically. In time it is the intention of the Information Technology Directorate to enhance EMR modules to electronically accept all patient data. The District Information Management Services Directorate has a dedicated support team that manages and configures the EMR. There are other teams that provide support for applications in addition to information technology operations who ensure that the ICT infrastructure is in place to support the clinicians in their day to day work.

A District Informatics Strategy is intended to be complete by 2017 which will drive Digital Transformation.

Current Constraints
Consultation at the Randwick Hospitals and Health Services' Campus has identified common areas of need, including:
- Health record sharing across health providers, with linked record systems that are easily accessible, i.e. there are currently localised information systems with no linkage to the Electronic Medical Record, including the Electronic Record Intensive Care (eRIC) used in the ICU, the Cancer Patient data system, MosaiQ, and community health records, and poor/no health record access to and from GPs
- Cloud based systems are not being used meaning significant hardware, software and memory is required to be purchased and maintained to run the EMR and associated modules
- Centralised and linkable data as a foundation for decision making is not available
- There are a limited number of Workstations on Wheels (WOWs) or Drugs WOWs. This disrupts work flow and efficient patient management
- A significant number of outpatient clinics are managed via a paper booking system so electronic patient appointment reminders cannot be used (i.e. SMS or email reminders). Of clinics that are managed electronically, SMS and email reminders are not regularly sent
- GP referrals to Outpatients are not acknowledged or given a time frame for appointment
- There is no single point of entry or database of Outpatient clinics and services and their referral processes to streamline triaging processes and capture accurate data to manage waitlist
- There is a lack of open internet access to all staff in the clinical area to allow real time rapid access to essential clinical decision support tools, 89% of ED stakeholders in NSW reported that current IT constraints negatively impact on their ability to do their work [137]
- A cross-charge for access to the Wi-Fi network for staff
- A regular update of software is required
- Improved access to video conferencing or telemedicine could be used with regional patients to promote timely discharge and ongoing management
- Theatres require larger fixed screens to view imaging studies stored in PACS. Further, windows on these display machines should not time out
- Technology via video conferencing or telemedicine could be used with regional patients to promote timely discharge and ongoing management
- Technology via video conferencing and three way phone calls is inadequately used to provide interpreter services or services for those from culturally diverse backgrounds
- There is no space for Information Technology support staff to work in the care setting
- There is limited time for clinicians and staff to undertake information technology related learning which slows their adoption and successful use of new modules and systems
- Lack of adequate training and support staff established and sustained prior to roll out of new systems.

In response to these constraints across NSW Health, eHealth NSW has developed and is in the process of deploying a number of clinical, corporate and infrastructure programs that can mitigate some of the Information Technology constraints identified above. These include:
- An interface between ERIC and the Electronic Medical Record is being developed, which will allow for the delivery of ICU handover documents
- The eHealth NSW Information Services' application support services team for iPatient Manager has deployed a solution that automates SMS reminders for appointments
- The Health Wide Area Network (HWAN) will deliver a highly secure and reliable state-wide network
- eHealth NSW is working to provide a State-wide Conferencing, Collaboration and Wireless (CCW) solution that supports clinical services across NSW Health. Further, a number of telehealth terminals have been deployed across NSW to support the delivery of patient-centred care to regional and rural NSW patients

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[137] Emergency Care Institute URL:
http://www.ecinsw.com.au/sites/default/files/field/file/ED%20Internet%20Survey%20FINAL%202015%20edits%20for%20web.pdf

- The HealtheNet system can be accessed by NSW Health community health clinicians, through a patient's eMR. HealtheNet provides a summary view of a patient's available health information and also sends discharge summaries to a patient's nominated GP.

In addition, Health Infrastructure will provide systems to facilitate in-building coverage for mobile phones in addition to Wi-Fi infrastructure, in accordance with agreed NSW Health standards.

3.17 Integrated care

Current Status

Current models of care from the campus that work to prevent admission and readmission and encourage ongoing management of patients in the community include:

- Hospital in the Home (HITH) to deliver selected types of multidisciplinary acute care to suitable, consenting patients in their home
- Post-Acute Care Service (PACS) to provide multi-disciplinary follow up home care after discharge to ensure a smooth transition from hospital to home.
- Heartlink to provide domiciliary care for people living with chronic heart failure
- Geriatric (GRAFS) to provide geriatric assessment and short term case management in the community setting
- Respiratory Coordinated Care Program (RCCP) for support and education of patients with chronic respiratory conditions in a community setting.
- Transitional Aged Care Program (TACP) to provide short term multi-disciplinary restorative care for older people on discharge from the acute setting
- Aged Care Services Emergency Team (ASET) ensures the most appropriate model of care and care coordination is provided for patients over 70 admitted to the ED
- Cancer Outreach to provide support for cancer patients in their home
- Connecting Care in the Community for patients at risk of hospitalisation due to one or more selected chronic conditions.
- Community nursing and allied health programs for clients with health related issues that are best serviced in the patient's own environment
- Prince of Wales Hospital and Community Health Services appointed a senior clinician to a Director of Integrated Care role and assigned the Director of Community Health as an Associate Director of Integrated Health.

Current Constraints:

Recent discussions with clinicians have identified a number of barriers to integrated care. These include:

- Evaluation is currently centred on clinical evaluation and is activity based. Integrated care requires patient centred outcomes and these are currently not well evaluated and are difficult to measure
- The current funding model, based on activity, provides barriers to integrated care in the community and does not provide incentives for community based care for patients with long-term conditions
- There are few local models that provide a guide or lessons for local circumstances
- Currently the structural organisation results in fragmented care, with little opportunities for specialties outside their groupings to form relationships to facilitate integrated care
- Poor electronic systems and IT structures that do not link information hamper integrated care. There is no structured way to share information and identify these patients requiring coordinated care
- Consistent leadership and direction is required for improvement and change to occur, along with greater engagement from and with general practice.
- Increase focus on non-admitted patient reporting and relevant data collection to better understand and improve services/ meet performance targets.

Care support to people with complex needs comes from a highly diverse and often disconnected web of services. Clinicians acknowledge that services tend to be fragmented and 'siloed', resulting in poor

care coordination of people with long term conditions and potentially, adverse outcomes and experiences. Typically, the care pathway for people with complex conditions has been episodic and disjointed, rather than co-ordinated and seamless person centred care. The need to address this fragmentation of care is increasing as more people live longer and with complex long term conditions.

As the information on the HealtheNet platform is enhanced and pathology becomes available, there will be significant opportunity to identify patients requiring coordinated care.

4. Re-imagining the health, education, teaching and research Campus

Key points

Our ambition is to leverage the existing unique strengths of the Randwick campus to provide world's best practice integrated health and community care in a timely and efficient manner which is valued by our clients. This transformation the Randwick Hospitals and Health Services' Campus must integrate health, education, teaching and research. To achieve this our approach has been based on an extensive literature review, broad consultation, synthesising this information into broad themes, articulating how we can make this happen, then quantifying the capital implications

4.1 Randwick Academic Health Science Centre

We are facing unprecedented health challenges at an enormous scale. Solutions cannot be found by making small changes to existing services. Instead, we must "*create change at system level. This means that everyone, from policymakers and commissioners to front-line staff, clinicians to patients, needs to be involved in the process.*"[138]

Our Campus is unique in Australia because of the co-location of 3 leading public tertiary referral hospitals and a private hospital, as well as a comprehensive range of ambulatory, outpatient and community health and specialist services. The Campus is also in close proximity to the prestigious University of New South Wales which provides leadership in research and evidence-based clinical care, and a number of renowned institutions such as the Black Dog Institute, NeuRA and the The Bright Alliance are housed on the campus.

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[138] Wilson S. Langford K. 10 Ideas for 21st century healthcare. Innovation Unit URL: http://www.innovationunit.org/sites/default/files/DIGITAL%20VERSION10%20Ideas%20Final.pdf

This uniqueness, together with the opportunity generated by the Minister of Health's commitment to redevelop the Randwick Hospitals and Health Services' Campus, provides a catalyst for health, research, teaching, academia and industry partners to realise our vision to become a world renowned Academic Health Science Centre. This will be achieved through attracting and harnessing the pool of clinical and academic expertise from across the world to deliver improvements and optimise patient care and population outcomes.

Progressing the Health Science Alliance as well as Academic Health Science Partnership is a key driver to enable the bringing together of the intellectual and clinical expertise, infrastructure, resources and capabilities of partners to improve the health and wellbeing of the local community as well as broader community of NSW.

Our desire to transform the Randwick Hospitals and Health Services' Campus comes from a shared vision that delivering cutting-edge compassionate holistic healthcare to our community and other residents of NSW requires a seamless integrated approach across health disciplines and the latest technologies, other service providers, the care continuum and with research and education.

4.2 Integrating across the health and social care system

Integrated care aims to collectively treat the needs of the whole person across organisational boundaries in order to avoid the fragmentation of care of people living with several long term conditions or older people who are often treated with single episodes of care. [139] It is a means to optimise system performance and value and improve patient outcomes by increasing access to care, streamlining existing care, promoting more efficient use of existing resources, and improving the patient experience. Ageing and chronic illness are the key drivers for care integration.

Changing where health happens

"In order to impact on people's health, we need to look beyond health institutions……..Providing greater access to health care among vulnerable populations and enabling earlier identification helps prevent the emergence of more serious and costly problems later on."

*"***Wilson S. Langford K. 10 Ideas for 21st century healthcare. Innovation Unit URL: http://www.innovationunit.org/sites/default/files/DIGITAL%20 VERSION10%20Ideas%20Final.pdf***

International and national evidence suggests that in order to produce effective integrated care and improved health and social wellbeing, models of care need to:
- Be personalised and co-produced
- Be joined up across the health and social care systems, particularly in the management of chronic disease, to reduce siloed care
- Consider the social determinants of health and health equity in care access and delivery to improve health outcomes
- Be enabled by new technology
- Allow for new evidence from translational research
- Consider prevention and early intervention in a life course approach to health and well being
- Adapt to new workforce roles as new models of care shape workforce requirements, e.g. extended scope of practice for nursing and allied health, a shift to more community based services out of the acute hospital setting
- Provide value and sustainability
- Be informed by adaptive leadership and deep clinical engagement
- Be underpinned by continuous quality improvement and evaluation.

Strategies identified by SESLHD to deliver integrated care include[140]:
- Engaging with people and communities through:

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[139] One person, One Team, One System. Report of the Independent Commission on Whole Person Care, Feb 2014. https://www.pwc.co.uk/en_UK/uk/assets/pdf/one-person-one-team-one-system.pdf
[140] SESLHD Integrated Care Strategy 2015 URL: https://www.seslhd.health.nsw.gov.au/CDM/documents/SESLHD_Integrated_Care_Strategy.pdf

- o Person centred planning and evaluation
  - o Motivational interviewing and health coaching
  - o Collaborative care planning
- Developing a health intelligence system, including:
  - o Deep dive data analysis
  - o Risk stratification
  - o Population registers
- Utilising central support structures to evaluate, transfer and spread successful models
- Using innovative models to target areas of need, e.g. anticipatory care models, care coordination models, eHealth applications
- Collaborating with Central and Eastern Sydney Primary Health Network.

Adapted from Kings Fund Visualised sourced from Timmins N and Ham C. The Kings Fund: The quest for integrated health and social care. A case study in Canterbury, New Zealand. p. 9

4.2.1 Investing in the early years

Goal: For young people to have a healthy, equitable start to life to promote health and wellbeing along the life course

It has been widely recognised that the early years of a child's life helps determine their future health, development, learning and wellbeing. A positive start in life helps children develop to their fullest, with benefits to the whole society through increased productivity, greater social inclusion and reduced public expenditure in health, welfare and crime related to disadvantage over the life course.[141]

Conversely, evidence suggests that adverse childhood experiences such as poverty, parental mental illness, neglect, substance misuse, domestic violence and intergenerational trauma impact negatively on a baby and child's brain development. Babies and children that experience four or more significant adverse events release stress hormones such as cortisol which affect the development of parts of the brain that are essential to integrate new knowledge, suppress inappropriate behaviour and regulate emotions such as aggression, anxiety and fearfulness.[142]
Biological events during foetal and early life also predispose a child to a greater risk of physical and mental health problems as an adult, for example, adults who had low birth weight are at increased risk of coronary heart disease, diabetes, hypertension and stroke in adulthood.[143]

Children who have a poor start in life are thus more likely to develop learning, behavioural, physical health or emotional problems which may have consequences for themselves and to society into the future, due to increased social inequity, reduced productivity, and the high costs associated with entrenched intergenerational disadvantage.[144]

Importantly, these relationships can be modified by positive patterns of postnatal growth. Programs aimed at reducing disadvantage during the early years of life have been shown to improve child outcomes and may yield higher returns on investment than interventions offered later in life.[145]

Similarly, many of the health-related behaviours that arise during adolescence have implications for both present and future health and development. Adolescence is a window of opportunity to prevent future complications of health in adult life.[146]

Supporting vulnerable children and their families provides a sound long term investment in health and social wellbeing. It helps to reduce the uptake of high risk behaviors such as drug and alcohol use, domestic violence and criminal activity, and builds the resilience of parents, carers and children to prevent high cost interventions in later life.[147]

To support vulnerable children and families in our district:
* SESLHD and SCHN are collaborating to develop a Child Health and Wellbeing Plan which will ensure a formalised strategic and coordinated approach to guide service delivery and address shared priorities for all children with a focus on priority populations. It will advance equity and support prevention and early intervention in the early years. The Plan will monitor child health and wellbeing across South Eastern Sydney

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[141] Commonwealth of Australia 2009. Investing in the Early Years—A National Early Childhood Development Strategy URL: https://www.coag.gov.au/sites/default/files/national_ECD_strategy.pdf
[142] NSW Dept. of Premier and Cabinet. Greater Western Sydney / Sydney East Regional Leadership Group (RLG) Business paper – early years collaborative.
[143] Australian Government Dept. of Health and Ageing 2011. National Framework for Universal Child and Family Health Services URL:
https://www.health.gov.au/internet/main/publishing.nsf/Content/AFF3C1C460BA5300CA257BF0001A8D86/$File/NFUCFHS.PDF
[144] Commonwealth of Australia 2009. Investing in the Early Years—A National Early Childhood Development Strategy URL: https://www.coag.gov.au/sites/default/files/national_ECD_strategy.pdf
[145]Commonwealth of Australia 2009. Investing in the Early Years—A National Early Childhood Development Strategy URL: https://www.coag.gov.au/sites/default/files/national_ECD_strategy.pdf
[146] *Health for the world's adolescents, a second chance in the second decade*, World Health Organisation, 2014. http://apps.who.int/adolescent/second-decade/ Accessed 30 Oct 2014
[147] Australian Government Dept. of Health and Ageing 2011. National Framework for Universal Child and Family Health Services
https://www.health.gov.au/internet/main/publishing.nsf/Content/AFF3C1C460BA5300CA257BF0001A8D86/$File/NFUCFHS.PDF

- SESLHD has developed an Equity Strategy[148] which identifies actions to protect and improve the health and wellbeing of our local communities, focusing on those most in need. A key priority is to make greater investments in the early years of life
- The SESLHD Children, Young People and Women's Implementation Plan identifies actions to protect and improve the health and wellbeing of our local communities, focusing on those most in need.

Good Practice Examples
- *"Early Childhood Development – Everyone's Business"[149]* aims to improve the early identification of developmentally vulnerable children from culturally and linguistically diverse backgrounds and simplify referral pathways for these children to have further assessment if needed, or targeted early intervention. This is provided through free multicultural playgroups run by three NGOs, supported by an advisory group made up by community child health, child health nursing, speech pathology, the participating NGOs, primary health care and the local health district. Early identification of developmental vulnerability through developmental surveillance is undertaken at the play group by the multilingual child and family worker. Further assessment and intervention is then arranged, if needed, to take place at the NGO – further reducing barriers to access to services for children from culturally and linguistically diverse backgrounds.
- SCHN Community Child Health is working closely with the La Perouse Aboriginal community to improve early child development. Strategies include the Aboriginal outreach service at La Perouse Community Health Centre and local childcare centres, routine developmental screening, highly accessible flexible drop-in services, health promotion and injury prevention programs, co-located medical, allied health, arts in health and community development programs and regular community consultation forums to share ideas and learn from the community regarding optimising children's outcomes.
- Implementation of the Quit for New Life smoking cessation program in the Aboriginal Maternal and Infant Health Services and Child and Family Health Services at Malabar Community
- Midwifery Link Service and Narrangy-Booris Maternal, Child and Family Health
- An interagency collaborative focus on the early years in Maroubra, Malabar and Matraville led by the South Eastern Sydney Service System Group, of which SCHN are a key partner, is beginning a project to examine how education, family and community services, health, police, juvenile justice can work together to improve early childhood outcomes
- The SESLHD 'Optimising health program', a nurse led screening of school students from refugee and vulnerable migrant populations
- Early childhood development surveillance in the Botany area targeting developmental issues in preschool children
- Twelve child and family centres have been established in Tasmania to improve the health, well-being and development of children from birth to five years of age through parental support and improved access to services. Services provided include early childhood education, such as playgroups, and a child health nurse. A recent evaluation of these centres found that centre users were more likely to attend playgroup and see the child health nurse than non-centre users[150]
- Commonwealth healthy eating and active living programs supported by the District's health promotion service in preschools and primary schools, e.g. 'Crunch n Sip', 'Munch n Move' and Go4Fun
- In British Columbia, Canada, the Early Development Index is used for measuring child development and readiness for school, to identify variations in outcomes and highlight areas of special need. This model funds coordinators linked to 60 geographic school districts, who bring together diverse local groups (government, non-government, service providers and early childhood development professionals) to collaborate to target vulnerable communities and promote greater equity for children in the early years to improve children's health and

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[148] SESLHD Equity Strategy 2015 URL:
https://www.seslhd.health.nsw.gov.au/HealthPlans/documents/2016/SESLHD%20equitystrategy%20FINAL.pdf
[149] Information provided by Dr Susan Wolfenden, Staff Specialist, SCHN
[150] Taylor C.T. et al., Engaging, supporting and working with children and families in Tasmania's Child and Family Centres. Report on the impact of Centres on parents' use and experiences of services and supports in the Early Years. Perth, WA: Telethon Kids Institute.URL: http://telethonkids.org.au/media/1428013/tas-cfc-evaluation-report-web.pdf

development and social outcomes[151]
- Scottish Early Years Collaborative[152], a coalition of Community Planning Partners (CPPs) from social services, health, education, police and third sector professionals that are committed to improving support and outcomes for children and families, delivered across four work streams:
- To ensure that women experience positive pregnancies which result in the birth of more healthy babies
- To ensure 85% of all children within each CPP have reached all of the expected developmental milestones by the child's 27-30 month child health review
- To ensure 90% of all children within each CPP have reached all of the expected developmental milestones at the time the child starts primary school
- To ensure 90% of all children within each CPP have reached all of the expected developmental milestones and learning outcomes by the end of Primary 4
- The Healthy Child Healthy Future program in Northern Ireland[153] has clear categories to assist in determining the amount of support needed by families using a "Thresholds of Need" approach: Level 1 base population, Level 2 children with additional need, Level 3 children in need, Level 4 children with complex and/or acute needs.

Proposed recommendations

• Continue and expand upon/enhance existing models that promote the best start to a child's life, e.g.:
  o Population Health programs such as school vaccinations programs, healthy eating programs in pre-schools, healthy eating and lifestyle programs in primary schools
  o Child Wellbeing Coordinators role, to support health staff with their responsibilities in relation to the safety, welfare or wellbeing of children and young people
  o The Child Protection Unit (CPU) (provided by SCH), a hospital and community-based service which provides counselling and medical services for children and young people who have been abused or neglected
  o SESLHD Children's Healthcare Network Clinical Nurse Consultant
  o Out of Home Care (OoHC) Program in SESLHD and SCH, which coordinates Health Pathways for children and young people entering OoHC placements within SESLHD
  o Youth Health Coordinator to enhance the access of young people to health services across the District.
  o Transitional care between children and adult services
  o Good practice examples provided by the District outlined above

• Consider the development /implementation of new models of care to support the early years, including:
  o Participation in the multi-agency quality improvement program, the "Early Years Collaborative", to improve the outcomes for marginalised children and families as a regional priority[154]
  o Transition pathways from paediatrics to POWH for young people requiring ongoing tertiary care even if out of area. This may include multiple teams and/or planning joint clinics/transition clinics to facilitate transfer
  o An integrated health and social care centre to support the provision of joined up care along the life course
  o Interagency partnerships e.g. with FACS, Education and NSW Police

For further information on existing and recommended programs for children and young people, please refer to the SCH Integrated Health Services Plan and Section 4.2.4 Women, babies and children.

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[151] Centre for Community Child Health, The Royal Children's Hospital Melbourne 2012. Place-based Initiatives Transforming Communities. Proceedings from the Place-based Approaches Roundtable URL: http://www.rch.org.au/uploadedFiles/Main/Content/ccch/CCCH_Place-based_initiatives_report.pdf
[152] Scottish Govt. Early Years Collaborative. URL: http://www.gov.scot/Topics/People/Young-People/early-years/early-years-collaborative
[153] Department of Health Social Sciences and Public Safety. Healthy Child, Healthy Future: A framework for the universal child health promotion programme in Northern Ireland. Northern Ireland: 2010. Accessed from NSW Kids and Families. Screening and surveillance in early childhood health: Rapid review of evidence for effectiveness and efficiency of models. 2014 URL: http://www.kidsfamilies.health.nsw.gov.au/media/293814/screening-and-surveillance-in-early-chil-of-evidence-for-effectiveness-a.pdf
[154] Sydney Regional Leadership Group BUSINESS PAPER – Early Years Collaborative. June 2016

4.2.2 Focusing on wellness across the life course and reducing health inequities

The majority of our population keep well or are able to manage their own health needs in partnership with primary care, and do not interact with hospital services. Less than 20% of the NSW population presents to the ED or as an inpatient across NSW each year.[155] Acknowledging this, it remains important to identify and reduce health risk along the life course in order to keep our population well and reduce demand on our health services. For this to happen, Health cannot work alone, and needs to partner with other agencies and communities in a cross-sectoral approach to the life course management of health and wellbeing and reducing health inequities.

> ### Redefining Health
>
> *"There needs to be a cultural shift around the way we think about health services and their goals…….This requires a change in mindset, reorientating services away from 'fixing problems toward fostering wider and more subjective, wellbeing goals."*
> Wilson S. and Langford K. 10 Ideas for 21st century healthcare. Innovation Unit URL:
> http://www.innovationunit.org/sites/default/files/DIGITAL%20VERSION10%20Ideas%20Final.pdf

Staying healthy in the middle years of life

Goal: to ensure people stay healthy throughout their working life
A large proportion of the middle aged population (aged 40 – 65) do not engage with their health, may have poor health literacy and may be living with major health risk factors which, if not addressed, have the potential to create long term ill health. This is particularly evident in areas of social disadvantage.

Improving health outcomes and reducing health inequalities for this cohort 'unworried unwell' people requires a targeted anticipatory care approach by delivering health checks in primary care. This approach attempts to address health risk factors before they become long term health issues requiring more intense care and potentially, hospitalisation. People at risk are targeted either through their general practice, by targeting workplaces, or by outreach into the 'hard to reach' communities, such as the homeless, drug users, and people living with mental health issues.

People identified at risk can be screened by GPs or in nurse led outreach clinics, and given advice on how to prevent ill health and referral to preventative lifestyle programs such as for smoking cessation, healthy weight or increasing exercise; as well as improving access to screening programs and vaccinations. Advice for social issues may also be provided as part of an overall wellbeing program. Convincing some of the target population of the importance of taking an anticipatory approach to their long term health and adhering to lifestyle changes can prove difficult. The NHS Scotland[156] suggest more community-based approaches (including social marketing) may have more success than practice-based approaches in delivering a message about who is a suitable candidate for screening and preventive services. A 2014 evaluation[157] of the Keep Well anticipatory care program targeting this group in the long term prevention of cardiovascular diseases (CVD) was not able to demonstrate an appreciable impact on its intended outcomes in terms of longer-term population health impacts on CVD deaths and illnesses. Any program targeting this population thus needs to consider interventions which are most likely to be effective, such as those which involve reductions in poverty and inequality, which regulate the environment (including health risks such as tobacco, alcohol and food) and which do not rely solely on individuals to act on advice or depend on individuals' own resources. Robust data collection is also required to ensure valid evaluation can occur.

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[155] NSW Dept. of FACS 2012 Use of emergency and inpatient hospital services by ADHC clients –final report URL: https://www.adhc.nsw.gov.au/__data/assets/file/0004/263587/ADHC_and_NSW_Health_data_linkage_Final_report_Dec2012.pdf
[156] Mackenzie M, O'Donnell C, Reid M, et al. National Evaluation of Keep Well Final Report: Summary of Findings and Implications for Policy and Practice 2011 URL: http://www.healthscotland.com/uploads/documents/15189-KWFinal%20Paper%20Summary%20of%20Findings%20_2_.pdf
[157] NHS Health Scotland. The impact of Keep Well: An evaluation of the Keep Well programme from 2006 to 2012. Edinburgh: NHS Health Scotland; 2014. URL: http://www.healthscotland.com/uploads/documents/23893-Keep_Well_Impact_Evaluation_report.pdf

In NSW, *Make Healthy Normal*[158] is a NSW Health initiative to support people to make lifestyle changes in diet and physical activity in order to reduce the impact of long term health conditions. Components supported by SESLHD's Health Promotion Service include:

- Get Healthy at Work (GHaW): a joint initiative of the NSW Ministry of Health and Workcover NSW that supports industries and workplaces to develop healthier work environments and lifestyles for staff, and reduce long term health conditions of working adults by addressing individual behavioural and workplace factors contributing to poor health by supporting people to achieve their personal health goals. GHaW provides workplaces with the tools and resources to address six health focus areas: healthy eating, physical activity, healthy weight, smoking, active travel and harmful alcohol consumption. Participating workplaces identify and implement changes in policy and practice to encourage workers to be fitter, healthier and more resilient against illness. The free service helps create a healthier working environment. GHaW comprises:
  - o A Workplace Health Program: Resources to support development of a simple action plan to address a priority health issue identified at the workplace. The program is available online, over the phone or at the business with the support of a service provider (workplace health expert)
  - o Brief Health Checks (BHC): A free and confidential service for workers, completed either online or by a health practitioner at the workplace, which offers immediate feedback on an individual's risk of developing type 2 diabetes and heart disease. It also provides advice on how to make changes for better health, with referrals to lifestyle coaching programs (e.g. GHS and Quitline) and other health services. Participation is voluntary and anonymous unless the participant wishes to be contacted by the Get Healthy Service.
- *Get Healthy Information and Coaching Service®* (GHS): a NSW Ministry of Health initiative that provides a free, telephone-based coaching service supporting people 16 years of age and over to reduce their risk of long term health conditions. The GHS offers up to 10 calls over 6 months where qualified coaches (e.g. dietitians, exercise physiologists) set health goals with participants and support healthy behavioural changes. Health issues addressed include healthy eating, physical activity, achieving and maintaining a healthy weight and reducing alcohol consumption. Tailored programs are in place for pregnant women, Type 2 Diabetes prevention, and for Aboriginal and Torres Strait Islander people. Since 2009, more than half of NSW participants lost 2.5-10% of their baseline body weight and there has been an average decrease of 5.1 cm from waist circumference and 1.4 BMI units.

It is also important to note that communities themselves often have the resources and assets to support their health, and our approach should also include leveraging these assets by asking or involving them in co-designing initiatives that benefit the community.

Good Practice Examples:
- SESLHD's Health Promotion Service promotes *Get Healthy at Work* through community channels, including distributing information and materials through social media and events with local services and organisations such as councils, community organisations and business networks. Results from December 2014 to August 2016 (from Office of Preventive Health) show:
  - o 99 SESLHD businesses registered
  - o 143 worksites engaged
  - o >10,100 workers engaged
  - o Workers come from small, medium and large businesses including key industries of construction, professional /scientific, manufacturing, transport, postal, warehousing, health care and social services divisions
  - o Brief Health Checks (BHC):
    - ▪ 24 registered businesses have taken up BHC
    - ▪ 567 BHCs have been conducted
- *Get Healthy Information and Coaching Service®* supports state and SESLHD goals to reduce the rate of overweight and obesity in the community, and contributes to the achievement of KPIs in SESLHD's Service Agreement with the NSW Ministry of Health. SESLHD's Health

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[158] URL: https://www.makehealthynormal.nsw.gov.au/

Promotion Service helps increase registrations with GHS by:
- o Promoting the program by disseminating GHS information and resources through social media, websites, and events
- o Engaging with community organisations and health practitioners to build their capacity for referring to the program as a service delivery option to support self-management of long term health conditions
- o Working with NSW Health and the Chinese community to develop a bilingual coaching program in Chinese

Results to the end of June 2016 show:
- o Over 3,600 SESLHD residents participated in the GHS
- o During 2015-2016, 46% of SESLHD participants were referred by health practitioners, which is associated with better results and easier access for the client.

- *Doing It Differently* Grants is a mentoring and grants initiative supported by SESLHD and Rockdale City Council, which aims to support the community of Rockdale to identify current and emerging issues, and devise and act upon solutions that will enhance resilience and wellbeing in the community. Grants awarded to community groups and NGOs range from $2,500 to $10,000. Workshops are held to assist with shifting the community mindset from needs and deficiencies to assets, resources and possibilities; identifying, mapping and connecting the diverse range of community assets; and harnessing the connected assets and vision to a hopeful and positive future for the community.

Proposed recommendations
- Continue and expand upon/enhance existing models that promote staying healthy in the middle years of life   - Further supporting SESLHD efforts with the NSW Health initiative *Make Healthy Normal*, by increasing registrations to G*et Healthy at Work* and *Get Healthy Information and Coaching Service*   - Explore further partnerships with local councils to support community based initiatives and assets that enhance community health and wellbeing

Healthy active ageing and supporting independence

Goal: For older people to enjoy long and healthy lives, feeling safe at home and connected to their community.

Many people live happy, healthy and independent lives well into old age. However as people age they are more likely to live with disability, long term health conditions and increasing frailty. The World Health Organisation outlined a broad process of optimizing opportunities for health, participation and security in order to enhance quality of life as people age.[159] This includes encouraging older people to keep physically and mentally active and socially engaged to support their ability to maintain independent, lead healthy lifestyles, and participate in and contribute to the community.

A life course approach to health and wellbeing helps to contain long term health and social care costs. With older people the focus becomes on preventing ill health, disability, dependency and loss of skills, and empowering older people to make their own decisions about their care needs and to improve their quality of life. Health and social care systems that facilitate these focus areas will help to reduce emergency admissions and re-admissions, reduce permanent admissions to residential and nursing care, improve the quality of life for consumers and their carers and family, increase the proportion of people that feel supported to manage own condition, and improve prevention measures such as vaccination and healthy lifestyle activities.

Interventions to enable older people's independence, health and wellbeing include[160]:
- Ensuring housing is suitable for their needs to enable them to live in their own homes for as long as possible, e.g. adapted with aids and technology to maximise their independence and

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[159] World Health Organisation (WHO) 2002. Active Ageing: A Policy Framework. WHO, Geneva.URL: http://www.who.int/ageing/publications/active_ageing/en/
[160] Oliver D, Foot C, Humphries R. The Kings Fund 2014 Making our health and care systems fit for an ageing population. URL: http://www.kingsfund.org.uk/sites/files/kf/field/field_publication_file/making-health-care-systems-fit-ageing-population-oliver-foot-humphries-mar14.pdf

safety
- Promoting age friendly communities and preventing social isolation, e.g. with volunteering programs and greater involvement of families and communities
- Promoting healthy lifestyles and wellness, e.g. with regular suitable exercise, cessation of smoking, reduced alcohol consumption, healthy eating and weight control
- Early identification and proactive interventions for minor needs that limit independence, wellbeing and social engagement, e.g. problems with mobility, foot health, balance, chronic pain, visual and hearing impairment, incontinence and malnutrition
- Vaccinations to prevent acute illnesses e.g. Influenza and pneumonia
- Screening programs and health checks to identify health risk factors in older people, e.g. for cardiovascular disease, renal disease, osteoporosis, falls risk, diabetes, dementia and cancers.

Good Practice examples
- In Jönköping, Sweden, the care of older people was redesigned to redeploy resources to the community to promote keeping people living independently at home. This has resulted in a reduction in overall hospital admissions by over 20%, hospital days for heart failure by 30% and wait times for referral appointments with specialists reduced by 30 days over a 3-5 year period.[161]
- Salford Trust, UK[162] developed a model of integrated care to promote and increase the use of local community assets to support increased independence and resilience for older people, establish an integrated Centre of Contact to support navigation, monitoring and support, and establish multi-disciplinary groups to support older people who are most at risk, with pro-active assessment and care planning, as well as a providing a broader focus on prevention and signposting to community support, and an integrated shared care record across health and social care.

Proposed recommendations
- Continue and expand upon/enhance existing models that promote independence and wellbeing of older people, e.g.:   - WAVES community based hydrotherapy for older people   - AIM For Fitness, a community based exercise and education program for older people   - Anticipatory care in the Day hospital/Outpatient setting at War Memorial Hospital Waverley(WMH)   - The Centre for Healthy Ageing, a supervised gymnasium for ongoing exercise programs for community dwelling older people at WMH   - Falls prevention programs delivered in the community e.g. Stepping On, including in community based languages to ensure continued participation of people from culturally and linguistically diverse backgrounds that may have barriers to participating in mainstream programs   - Short term re-ablement programs after acute illness or injury delivered from POWH&CHS and War Memorial Hospital Waverley, e.g. Transitional Aged Care Packages (TACP), Post- acute care services (PACS)   - Outpatient services to prevent deterioration including for falls and mobility, cognitive disorders, geriatric medicine, pain, and allied health   - Aged care community based nursing and allied health programs
- Consider the development /implementation of new models of care to support the independence and wellbeing of older people including: - Improve health literacy, in partnership with primary care. Continue to develop networks and referral pathways in partnership with the Primary Health Network for integrated primary care services to support older people to remain independent in their home   - Increase resources for aged care outpatient clinics to allow more timely assessment

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[161] Baker G.R., A. MacIntosh-Murray, C. Porcellato, L. Dionne, K. Stelmacovich and K. Born. 2008. "Jönköping County Council." High Performing Healthcare Systems: Delivering Quality by Design. 121-144. Toronto: Longwoods Publishing URL: https://www.longwoods.com/content/20144
[162] Salford Clinical Commissioning Group, Five year strategic Commissioning Plan 2014/15 to 2018/19 URL: http://www.salfordccg.nhs.uk/

> o and review and prevent hospitalisation
> o Develop a patient centred model for Secondary Fracture Prevention; facilitating case identification at POWH with primary care physicians and the patient in partnership, to reduce the burden of fracture, particularly costly hip fracture, later in life
> o Develop an integrated shared care record across health and social care.

Priority populations

Goal: To reduce inequities in health and wellbeing in priority populations within a generation

An important strategy to reduce demand for health services and improve quality of life is to identify priority populations and target specific programs and services to prevent ill health and inequity of health outcomes. Targeted groups may include:

People from low socio-economic groups

People in the lowest quintile of income groups' use about twice as much health care services as those in the highest quintile.[163] Being from a relatively low socioeconomic group is a predictor of many measures of health risk, such as smoking, obesity, oral health and cancer survival.

Botany Bay, Randwick and Sydney LGAs have a higher proportion of public housing than the NSW average. This disadvantage is reflected for example by residents of Botany Bay LGA, where potentially preventable hospitalisation rates have remained about 25% higher than among Woollahra LGA residents. Botany Bay residents also have the highest rate of premature deaths due to lung cancer and chronic obstructive pulmonary disease, are at about 5% higher risk than NSW average for being hospitalised for a condition contributable to overweight or obesity, and at about 17% higher risk of hospitalisation for smoking attributable conditions than the NSW average.[164]

> **Helping people to help each other**
>
> There are untapped resources in our communities that can be used to connect people to a rich network of people in the community to support health and social wellbeing, using models such as peer support and training, community capacity building and service user networks.
>
> **Wilson S. and Langford K. 10 Ideas for 21st century healthcare. Innovation Unit URL: http://www.innovationunit.org/sites/default/files/DIGITAL%20VERSION10%20Ideas%20Final.pdf**

The interaction between health and disadvantage is also evident in a higher percentage of people from lower socio-economic LGAs having their planned short stay surgery at POWH as non-chargeable patients rather than in a private hospital.

People who are homeless

About 20% of NSW's identified homeless population live in SESLHD, with Sydney inner city representing 60% of our homeless. People who are homeless typically have complex health and psychosocial issues, and face significant barriers to accessing health services. Many have other compounding health and social issues, such as mental ill health, family breakdown, domestic violence issues, financial stress, unemployment, etc.

The majority (67%) of homeless people in our LHD access Northern SESLHD services, in particular the four programs of Drug & Alcohol, Kirkton Rd Centre, Mental Health and ED. SESLHD has made a commitment to strengthen health service models to reach our homeless people.

Aboriginal people

The health of Aboriginal residents is markedly different to that of other residents of northern SESLHD LGAs and across NSW. Aboriginal people have relatively poorer health than all other population groups in SESLHD. There is a significant disparity between Aboriginal and non-Aboriginal people across most population health indicators, highlighting the importance of addressing the determinants

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[163] SESLHD Equity Strategy URL:
http://www.seslhd.health.nsw.gov.au/HealthPlans/documents/2016/SESLHD%20equitystrategy%20FINAL.pdf
[164] SESLHD Population Health Directorate Plan 2014-2019. URL:
http://seslhnweb/Planning_and_PopulationHealth/documents/Health_Plans/PopulationHealthDirectoratePlan2014-2017.pdf

of health and health risk factors. In NSW, the gap in life expectancy between Aboriginal people and the total NSW population is 8.6 years for males and 7.4 years for females, and the mortality rate for Aboriginal people is 1.5 times higher than the rate for non-Aboriginal people and there has been no significant change over the past 10 years.[165]

In 2011, for Aboriginal residents of northern SESLHD LGAs:
- 6% were aged 65 years and over, compared to 13% for the non-Aboriginal 65 and over population[166]
- Diabetes hospitalisation rates were about 50% higher among Aboriginal than non-Aboriginal SESLHD residents (although it is likely that Aboriginal hospitalisations are largely underestimated due to under reporting of Aboriginality)[167]
- Aboriginal people suffer much higher morbidity across a range of conditions, including diabetes, renal, cardiovascular and respiratory diseases, and both intentional and unintentional injury.[168]

Aboriginal people also often have poorer outcomes when accessing our services, and experience substantially higher prevalence of risk factors such as smoking, overweight and obesity, have higher prevalence of long term conditions and multiple morbidities, and higher rates of hospitalisation due to unintentional injury, interpersonal and domestic violence, and self-harm.[169] These figures may be an underestimate, as Aboriginality is not always accurately recorded.

People that experience mental illness

The life expectancy gap between people with mental illness and the general population is as much as 16 years less for males and 12 years for females, and appears to be rising. Many causes of death are due to preventable illnesses caused by increased high risk behaviours such as smoking, substance abuse, and exposure to communicable diseases such as hepatitis C. Some medications prescribed for people with mental illness are associated with weight gain obesity and new onset diabetes. Mental illness also affects a person's ability to manage their diabetes, especially those on insulin treatment, which may result in multiple diabetic complications. Other social disadvantage factors also often overlap with mental illness, such as homelessness, social isolation, and unemployment which may exacerbate mental illness and poor health and wellbeing.

Vulnerable children and young people

Children aged up to 15 make up 14% of the Northern SESLHD population, and Botany Bay LGA, an area of socio-economic disadvantage, has the highest proportion of children living within it. There are considerable numbers of children in the northern LGAs of SESLHD who are in an out of home care and have significant support and health needs due to past experiences of abuse and neglect.

Many of the risk factors for poor adult health are adopted in adolescence and are influenced by adverse childhood experiences. Investment in the early years of life with prevention, early intervention and clinical care are thus critical for potential long term investment in health and wellbeing.

Vulnerable older people, particularly those who are socially isolated or frail

The proportion of older residents in northern SESLHD LGAs is expected to grow much faster than the rest of the population. This will drive demand for services to meet the needs of this cohort, in both acute and sub acute care. As many as 85% of people aged over 65 have three or more long term conditions, and frail older people are at higher risk of falls, resulting in high numbers of emergency presentations and admissions and need for long term management. Many older people have additional social burdens such as financial hardship, social isolation (approximately 1 in 4 older people live alone) and many older people may be carers of partners or family members.

Cultural diversity

[165] Chief Health Officers Report, 2012, The Health of Aboriginal people of NSW URL:
http://www.health.nsw.gov.au/epidemiology/Pages/aboriginal-cho-report-2012.aspx
[166] ABS 2011 Census of Population and Housing, Table: B07 Indigenous status by age and sex
[167] SESLHD Population Health Directorate Plan 2014-2018 URL:
http://www.seslhd.health.nsw.gov.au/Planning_and_Population_Health/documents/PopulationHealthDirectoratePlan2014-2017.pdf
[168] ibid
[169] SESLHD Equity Strategy URL:
http://www.seslhd.health.nsw.gov.au/HealthPlans/documents/2016/SESLHD%20equitystrategy%20FINAL.pdf

While most residents of northern SESLHD LGAs identify English as their primary language, the area is culturally and linguistically diverse, with 44% of residents born overseas. Language and cultural barriers may result in a poor or different understanding of the health system and inequity in accessing health care, different understanding of the concepts of self-management, different beliefs about health and illness and its management, and perceived discrimination. This may result in poor participation in preventative health care, and over representation in chronic disease statistics.

The demand for interpreter services is also high, with 20% of SESLHD inpatient episodes in 2011-12 stating a preference for a language other than English during their admission process. However "*sample file audits undertaken … confirmed that a greater focus is required to ensure that the needs of non-English speaking patients are being adequately identified, recorded and addressed.*"[170] Evidence indicates patient safety is compromised when professional interpreters are not used for patients with limited English proficiency, potentially including adverse events, poorer patient experience and compliance, higher readmission rates, delays to theatre and medico-legal action and associated costs.[171]

Gay, lesbian, bisexual, transgender, queer or intersex (GLBTQI+)
Parts of Northern SESLHD have the highest numbers of people identifying as gay, lesbian, bisexual, transgender, queer or intersex in NSW. Evidence indicates that individuals who identify as GLBTQI+ are especially susceptible to being placed at a socioeconomic disadvantage, to suffer discrimination in the workplace, to experience violence against them, and GLBTQI youth experience homelessness at a disproportionate rate. Those who undertake transgender reassignment or are intersex also face unique endocrine and metabolic challenges. This may result in significant inequalities in health and wellbeing outcomes, including mental illness and social isolation.

People with profound or severe disability
Around 1 in 30 people in SESLHD have a profound or severe disability. People with disability are more likely to have lower socio-economic status, fewer educational qualifications, be out of work, and experience discrimination. People with a disability often require more and complex health resources and services.

Good Practice Examples
- The Boston Health Care for the Homeless Program[172] provides integrated medical, behavioural, and oral health care, as well as preventive services, to more than 11,000 homeless people. Services are delivered in clinics located in 2 teaching hospitals, 80 shelters and soup kitchens, and an innovative 104-bed medical respite unit, with linked medical records, in order to reduce health disparities suffered by this vulnerable population.
- A Cedars-Sinai Heart Institute study trained Barbers working within African American communities in the US to check their customers for hypertension in order to offset the prevalence of the condition within at risk communities. At the study's conclusion, 20 percent more hypertensive patrons in the intervention group had their blood pressure controlled with medication compared to 10 percent in the control group[173].

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[170] SESLHD, 2014, SESLHD Implementation Plan for Healthy Culturally Diverse Communities 2014-2016. URL: http://seslhnweb/Multicultural_Health/Documents/Policies_and_Plans/SESLHD_MHS_plan_FINAL_November2014.pdf
[171] SESLHD, 2016 Project Report "Our right to know": Use of professional interpreters for surgical consent URL: www.seslhd.health.nsw.gov.au/multicultural_health
[172] O'Connell J, Oppenheimer S, et al The Boston Health Care for the Homeless Program: A Public Health Framework Am J Public Health. 2010 August, 100(8): 1400–1408. doi: 10.2105/AJPH.2009.173609 PMCID: PMC2901289 URL: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2901289/
[173] Rader F, Elashoff RM, Niknezhad S, Victor RG. Differential Treatment of Hypertension by Primary Care Providers and Hypertension Specialists in a Barber-Based Intervention Trial to Control Hypertension in Black Men. The American journal of cardiology. 2013;112(9):1421-1426. doi:10.1016/j.amjcard.2013.07.004. URL: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3800500/

Proposed recommendations

• Continue and expand upon/enhance existing models that promote the health and wellbeing of priority populations, e.g.:
   o Continue to collaborate with St Vincent's Health Network and SCH and other stakeholders to deliver a comprehensive range of services to address health inequities
   o Hep Check 1-2-3, a program aimed at addressing inequities in accessing specialist hepatitis care for people experiencing homelessness in inner City Sydney.
   o "Access to Mental Health Services for People Experiencing Homelessness" Project for access to and continuity of mental health services to people with a mental illness experiencing homelessness who are accessing and transitioning between SESLHD mental health, drug and alcohol and ED Services and/or the homelessness Sector
   o Malabar Community Midwifery Link Service for community based ante and post-natal care of Aboriginal women and babies
   o Community outreach services for HIV
   o Needle exchange programs
   o Health promotion programs, e.g. in schools, sexual health services, Aboriginal services.

• Consider the development/implementation of:
   o Improved recording of Aboriginality by education of staff and the community, including explaining why this information is required, asking at each contact with the health service, and employing more Aboriginal people as front-line staff
   o Ongoing interaction with Aboriginal health workers and the local Aboriginal community for culturally acceptable services to promote early diagnosis, improved self-management, and fewer hospitalisations, e.g. joint clinics for comorbidities to streamline services, reduce duplication and improve the convenience to the Aboriginal client and their supporting family
   o Funding for a diabetes educator to address the management of mental health patients with diabetes, working in a collaborative model with endocrinology
   o Community based Hepatitis Assessment and Treatment (iCHAT): a Department of Infectious Diseases and HARP Unit partnership for the diagnosis and management of hepatitis B and C using a community based GP and nurse led model of care; and prescription of new direct acting antivirals. This requires the placing of appropriately trained nursing staff in community general practices with links to specialist advice and treatment for patients with Hepatitis C virus.
   o Programs for culturally and linguistically diverse communities that use bilingual/bicultural workers, are delivered through established community networks, recognise the importance of cultural and linguistic diversity in the design of interventions and incorporate cultural competency training and provide culturally tailored information, and consistently use professional interpreter services by health professionals
   o Development of a multi-disciplinary clinic, potentially run from Albion Centre, for the management of sex steroid replacement and metabolic challenges facing LGBTIQ+.
   o Recommendations from the SESLHD Equity Strategy, i.e. transform health services to improve equity, invest to provide more care in the community and more prevention and wellness programs, and better address the social determinants of health and wellbeing
   o Deep data dives to focus on the needs/gaps and assets/strengths of our vulnerable and marginalised people and places.

4.2.3 Women, babies and families

Goal: To improve the well-being of women, babies, and families as their well-being determines the health of the next generation.

Women and men share many health challenges however there are also differences in "certain patterns of illness, disease risk factors, and access to and use of health services. These differences are shaped by biological, social and cultural factors"[174].

Navigating the health of women is often seen through the prism of major life stages (young women, women of child bearing years, women in mid-life and older women)
- Adolescent and young women are at greater risk of some mental health problems (than adolescent men), have increasing sexual activity and may be susceptible to teenage pregnancy[175]
- Regular health checks of women of child bearing age can provide an opportunity to identify existing health risks in women and to prevent future health problems for women and their children
- In mid-life women experience a higher burden of chronic disease and live more years with a disability
- For older women their longer life expectancy and pre-existing health concerns intersect with their social determinants of health including caring responsibilities, financial insecurity, etc.

For newborns and children the aim is give them the best start in life. NSW Health's Healthy, Safe and Well[176] focuses on preconception to 24 years of age, to promote health, prevent illness, embed early intervention and deliver integrated, connected care for all NSW children and families no matter where they live.

Good practice examples
- Implementation of the Quit for New Life smoking cessation program in the Aboriginal Maternal and Infant Health Services and Child and Family Health Services at Malabar Community Midwifery Link Service and Narrangy-Booris Maternal, Child and Family Health.

Proposed recommendations

• Continue and expand upon/enhance existing models that promote the best start to a child's life, e.g.:
     o Ante and post-natal care at RHW, particularly for high risk groups
     o Aboriginal maternal and infant health service
     o Mothersafe, an information and telephone counselling service about exposures during pregnancy and lactation delivered from RHW
     o Breastfeeding support programs at RHW
     o Newborn follow up clinics at RHW
     o Early Parenting Program for pregnant and parenting women and families with children from birth to five years of age, particularly supporting access and equity to pregnancy and early parenting services for vulnerable populations

• Consider the development /implementation of new models of care to support the early years, including culturally safe maternal and child health care, e.g.
     o Expand the Newborn Care Centre including an increase in the bed base for Neonatal Intensive Care Unit and Special Care Nursery to ease current overcrowding, accommodate increasing demand and look after extremely preterm and low birth weight babies with or without surgical complications
     o Expand physical space of Newborn Care Centre to enable the delivery of contemporary models of care, which includes provision of care by parents.
     o Construct a surgical area within the Newborn Care Centre to enable surgical

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[174] Australian Medical Association Women's Health 2014. URL: https://ama.com.au/position-statement/womens-health-2014
[175] NSW Health, 2013, NSW Health Framework for Women's Health 2013. URL: http://www.health.nsw.gov.au/women/Publications/womens-health-framework-2013.pdf
[176] NSW Kids and Families, 2014, Healthy, Safe and Well: A strategic health plan for children, young people and families 2014–24. URL: http://www.kidsfamilies.health.nsw.gov.au/media/233616/strategic-health-plan-final-low-res.pdf

- procedures to be undertaken on unstable/unwell neonates.
  - o Increase capacity within Medical Imaging and Maternal Fetal Medicine to support the growing number of high risk pregnancies where neonatal intensive care will be required
  - o Enhance the current NSW Fetal Therapy Centre where high end fetal surgery is undertaken
  - o Increase need to access the Randwick Hospital's Campus hybrid theatres or interventional radiology services for the management of obstetric haemorrhage and chronic gynaecological pain
  - o Support for the procurement of a Robot for gynaecology and gynaecological oncology surgery.
  - o Redesign of Birthing Services to improve environment and support contemporary birthing models of care
  - o Develop triage areas within the birthing precinct to enable assessment of women in pre labour
  - o Increase capacity of psychology, physiotherapy and speech therapy for early intervention of children born prematurely and/or with complex health needs
  - o Expand the perinatal mental health service to incorporate delivery of appropriate services to residents of the local community and establishment of an inpatient unit for acute perinatal mental health patients where babies are able to stay with their mothers
  - o Improve mental health services to patients diagnosed with chronic gynaecological pain, those suffering from other gynaecological conditions and patients diagnosed with gynaecological cancer
  - o Support patient accommodation for rural women - many women with pregnancy complications from rural areas occupy acute beds in the hospital due to a lack of suitable local accommodation. They are not able to be sent home to rural/remote areas, but do not require an acute bed
  - o Support an "Education and Research" precinct on campus including establishment of a training simulation laboratory to enable team based training and drills for emergencies in obstetrics and gynaecology
  - o Consider potential for closer functional relationship to support management of neonates between Paediatric / Children's ICU (SCH) and NICU (RHW).

For further information on existing and recommended programs for children and young people, please refer to the SCH Integrated Health Services Plan and 4.2.2 Focusing on wellness and reducing health inequities – Investing in the early years.

4.2.4 Mental Health Services

Goal: Any member of our community affected by mental illness will have equal access to safe, evidence-based, high quality care for all their mental and physical health needs. The Mental Health Service will work alongside other health and social service providers to keep people out of hospital and living well in the community - enjoying good general health and participating meaningfully in society and work, free from stigma and discrimination.

At the population level, mental illnesses are the leading cause of non-fatal disease burden in Australia. The experiences and needs of people with a mental illness vary significantly, based on the duration, type and severity of their illness. Serious and enduring mental illnesses are widely recognised as debilitating conditions that are closely associated with suffering, disability and premature mortality.

The life expectancy of people with serious mental illness is typically between 10 and 32 years shorter than the general population. Around 80% of this higher mortality rate can be attributed to the much higher rates of physical illnesses, such as cardiovascular diseases, respiratory illnesses, diabetes and cancer experienced by this population.

Many of these causes of premature death are due to preventable illnesses caused by increased high risk behaviours such as smoking, substance abuse, and exposure to communicable diseases such as hepatitis C. As many as 40% of adult smokers have a mental illness. Further, some medications

prescribed for people with mental illness are associated with weight gain, obesity and new onset diabetes. Mental illness also affects a person's ability to manage chronic illnesses, especially those on insulin treatment, which may result in multiple illness complications.

People living with mental illness are also more at risk of experiencing a range of adverse social, economic and health outcomes, such as homelessness, social isolation, and unemployment which may exacerbate mental illness and poor health and wellbeing.

People living with mental illness can and do recover to live productive lives in their communities. Recovery emphasises the need for a comprehensive community based service system that works to address the full impact of mental illness. The improvement of mental health treatment services in isolation will not address all the issues related to the support of people with mental illness and their recovery.

Improving the mental health of the community requires integrated and collaborative models of care with many partners to be responsive to an individual's often changing needs. These include the primary and private healthcare sector (GPs and other clinicians), the non-government sector, other SESLHD health services, government services provided by education, employment, housing and homelessness, aged care providers, police and the justice system.

Good practice examples
- The Keeping our Body in Mind program is an 18-week program of lifestyle and life-skills interventions to attenuate the antipsychotic medication-related increased weight and vulnerability to 'metabolic syndrome'
- Headspace Bondi Junction delivers early identification and intervention strategies and holistic care for young people aged 12 to 25 years who are at risk of developing or showing early signs of mental health, physical health and/or drug and alcohol problems. The centre, administered by SESLHD, offers a wraparound service, partnering with organisations and services to provide mental health, physical and sexual health, alcohol and other drug counselling, and vocational support
- The Young Persons Outreach Program (YPOP) with RichmondPRA is an innovative partnership where the Mental Health Service delivers clinical intervention to young people 16 to 24 years with serious mental illness, who have, or are at risk of developing, functional disability because of their mental health problems, and contracting RichmondPRA to provide a range of psycho-social support services. Program provides living skills, psycho-social development, education, employment, family relationships, social skills and communication, physical health and fitness, recreation and leisure
- South Eastern Sydney Recovery College offers recovery-focused educational courses aimed at supporting people to recognise and develop their own talents and skills. The courses are co-developed and co-delivered by people with a lived experience of mental health concerns and health care workers
- The Mental Health Patient Safety Program aims to systematically reduce harm experienced by people receiving care from mental health services in SESLHD by supporting frontline staff to test, gather real-time data and reliably implement interventions. The Program is centred on five work areas: Leadership and Culture, Least Restrictive Practices, Safer Medicines Management, Risk Assessment and Safety Planning, and Communication at Transitions

Proposed recommendations
- Built environment
  - Ensure appropriate, defined footprint/s for the full range of Mental Health services in the Randwick Hospitals Campus redevelopment; which includes inpatients, community care, clinics, researchers, administration, and support services
  - Create a defined precinct at Randwick for on-campus community and research services. Options to be explored include presence within the Research Precinct of Randwick Hospitals Campus, or a designated campus physical health Ambulatory Care Precinct or similar collaborative hub model
  - Secure welcoming, distinct street frontages for ambulatory mental health services with minimal exposure to inpatient units where possible to enhance access for clients and their families in a manner that is respectful to their recovery needs

- o Improve hospital environments, including the incorporation of clinically informed, patient-centred environmental design features that reinforce recovery-oriented treatment goals
- o Develop integrated health and social care hubs in identified areas of need for the supported management of people with long term conditions in a community based setting. Initiatives to include:
    - Redevelopment of the not fit-for-purpose Maroubra Community Mental Health Centre site. Site to include a multilevel new build with provision for undercover community and staff parking, and co-location of complementary physical health, primary, not-for-profit and other private health and social care providers
    - Development to include consolidation of a comprehensive range of Adult Ambulatory Community Mental Health Services from across Bondi Junction and Maroubra sites, and provision of clinic spaces and hot desks for clinical outreach of staff based at POWH, and from our Community Managed Organisations and Primary Health Network partners
    - Consolidation of Eastern Suburbs Youth Mental Health Services at Bondi Junction to maintain local community presence and to foster close working relationships with *headspace* Bondi Junction.
- Models of care and care pathways
    - o Optimise management of the physical health of people living with severe mental illness (inpatient and community). Initiatives to include:
        - Physical health examinations conducted and escalation for specific medical review as appropriate
        - District-wide implementation of Keeping the Body in Mind Program
        - Effective monitoring of physical health of consumers prescribed antipsychotic medication, particularly in relation to the impact on cardio metabolic health.
        - Clinical review for clozapine clinics
    - o Integrate care across disciplines, sectors and organisations to provide standardised workflow management and monitoring, with an emphasis on the whole patient journey to maximise outcomes
    - o Facilitate strong links to primary health care and the provision of appropriate supports to identify high risk patients
    - o Strengthen community-based care, including assessment, assertive early treatment and short term support including to support increased care coordination roles for other providers, as an alternative to hospitalisation where clinically indicated and safe.
    - o Review inpatient model of rehabilitation with a view to transitioning to a community-based intensive rehabilitation model
    - o Reduce the frequency and severity of conduct problems at the time when intervention is likely to be most effective in order to prevent the development of severe behavioural problems in young children, through piloting and implementation of the statewide Got It! program locally
    - o Develop better consistency of service parameters of child, adolescent and youth mental health services across the LHD, e.g. service structure, pathways to care, models of care, evaluation strategies and measures, skill sets and competency frameworks
    - o Strengthen comorbidity services for young people with first onset psychosis, including physical health care
    - o Further develop and strengthen partnerships with geriatric medicine/aged care, residential aged care facilities and other service providers
    - o Monitor the implementation of the NDIS for people with a psychosocial disability
    - o Consolidate and extend partnerships with social housing providers and non-government organisations
    - o Develop vocational programs and partnership opportunities that align with IPS principles to improve employment and educational outcomes.
- Service delivery
    - o Implement the Mental Health Patient Safety Program through building capability and capacity of staff in improvement science, ensuring data systems are available and accessible at unit/ team level to drive and monitor improvement strategies, and governance and regular reporting
    - o Systematically reduce the harm experienced by people receiving care from mental

> health services by supporting frontline staff to develop, test and implement a range of targeted, service-focused improvement strategies and interventions. Targeted strategies include:
>
> - Provide the leadership framework that supports the improvement of safety and quality
> - Minimise harm to SESLHD MHS consumers resulting from restraint seclusion and other restrictive practices
> - Improve safe and effective medicine management
> - Ensure risk assessment and safety plans are implemented for every consumer whilst promoting recovery
> - Improve safe and effective consumer and carer focused communication at key transition points
>
> o Continuously review and implement evidence-based best practice for patients in the most appropriate setting
> o Secure access to long stay and supported accommodation through participation in the Ministry of Health's Pathways to Community Living Initiative
> o Work towards equitable resource distribution for Child and Adolescent Mental Health Services across SESLHD
> o Improve internal partnerships, including in-reach of inpatient, PECC and acute mental health teams
> o Expand and consolidate consumer representation to facilitate collaboration in service design, review and decision making
> o Attract, develop, support and sustain a skilled mental health workforce
> o Support the roll-out of the 'Keeping our Staff in Mind' program, providing staff with first-hand experience of the consumer 'Keeping our Body in Mind' physical health assessment and individualised lifestyle program
> o Strengthen the structure and employment of people with lived experience of mental illness in peer worker roles
> o Expand the consumer workforce and develop sustainable structures.

4.2.5 Helping people to live well with long term conditions that are simple or stable

Goal: To enable people living with simple or stable long term conditions to live well and avoid unnecessary complications and acute crises.

Demand for health services will continue to increase due to the ageing population and the associated increase in incidence and prevalence of chronic disease, and improvements in survivability, e.g. for cancer. Many people live well with long term conditions, with many of these conditions responsive to lifestyle changes and medications, and ideally self-managed with primary care support.

People living with long term conditions such as diabetes, heart disease, kidney disease, asthma, osteoarthritis, some cancers, or HIV can develop care plans in partnership with their primary care provider to encourage medication adherence, lifestyle changes, and ensure preventive care to safely manage their own care and prevent deterioration in their health and wellbeing. Improving health literacy also helps to ensure patients understand their condition, treatment options available and success rates of treatment. Evidence suggests that promoting greater patient responsibility leads to improved mental and physical health outcomes, quality of life, wider

Supporting self-management

Health professionals can increasingly focus on helping people to successfully manage their own health. *"This isn't just about shifting responsibility onto the patient, but about recognising that patients themselves are a valuable resource and, with the right support, training and technology, can be empowered to manage and improve their condition."*

Wilson S. and Langford K. Innovation Unit.10 Ideas for 21st century healthcare. URL: http://www.innovationunit.org/sites/default/files/DIGITAL%20VERSION10%20Ideas%20Final.pdf

social outcomes and optimal investment for healthcare investment and sustainability.[177,178]

While most chronic disease is managed in primary care, specialised care is still required for early detection and optimal management of complications when severe events occur (e.g. for diabetes in an acute intercurrent event such as surgery, acute diabetes exacerbation or acute diabetes complication such as foot infection).

Strategies to help people live well with simple or stable long term conditions include:
- Population risk stratification, with a graded response from health promotion activities in the community through to supported case management as risk and complexity levels increase. Tailored interventions are designed for each at risk group
- Ensuring health and social care is planned and co-produced with consumers and the community to ensure engagement and avoid fragmentation of care
- Providing better joined up care between primary and tertiary care, i.e. improve relationships with local GPs to formulate pathways to allow early identification of chronic health issues, better care planning and coordination, better referral processes and coordinated care on discharge

Good Practice Examples
- Aligning chronic disease management e.g. for diabetes, osteoporosis, respiratory disease, heart failure, with ACI model guidelines and provide support to primary care for chronic disease management to avoid hospital admission[179]
- *Health Pathways*[180] in partnership with the Primary Health Network to provide condition specific information on assessment, management and local referral options for primary health clinicians
- Suitably designed exercise/activity programs to improve functional ability, prevent falls and help maintain healthy weight, e.g. the evidence based Stepping On program for falls prevention which has been shown to reduce participants' risk of falling by 31%[181]
- The Sugar Fix Collaborative project between SESLHD and CESPHN, which provides timely and appropriate navigation of newly diagnosed clients accessing outpatient clinics. Early evaluation shows a reduction in the did not attend rates at the St George Hospital outpatient clinic, and a reduction in the number of referrals

Proposed recommendations
- Continue and expand upon/enhance existing models that promote the health and wellbeing of people living with simple or stable long term conditions, e.g.:   - Falls prevention programs in the community e.g. Stepping On program   - Ongoing Community exercise programs, e.g. WAVES hydrotherapy, AIM for Fitness, the centre for Healthy Ageing at War Memorial Hospital Waverley   - Community nursing and allied health to support self-management, e.g. with heart failure programs (Heartlink), RCCP   - Patient education programs in self-management, e.g. for osteoarthritis, diabetes management, smoking cessation   - Providing support and recognition of the role of carers and family in maintaining people's health and wellbeing   - HIV Outreach programs   - Continued promotion of healthy lifestyles (e.g. smoke-free environments, outdoor gyms, etc.)   - Access to specialist outpatient clinics for consultation and review as required, with referral back to primary care for ongoing management.

[177] International Alliance of Patient's Organisations, London 2007. What is patient-centred care? A review of definitions and principles. http://www.patientsorganizations.org/attach.pl/547/494/IAPOPatient-CentredHealthcareReview2ndedition.pdf
[178] Wood S, Finnis A, et al. At the heart of health. Realising the value of people and communities. NHS Realising the Value Report, March 2016. URL: http://www.nesta.org.uk/sites/default/files/at_the_heart_of_health_-_realising_the_value_of_people_and_communities.pdf
[179] NSW Agency for Clinical Innovation Models of Care URL: http://www.aci.health.nsw.gov.au/resources/models-of-care),
[180] Central and Eastern Sydney PHN. Health Pathways URL: https://sydney.healthpathways.org.au/LoginFiles/Logon.aspx?ReturnUrl=%2f
[181] NSW Office of Preventive Health. Stepping On. URL: http://www.preventivehealth.net.au/stepping-on.html

- Consider the implementation of improving the care and treatment of simple or stable long term conditions, e.g.:
  - o Develop a system for urgent access to outpatient assessment and ambulatory care with the implementation of rapid access/crisis clinics, e.g. for diabetes, dermatology, infectious diseases, appropriately resourced and with clerical support, where deteriorating patients can be directly referred for review, preventing further deterioration and complications, and reducing potential ED presentations and admissions
  - o Develop a telephone advice line for specialised advice access for specific advice to GPs
  - o Provide multi-disciplinary clinics where care is directly patient-centred, rather than speciality-centred, with cost and time savings for the hospital and improved patient care e.g. Dermatology clinics run in conjunction with plastics, wound care, rheumatology, Immunology, Genetics etc
  - o Review of staffing to increase capacity for specialised public outpatients clinics, (including multi-disciplinary clinic staff) to reduce extensive waiting lists and prevent deterioration, e.g. podiatry in endocrinology, allied health in rheumatology, biologics clinic and biologics nurse, expansion of infectious disease clinics for HIV, the provision of a fever clinic in Influenza season
  - o Provide an over-arching governance/management of all outpatient services to allow standardised practices and reduce duplication of workforce and processes.
  - o Invest in appropriate information, communication and technological to support the efficient operation of outpatient services e.g. ensure all patients are notified 10 days in advance of appointment, confirmation call 3 days prior and SMS 2 days prior.
  - o Consider a centralised outpatient precinct incorporating allied health and diagnostic services or in close proximity.
  - o Expand current ambulatory care unit to include day procedures and identify patient groups currently admitted for intravenous infusions. Consider extending operational hours to accommodate longer day stays.
  - o Establish a fracture liaison service for the prevention of secondary osteoporotic fractures. Fracture prevention programs have shown a reduction in the number of subsequent fractures, usually the more expensive hip, spine or pelvis fractures, with both cost benefits to health services and quality of life benefits for the patients involved. [182],[183],[184]
  - o Take a more proactive approach to treating obesity and its related complications, according to established and verified models of care in an ambulatory setting in partnership with other stakeholders, primarily Primary Health Networks and GPs
  - o Develop an integrated care pathway for patients on home dialysis to increase the number receiving home delivered haemodialysis and peritoneal dialysis. This requires more dialysis nurses educated in benefits and application of home treatment, and consideration of alternative dialysis machines and new technologies being developed
  - o Increase the integration of outreach services such as RCCP and Heartlink, to improve efficiency and patient management, i.e. with shared facilities, administration, some staffing
  - o Increase integration of outreach services with cardiology, aged care, palliative care and community services to develop a collaborative service delivery model to care for all vulnerable patients in the community
  - o Establish a patient training and support program for at home self-administration of medications
  - o Place appropriately trained nursing staff in community general practices with links to specialist advice and treatment for patients with HCV. This will require additional staff (both medical and nursing), the purchase of a fibroscan, the development of information systems that work across the community and public health service as well as education and training for community based medical staff.
  - o Upskill the nursing workforce to be specialised in outpatient clinics, e.g. infusion

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[182] Hunter Medical Research Institute, Fracture Liaison Service Cost Study, Draft economic analysis, November 2015
[183] ACI:NSW Model of Care for Osteoporotic Refracture Prevention. URL:
http://www.aci.health.nsw.gov.au/__data/assets/pdf_file/0003/153543/aci_osteoporotic_refractu.pdf
[184] Nakayama A, Major G, Holliday E, Attia J, Bogduk N. "Evidence of effectiveness of a fracture liaison service to reduce the re-fracture rate, Osteoporos Int., 09 Dec, 2015 (published online) URL: http://www.ncbi.nlm.nih.gov/pubmed/26650377

> - nursing or more involvement of CNCs in specialty clinics
> - o Expand the hospital in the home service with specialist review
> - o Education of GPs and other providers on conditions relevant to new models of care
> - o Provide seamless care across community, primary and tertiary service components with integrated patient/client records
> - o Ensure culturally appropriate health care is provided to Aboriginal people[185]
> - o Implement the recommendations of the 2014 review of chronic disease management in culturally and linguistically diverse communities coordinated by SESLHD multicultural health and chronic disease management program: working with designated multicultural health workers; delivering programs through collaboration with existing community networks; and ensure that all interventions and information are culturally appropriate, and that professional interpreting services are consistently used.

Diagram sourced from**:** Oliver D, Foot C, Humphries R. The Kings Fund 2014. Making our health and care systems fit for an ageing population. URL: http://www.kingsfund.org.uk/sites/files/kf/field/field_publication_file/making-health-care-systems-fit-ageing-population-oliver-foot-humphries-mar14.pdf

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[185] NSW Health, 2010, Chronic Care for Aboriginal people Model of Care URL:
https://www.aci.health.nsw.gov.au/resources/chronic-care/chronic_care_for_aboriginal_people/ccap/ccap/CCAP-moc.pdf

4.2.6 Helping people to live with complex co-morbidities, including dementia and frailty

Goal: To support people living with complex multiple long term conditions to remain as well and independent as possible and to avoid deterioration or complications.

The complexity of multiple long-term conditions often results in increased emergency care presentations and hospital admissions, creating an unsustainable strain on healthcare services, workforce and budgets, and challenges health systems traditionally geared to the management of acute episodes and single-disease chronic conditions.

Many models of care developed for individual long-term illnesses focus on improving the management of conditions by patients and professionals in the community, to reduce reliance on acute care. These models may need to be substantially adapted to meet the needs of people with multiple illnesses, for example where capacity for self-management is very limited, and deteriorating conditions require access to specialist acute care. In order to deliver improved outcomes for people living with complex comorbidities, including dementia, frailty and mental health, the whole pathway of care needs to be considered, with particular attention to those communities where there is clear evidence of inequalities in access to care and treatment. This will link closely with the District's work[186] to expand the role of primary care, to improve emergency care and to integrate health and care services across all of the agencies responsible.

> **Opening up consultations**
>
> Changing the focus of one-on-one consultations to group appointments. *"Group appointments create a relaxed environment where information sharing, open discussion and collaborative problem-solving can happen."* People get more time to discuss their condition and treatment, can learn from the experiences of others and can build social networks.
> Wilson S. and Langford K. 10 Ideas for 21st century healthcare. Innovation Unit URL: http://www.innovationunit.org/sites/default/files/DIGITAL%20VERSION10%20Ideas%20Final.pdf

Interventions targeted at people with complex conditions have been shown to achieve more of their goals if they are multifaceted rather than relying on one intervention, for example combining a range of professionally focused changes (such as specialist geriatricians or case management) with patient/carer-focused interventions (such as better information or self-management). Good outcomes for complex patients need to consider patient preferences and are likely to include non-medical goals,[187] with increased consumer involvement and coproduction in their care and long term management.

Identifying who is at risk of complexity is a crucial first step, with health and social needs inextricably linked. Using models of anticipatory care, risk stratification and care coordination, with self-management supported by urgent access to specialty services should a patient's condition change, and timely interventions to prevent deterioration are recommended. Strong partnerships with GPs and social welfare agencies are required. An example of anticipatory care to better manage and prevent deterioration of people with complex comorbidities includes the new Commonwealth Government *Healthier Medicare Package*[188] for risk stratification and case management of complex patients by GPs.

Improved care coordination in the community helps avoid fragmented care and supports integration of medical and social care services, such as home care and supportive housing, updates all providers on changes in the individual patient's status and treatment, and provides direct contact with clients to ensure that they attended appointments, understand and adhere to their medications, and have access to the appropriate services.

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[186] SESLHD Roadmap to the Delivery of Excellence 2014-2017 URL: http://www.seslhd.health.nsw.gov.au/Planning_and_Population_Health/documents/RoadMaptothedeliveryofexcellence2014-2017.pdf
[187] Hubertus J and Thorlby V&J. Developing care for a changing population: supporting patients with costly, complex needs. Nuffield Trust UK Discussion paper, May 2016. URL: http://www.nuffieldtrust.org.uk/node/51
[188] Aust Govt Media Release 20 March 2016 URL: www.health.gov.au/internet/ministers/publishing.nsf/Content/health-mediarel-yr2016-ley021.htm

Good practice examples

- In Montreal, Canada a 50% reduction in hospital alternate-level inpatient stays and increased patient satisfaction was achieved after the introduction of a program of integrated care for vulnerable community-dwelling elderly people (SIPA) which serves as a single point of entry for care, with local professionals responsible for the full range and coordination of community, acute and long-term health and social services[189]
- Rapid diagnosis and treatment centres allow early specialist assessment and management of people with long term conditions at risk of deteriorating in an ambulatory setting, to avoid admissions. Extensive delays for access may result in non-urgent health issues deteriorating to the point of requiring a more expensive health intervention, often involving in-patient care. The use of same-day ambulatory care clinics improve efficiency with faster access, reduce waiting lists, produce better patient outcomes, create cost savings by reducing the number of admissions and increasing the number of outpatient referrals, and reduce demand for inpatient beds
- Providing good care for people with dementia and support for their carers and family, such as expanded voluntary services for people with long term conditions, e.g. dementia monitoring. In Rotherham, UK, GPs and community nurses work with advisors who know what voluntary services are available for people with long term conditions. This "social prescribing service" has cut the need for visits to accident and emergency, out-patient appointments and hospital admissions[190]
- Providing outreach to aged care homes e.g. in Airedale UK, nursing and residential homes are linked by secure video to the hospital, allowing consultations with nurses and consultants both in and out of normal hours. Emergency admissions from these homes have been reduced by 35% and ED presentations by 53% and the number of hospital bed days were down 59%.[191]
- Southwark and Lambeth, UK hold virtual clinics as an opportunity for GPs from a practice to discuss the care of frail elderly patients with a consultant geriatrician from the local hospital and community pharmacists. In the previous year these patients had a total of 430 GP or hospital appointments and attended ED 56 times, reflecting their complexity Many of the patients reviewed have remained in the care of their GP and did not present to ED[192]
- Enhanced role of community based pharmacy as a point of contact for people with long term conditions, using an e-medication management system and supporting self- management.

Proposed recommendations
- Continue and expand upon/enhance existing models that promote the health and wellbeing of people living with complex long term conditions, e.g.:   - Expansion of existing community based programs, such as Heartlink, RCCP, Connecting Care in the Community   100% utilisation of early supported hospital discharge with transitional care support programs, e.g. TACS   - Rapid access to crisis pain management through the pain clinic.   - Consider the development/implementation of: - Risk stratification and frailty tools to identify patient cohorts at risk in partnership with primary care, to avoid reactive care and prevent deterioration and/or hospitalisation   - Appropriate staffing and resources to allow introduction and evaluation of new models of care, e.g. care coordination, new and expanded community outreach services   - Pathways for chronic and complex health conditions in collaboration with primary care, e.g. Health Pathways model[193] in partnership with the Primary Health Network to provide condition specific information on assessment, management and local referral

[189]Beland F. et al, Universite´ de Montreal–McGill University Research Group on Integrated Services for Older Persons. Integrated Services for Frail Elders (SIPA): A Trial of a Model for Canada. URL: http://www.researchgate.net/publication/7012295_Integrated_Services_for_Frail_Elders_(SIPA)_A_Trial_of_a_Model_for_Canada

[190] NHS England 5 Year Forward View. What will the future look like? New Models of Care URL: https://www.england.nhs.uk/ourwork/futurenhs/nhs-five-year-forward-view-web-version/5yfv-ch3/

[191] NHS Airedale URL: http://www.airedale-trust.nhs.uk/blog/airedale-achieves-milestone-of-100th-care-home-to-get-round-the-clock-care-on-screen/

[192] Southwark and Lambeth Integrated Care. Project Summaries. URL: http://slicare.org/system/documents/files/000/000/067/original/Project_one-pagers_merged_document.pdf?1458749375

[193] Central and Eastern Sydney PHN. Health Pathways URL: https://sydney.healthpathways.org.au/LoginFiles/Logon.aspx?ReturnUrl=%2f

- options for primary health clinicians
  - An advanced trainee aged care registrar or staff specialist geriatrician be actually sitting in ED to rapidly assess aged care patients
  - A multidisciplinary rapid response outreach service to target community dwelling older people who are referred by GPs or present to the ED with complex medical, functional and social issues, to provide short term acute and sub-acute interventions
  - Same day outpatient services for urgent referrals for early intervention to potentially prevent further deterioration and possible emergency presentation or admission, e.g. for defined infectious diseases, dermatological conditions, rheumatological conditions, respiratory conditions
  - Redesign outpatient clinics availability to more efficiently use existing resources
  - Effective follow up care, with good communication between hospitals and primary care to avoid re-admission and emergency presentations
  - Improved physical assessment of people with mental ill-health to help manage co-morbidities before deterioration, and link patients with a GP
  - An over-arching governance/management of all outpatient services to allow standardised practices and reduce duplication of workforce and processes
  - A centralised outpatient precinct incorporating allied health and diagnostic services or in close proximity
  - Expand current ambulatory care unit to include day procedures and identify patient groups currently admitted for intravenous infusions. Consider extending operational hours to accommodate longer day stays
  - Employ a general physician or physician interested in general medicine to be based in ambulatory care/ outpatient services for medical oversight and increase billing potential
  - A joint care model for symptomatic management of endocrine disorders induced by hormone deprivation therapies for cancer treatment
  - A multi-disciplinary campus-wide Thyroid Care Centre of Excellence, to ensure correct diagnosis and initiate treatment or reverse precipitating factors. Initial management may be as an inpatient, with follow-up in an ambulatory setting in partnership with primary care
  - A multidisciplinary pulmonary hypertension clinic, between Cardiology, Rheumatology and Respiratory, to ensure expert care is delivered to these patients and improve access to clinical trials
  - An integrated bariatric management service, i.e. with gastroenterology, endocrinology, respiratory medicine, Upper GI surgeons, rehabilitation, allied health, etc
  - Options for equitable access to evidence based bariatric surgery for the management of type 2 diabetes in patients with obesity class 11 with comorbidities and class 111,[194] with multi-disciplinary follow up in the ambulatory setting
  - An integrated service for breathlessness including respiratory, palliative care and clinical psychology
  - Implementation and adherence to evidence-based principles to improve the care and management of young people with long-term conditions transitioning from paediatric to adult health care, e.g. with the development of a collaborative transitioning program for young adults with endocrine and metabolic disorders to the adult health service environment
  - Ensure appropriate end of life care and support and adherence to advanced care plans
  - A Centre for Innovative Therapy in Inflammation Medicine e.g. for new agent clinical trials, orphan use of drugs, including a dedicated clinic for patients with rarer diseases that require this treatment
  - The development of regional MRI and Ultrasound for improved and earlier diagnosis of disease. This would have applications for a number of specialties
  - Re-establishment of the biologics service, to provide patients better access to targeted therapies and facilitate participation in clinical trials and research
  - An integrated shared care record across health and social care.

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[194] NHMRC, Clinical Practice Guidelines for the Management of Overweight and Obesity in Adults, Adolescents and Children in Australia URL: https://www.nhmrc.gov.au/guidelines-publications/n57

Frailty and Dementia

Recognising the growing incidence of frailty and dementia in our ageing population is an important consideration for health and social care services. Frail elderly patients are more prone to adverse events as inpatients in hospital, and wherever possible, should have their health issues "managed in place", with admissions from residential aged care facilities (RACF) managed as an adverse event. Frailty may present with nonspecific symptoms, such as fatigue, unexplained weight loss and frequent infections, with falls as a result of balance and gait impairment, fear and visual disturbance, delirium (approximately 30% of elderly people admitted to hospital will develop delirium), and fluctuating disability.[195] Using frailty indexes or outcome measures are an important tool for prevention and deterioration of comorbidities, especially in older people. Where dementia occurs, it usually corresponds to the degree of frailty.

To support clinical and service integration for older people with complex needs, the Kings Fund[196] recommends that: health and social care professionals work together in multidisciplinary teams (with clearly defined roles) or provider networks; service-level design elements of care for frail older people include holistic care assessments; care planning; a single point of entry and care co-ordination and/or case management; clinicians work with individuals and their carers and family to support understanding and self-management where possible; and personal contact with a named care coordinator and/or case manager is more effective than remote monitoring or telephone-based support.

The SESLHD Aged Care Services Plan 2015-2018[197] advocates for a continued shift in the balance of care to community and home settings, with an increase in services that reduce hospital length of stay and keep people well and out of hospital. Currently, inpatient aged care service models are progressing well, with reduced lengths of stay and bed days for older people over the last few years[198] reflecting the advantageous changes in care approaches and settings. Outpatient services are currently limited and require expansion to adequately meet patient needs and expectations and reduce the need for admissions. Similarly, increased community based services designed to keep people living at home for as long as possible to avoid hospital admission or earlier need for an RACF, and increased outreach services to RACFs are required in order to manage people effectively in the community.

Community services should be leading and directing the aged care models, and are critical to an optimally functional aged care service[199]. This does not underestimate the importance of hospital services, however optimal aged care requires improved linkages between different parts of the aged care and other relevant sectors[200]. This requires an increase in services that are integrated across the care continuum. It also requires improved staff capacity to implement best practice service delivery in the care and management of older persons in the hospital, community and RACF settings.

Proposed recommendations
• Continue and enhance existing models that promote the health and wellbeing of people living with frailty and/or dementia, e.g.:   ◦ Continuation as a pilot site for ACI Care of the Confused Hospitalised Older Patient study (CHOPS): for screening, identification, strategies to manage and documentation

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[195] Oliver D, Foot C, Humphries R. The Kings Fund 2014 Making our health and care systems fit for an ageing population http://www.kingsfund.org.uk/sites/files/kf/field/field_publication_file/making-health-care-systems-fit-ageing-population-oliver-foot-humphries-mar14.pdf

[196] Goodwin N, Dixon A. et al. (2014). Providing integrated care for older people with complex needs - Lessons from seven international case studies. Kings Fund.URL: http://www.kingsfund.org.uk/publications/providing-integrated-care-older-people-complex-needs

[197] SESLHD Aged Care Services Plan 2015-2018 URL: http://www.seslhd.health.nsw.gov.au/Planning_and_Population_Health/documents/HealthPlans/FinalAgedCarePlan_22%20April_2015.pdf

[198] ibid

[199] Comment from A/Prof Peter Gonski, Director of Aged Care and Rehabilitation, SESLHD

[200] See Southcare model for an example of this. Southcare is an integrated health care centre offering a range of services predominantly for frail older people and those with disabilities living in the Sutherland Shire community, with aged care and related services co-located in the Southcare building, in the grounds of Sutherland Hospital. URL: http://www.sscci.org.au/_organisation/southcare-south-eastern-sydney-local-health-district/0b8a9b1d-c5c4-4ac6-8b32-eb4124c0aec9

- o of delirium
  - o Community based services for the elderly
  - o WMH iREAP – pilot Day Rehabilitation program targeting frailty and falls and pre-habilitation in the community. Identifying people before entering the ED.
  - o Dementia monitoring program in the community
  - o Specialist geriatric evaluation and management
  - o Expanded HITH and PACS services in the community, closely linked with GPs, ED, ASET, SSU and MAU
  - o Inpatient aged care acute and rehabilitation services, including Acute Behavioural Unit and Geriatric Medical Assessment Unit, with close functional relationships between all
  - o Falls risk and bone health assessment and management in the hospital, outpatient and community settings, with potential for further liaison with other specialties for community access to prevention clinics e.g. with endocrinology for bone health

- Consider the development/implementation of:
  - o Expanded community based/outreach services:
    - Develop networks and referral pathways in partnership with the Primary Health Network for integrated primary care services to support older people in their home
    - The existing GRAFS service expanded to a 7 day service, including assistance with advanced care planning and implementation of a telephone advice line, to create a multi-disciplinary visiting service to RACF, linked to HITH and other service providers, to increase hospital avoidance for up to 50% of this patient cohort.[201] This would include triaging of patients for urgency of care, coordination of the provision of outreach services such as wound care, PEG tube management and other acute and sub-acute care to nursing staff at the facility, and education programs for RACF staff
    - Additional resources for geriatricians to improve capacity building with GPs for complex case management, e.g. with assessment and management of dementia, through shared community based clinics
    - Expansion of resources for existing dementia care services to cope with increasing demand, with continued links to Hammondcare for RACF dementia care services
    - Expansion of outreach services such as RCCP and Heartlink to RACFs, with an ongoing education program for RACF nursing staff particularly around emergency care
    - Establishment of a care coordinator role for complex aged care patients who are at high risk of re-entering the hospital system, to reduce avoidable hospitalisations and improve outcomes
    - A multidisciplinary rapid response outreach service[202] to target community dwelling older patients referred by GPs or who present to the ED with complex medical, functional and social issues, to provide short term acute and sub-acute interventions
    - Joint specialist/GP clinics in the community to ease access for the frail elderly and assist education of GPs in geriatric management
  - o Expanded hospital based services:
    - Increased resources for aged care outpatient clinics to provide at least 5 clinics per week, to allow more timely assessment and review and prevent hospitalisation
    - Establish a mechanism for early identification of people with frailty
    - An advanced trainee aged care registrar or staff specialist geriatrician based in ED to rapidly assess aged care patients
    - Introduction of the Acute Care of the Elderly (ACE) model of care[203] to improve

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[201] See ACI Evaluation of GFS model at: http://www.aci.health.nsw.gov.au/__data/assets/pdf_file/0020/262802/Evaluation-of-Geriatric-Flying-Squad.pdf
[202] Refer to Southcare Outreach Service as an example of a potential model:
http://www.seslhd.health.nsw.gov.au/TSH/services/southcare/documents/Southcare_Outreach_Service.pdf
[203] The ACE model of care aims to improve the integrated care of the older person with: Admission under dual medical and geriatric specialty and shared care; geriatric assessment beyond the presenting illness; promoting independence and function; and early discharge planning with timely liaison with GP and referral to appropriate community services. NSW Health Clinical

> - emergency and acute care for older people
>   - Introduction of an evidence based inpatient model for improved screening and management of delirium, appropriately resourced, to prevent or reduce delirium and its complications and reduce length of stay
>   - Expansion of inpatient therapy services to provide weekend subacute rehabilitation to accelerate patient functional recovery and reduce length of stay
>   - Expansion of geriatric surgical liaison services to general surgery, with the possibility of pre-operative geriatric assessment clinic for optimisation of older surgical patients and enhanced care planning prior to surgical intervention.[204] This would require geriatrician, nursing and allied health resources for modified enhanced recovery after surgery program. International evidence suggests the anticipated reduction in length of stay will cover cost of the additional resources
>   - Implementation of advance care planning for appropriate inpatients prior to discharge from the hospital
>   - Potential for aged care service provision at Sydney/Sydney Eye Hospital to support demand for acute/and or sub-acute geriatric care, with provision of a geriatrician or general physician on site
>   - Appropriate aged and dementia specific infrastructure within the facility, and consideration of ease of access to public transport and the carpark for frail older people
>   - Advocacy for the development of further specialist aged and sub-acute services at the War Memorial Hospital Waverley site as part of future Randwick Hospitals and Health Services' Campus expansion plans in partnership with Uniting Care Ageing. There is potential to expand the bed base, in partnership with SESLHD, by up to 30 beds. These could be either rehabilitation beds, maintenance type beds or palliative care beds, further expanding the footprint of SESLHD with the efficiency of sub-acute beds off the acute site.

4.2.7 Integrated Health and Social Care Hubs

To meet the rising demand on hospital based services and improve accessibility for patients, health and social care will increasingly be delivered outside of the hospital based environment, targeting local populations with identified needs to provide integrated health and social care in the community, with a focus on empowering patients to self-manage their conditions. To achieve this, the system will foster and support interdisciplinary and inter-organisational connections and relationships across the primary, secondary and tertiary health and social care and address the physical, mental and social wellbeing of individuals and communities and improve health literacy.

Place based approaches have been identified as a means of addressing health and social inequity.[205] Two localities of need have been identified in northern SESLHD[206]: the South Maroubra area within Randwick LGA, with a population of approximately 45,000 people; and Botany Bay LGA, with a population of approximately 40,000 people. Both of these areas have high presentation rates to the ED, high rates of admission to hospital and high utilisation of community services and outpatient services, and have identified areas of social disadvantage[207], as outlined in the figures below.

Services Redesign Program. Acute care of the Elderly URL: https://www.aci.health.nsw.gov.au/ie/projects/ace-model-of-care/ace/acemodel-care.pdf

[204] A successful model is in place at St Guys and St Thomas' Hospitals, London, which "provides preoperative assessment for patients aged over 65 years with multiple complex co-morbidities or functional problems. Patients are optimised for anaesthetic and surgery. The team then follows the patient through the surgical admission, addressing medical, functional and discharge planning concerns." See URL: http://www.guysandstthomas.nhs.uk/our-services/ageing-and-health/specialties/pops/overview.aspx

[205] The Royal Children's Hospital Centre for Community Child Heath, Melbourne 2012 Place-based Initiatives Transforming Communities URL: http://www.rch.org.au/uploadedFiles/Main/Content/ccch/CCCH_Place-based_initiatives_report.pdf

[206] See Appendix 7: Disadvantage by postcode, for further detail on socio-demographics of these suburbs

[207] Vinson T and Rawsthorne M. Dropping off the Edge Report 2015. Jesuit Social Services URL: http://dote.org.au/findings/full-report/

POWH Inpatient Separations by Suburb

TOP 10 ED PRESENTATIONS BY SUBURB

6,848	Maroubra Pagewood
6,761	Chifley Eastgardens; Hillsdale La Perouse Little Bay Malabar Matraville Phillip Bay Port Botany
6,440	Clovelly Randwick
4,225	Coogee South Coogee
3,177	Daceyville Kingsford
2,583	Bondi
2,278	Mascot
2,087	Kensington
1,995	Banksmeadow Botany
1,926	Eastlakes Rosebery
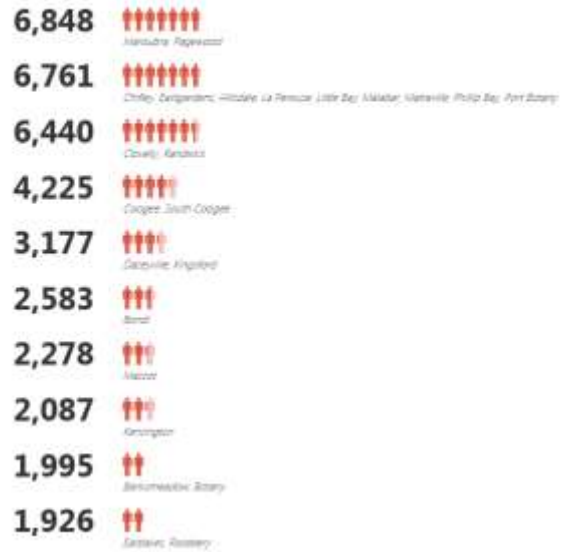
Residents from Maroubra, Pagewood and Chifley usually present to ED with higher acuity triage categories: just over 60% of presentations from these residents are classified as triage category 1 to 3. Residents from the northern end of the catchment usually present with lower acuity triage categories.

TOP 10 OUTPATIENT OOS BY SUBURB

23,660	Chifley Eastgardens; Hillsdale La Perouse Little Bay Malabar Matraville Phillip Bay Port Botany
21,720	Maroubra Pagewood
15,124	Clovelly Randwick
10,374	Coogee South Coogee
10,125	Daceyville Kingsford
9,923	Eastlakes Rosebery
7,822	Mascot
6,035	Bondi
5,914	Banksmeadow Botany
4,361	Kensington
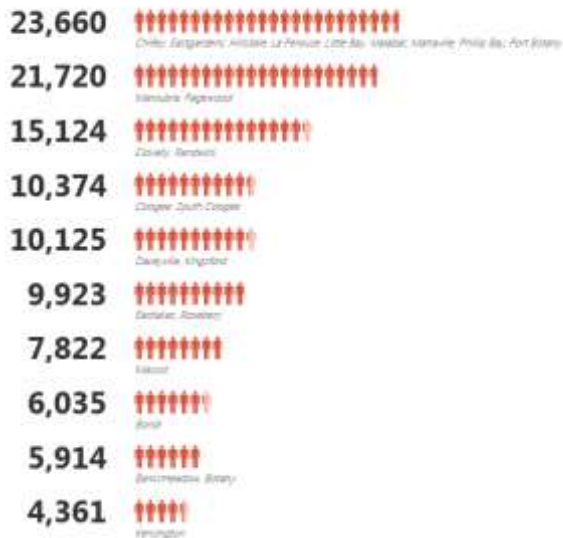
TOP 10 COMMUNITY OOS BY SUBURB

24,558	Chifley Eastgardens; Hillsdale La Perouse Little Bay Malabar Matraville Phillip Bay Port Botany
23,499	Maroubra Pagewood
13,314	Clovelly Randwick
10,862	Daceyville Kingsford
8,967	Coogee South Coogee
7,824	Eastlakes Rosebery
6,744	Banksmeadow Botany
6,324	Mascot
5,008	Kensington
1,111	Bronte Waverley
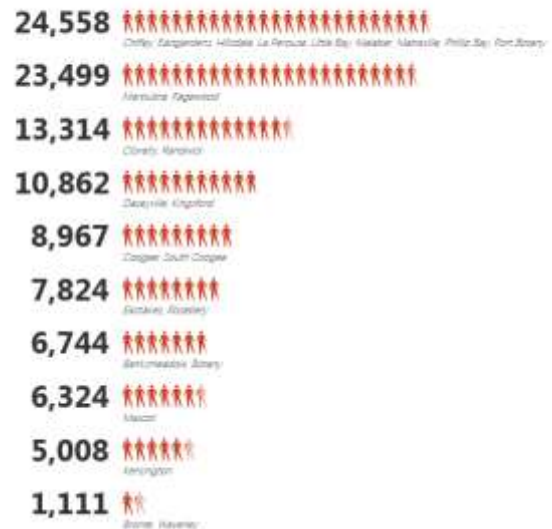
Disadvantage of our Residents
Based on the 21 indicators from the 'Dropping off the Edge Report'[208]

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[208] Vinson T and Rawsthorne M. Dropping off the Edge Report 2015. Jesuit Social Services
 URL: http://dote.org.au/findings/full-report/

Postcode	Areas	Ave SESLHD Rank N = 46	Ave NSW Rank N = 621	Internet access	Income & employment						Educational level				Schooling progress					Safety & Mental Health				
					Low family income	Unemployment	Long term unemployment	Rent assistance	Disability support	Housing stress	Unskilled workers	Overall education	Post school qualifications	Young adults not engaged	Readiness for school	Yr 3 numeracy	Yr 3 reading	Yr 9 numeracy	Yr 9 reading	Criminal convictions	Juvenile convictions	Domestic violence	Prison admissions	Psychiatric admissions
2036	Chifley, Eastgardens, Hillsdale, La Perouse, Little Bay, Malabar, Matraville, Phillip Bay, Port Botany	1	234	5	13	11	6	11	3	22	9	11	10	7	12	6	11	1	1	3	3	5	2	2
2018	Eastlakes, Rosebery	2	247	6	4	13	14	16	8	12	4	3	16	9	4	1	1	2	2	17	9	9	13	12
2020	Mascot, Airport	9	294	12	15	14	15	14	7	8	15	9	9	5	11	9	13	39	39	5	4	13	7	9
2035	Maroubra, Maroubra South, Pagewood	16	341	14	16	18	18	31	9	20	28	21	28	24	26	10	19	9	8	18	6	10	16	7
2019	Banksmeadow, Botany	19	349	22	24	15	13	13	12	23	18	17	8	16	25	20	17	41	41	8	21	20	20	4
2032	Daceyville, Kingsford	20	351	16	6	28	23	22	17	2	13	19	22	42	8	17	18	34	16	38	15	23	17	6

Key:

<table>
<tr><td style="background:red">   </td><td>Rank in top 20% of NSW postcodes</td></tr>
<tr><td style="background:yellow">   </td><td>Rank in top 20-40% of NSW postcodes</td></tr>
</table>

Source data: ABS and relevant State Government Social Service agencies

Many health and social care issues, including long term conditions, can be effectively managed in a local integrated community based environment, with established two way links to acute care when required. This requires close working relationships over extended periods of time between GPs and other primary health care practitioners, pharmacies, PHNs, community health services (such as community nurses, specialised cardiovascular and respiratory nursing and allied health, diabetes educators, psychologists, social workers, physiotherapists, occupational therapists etc.) and social care services.

A model to help achieve this is an integrated health and social care hub, bringing together primary and community health services, NGOs and social care organisations in effective partnerships with the local community. These hubs provide a comprehensive range of linked primary, community, health and social services along the continuum of care and provide a bridge between primary, secondary and tertiary care and with social services to facilitate coordinated service provision. More effective and sustainable joined up care for the patient can then be provided, genuinely coproduced in partnership with the consumer and their carers and family.

These purpose-built premises offer a 'one-stop-shop' approach to support the provision of high quality care to the local population and increase access to priority populations, an important step towards reducing health inequities. A wide range of health and social care services may be delivered in these centres, provided by a diverse range of health and social care workforce. Health and social partners working together will facilitate the delivery of integrated, sustainable, safe and effective people-centred services. Care would be provided by multi-disciplinary and inter-disciplinary teams using evidence based clinical practice guidelines, and co-produced with the community.

An integrated health and social care hub can improve complex relationships between primary health and social care providers and strengthen the provision of coordinated care through:
- Improved communication between service providers, including case conferencing
- Systems to support care coordination, including multidisciplinary care planning, shared decision support, case conferencing, patient-held or shared records, shared information or communication systems, and a register of patients

- Structured arrangements for coordinating service provision between providers, including coordinated or joint consultations, shared assessments, and arrangements for priority access to another service
- Support for service providers, including support/supervision for clinicians, training (joint or relating to collaboration), and arrangements for facilitating communication
- Co-location of service providers to provide a 'one-stop shop' approach to promote interaction between staff from various disciplines to provide more integrated care
- Support for patients and their carers, including information, education (joint or relating to sharing care), providing opportunities for participation in decision making about their own health care, reminders, and assistance in accessing primary health care services
- Joint planning, funding and/or management of a program or service including genuine consumer participation in decision making
- Technology to enable data analysis, reporting and sharing of information across the wider health system
- Good communication between the consumer, GPs and health and social care teams.

It is recognised that the building itself cannot provide integrated care and is dependent on the links made between health and social care providers, to allow perceived barriers arising from differences in role and culture to be more easily addressed. Hubs should also provide flexible use for sustainability and future proofing and would require a good governance system and on site management for effective coordination of service delivery.

Services identified that could potentially be delivered in these hubs include:

- Primary health care practitioners
- Child, adolescent and adult community health
- Child, adolescent and adult community mental health
- Drug and alcohol services
- Family and children's services
- Women's health
- Ante natal and pre-natal care
- Health promotion programs
- Health education and public health programs
- Prevention programs
- Primary Care/Urgent Care
- Chronic disease management programs
- Anticipatory care programs (pre-habilitation, falls prevention programs, etc.)
- Satellite renal dialysis
- Oral health
- Rehabilitation (including cardiac and respiratory)
- Pain management
- Student/staff training and education in partnership with Universities
- Specialist ambulatory clinics
- Multi-disciplinary clinics
- Potential for chemotherapy and palliative care services
- Interagency meetings
- Space for communities to use
- Ambulatory care services, e.g. specialist outpatient, nurse led or allied health clinics
- Government programs where co-location with health would improve access and outcomes, e.g. FACS
- NGOs, e.g. for aged care services, homelessness, youth services, domestic violence.

Good practice examples:
- Health One[209] is a NSW Health-funded integrated model that brings together federally-funded GPs and state-funded community health services, non-government and privately-funded community agencies. For example, Mt Druitt Health One aims to provide: "equitable, accessible and comprehensive care" with "a focus on people with chronic and complex conditions, children and young families at risk, and disadvantaged local communities"[210] Children from vulnerable populations are eligible to be in the child and family arm of Health One. An evaluation of Mt Druitt Health One reported improved coordination and collaboration between primary health care services, community health services and agencies[211]
- South Tyneside Council and South Tyneside NHS Foundation Trust are working together to provide a purpose built Integrated Care Services Hub to support the ageing population of the area, integrating health and social care. The focus of the new hub is to improve the wellbeing of older people, especially those with dementia, and offer them as much support as possible to enable them to live independently in their community, for as long as possible. The Hub will also include an 80 bed respite care and residential aged care unit on site[212]
- SWSLHD's The HUB Community Health Centre at Miller[213] facilitates access to health and social welfare services for residents of the 2168 area postcode, with co-located government and non-government agencies on-site. The HUB has a strong focus on community participation and community development, has a strong volunteer program and provides a setting for community groups. It delivers health & welfare information and referrals to services such as welfare agencies and mental health and provides a wide range of health promotion programs and activities to engage and support local residents to take control of one's own health and well-being. It is located next to the Budyari Community Health centre which provides a range of services for the local Aboriginal population
- Uniting Care is currently planning to establish a centre of wellness, restoration and inclusion on the War Memorial Hospital Waverley site. A 'village' environment will be created where a broad range of interrelated services will be provided, including: the continuation and expansion of War Memorial Hospital Waverley facilities and aged care and independent living facilities; an integrated primary care hub for Uniting Children's and Community services; child care; allied health facilities; associated café/retail to support the village; and making the site more accessible to the community.

Proposed recommendation
- Plan for the development of one or more integrated health and social care hubs in an identified area of need to better integrate health and social services for the local population along the life course, and to relieve demand on acute health services, particularly in the prevention and management of long term conditions. Refer to 4.4.Turning the Curve   **Model of care:** Various models have been identified.[214,215] On consultation, the preferred model is one of shared service delivery, to include clinic spaces, group room/s and potentially a gym, as well as support for the provision for other social agency involvement such as FACS, Education, Housing, and NGOs. The hubs would focus on a specific community or group experiencing health and/or social disadvantage (in South Maroubra and/or Botany areas) to address wider issues surrounding the social determinants of health, health promotion and prevention, as well as providing primary health care, particularly for chronic disease management. Close links and effective communication processes with general practice (for referral, sharing of information and ongoing management) would need to be maintained to provide integrated and co-ordinated care.

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[209] NSW Health, HealthOne NSW, http://www.health.nsw.gov.au/healthone/pages/default.aspx
[210] McNab J, Mallitt K.A and Gillespie K.A. Report of the Evaluation of HealthOne Mount Druitt; Menzies Centre for Health Policy; University of Sydney/ Australian National university; URL: http://ses.library.usyd.edu.au//bitstream/2123/8988/4/HOMDevaloct13.pdf
[211] ibid
[212] Accessed from South Tyneside Council and Community website URL: http://www.southtyneside.gov.uk/article/22622/pound9m-Integrated-Care-Services-Hub-Largest-Of-Its-Kind
[213] SWSLHD The Hub URL: http://www.swslhd.nsw.gov.au/CommunityHealth/centres_hub.html
[214] For an outline of various models available, see SWSLHD Integrated Primary and Community Care Development Plans for the South West Growth Centre, Nov 2011. URL: https://www.swslhd.nsw.gov.au/pdfs/SWGC_IPCCS.pdf
[215] Victorian Government Department of Human Services 2006. Care in your community. A planning framework for integrated ambulatory health care URL: http://www.oehcsa.org.au/sites/default/files//public_library/2006/05/173042-upload-00001.pdf

4.2.8 Rapid support in times of crisis

Goal: To provide rapid access to urgent care when required, including effective alternatives to hospital.

Emergency Department

POWH ED currently provides a Level 6 emergency medicine service for adults and offers a specialist toxicology service to the campus and the LHD. The ED has a resuscitation area, acute, sub-acute, fast track and a short stay unit. A four bed Psychiatric Emergency Care Centre (PECC) is located adjacent to the ED.

Emergency presentations have been trending upwards on an unsustainable trajectory. The vast majority of presentations to the ED require emergency care, however some people who attend ED with conditions could potentially be streamed or better managed elsewhere.

Trends in ED presentations
Higher acuity presentations (Triage Category 1, 2 and 3):
- Represent 56% of all presentations
- Triage Category 3 represents the largest volume of ED presentations (46%), and is growing substantially at 6.3%
- Almost half of Triage Category 3 patients are admitted and have the highest length of stay across all Triage Categories
- Triage Category 2 is growing significantly at 9% per year and represents 9% of total presentations.

Potentially serious and less urgent conditions (Triage Categories 4 & 5):
- Have remained between 21,000 to 24,000 presentations in the last 6 years
- The length of stay has reduced from 4.4 hours to 2.7 hours.

Many presentations are from older people, who can often suffer rapid deterioration in health. These include those who present from RACFs who may be better managed in situ and those presenting with exacerbations of chronic disease that may be better managed in the community. Approximately 27% of presentations to POWH ED are from people aged over 65, despite representing only 12% of the population. Presentations to ED may also be influenced by lack of access to after-hours GPs or concerns about costs for testing and treatment.[216]

Current constraints to improving or achieving Emergency Treatment Performance (ETP)
- The ED is currently over occupied. At any given time there are between 30 - 65 people being seen in ED (see chart below), whilst there are only 21 treatment spaces, including fast track
- 60% of presentations (both self-presenting or via ambulance) are currently treated in ambulance bays rather than treatment spaces due to over occupancy of available treatment spaces
- Due to the current high occupancy rate, even if ETP was met at 81% (2016/17 target), current treatment spaces available are unlikely to meet demand

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[216] St Vincent's Health Australia. Healthcare package trial a welcome first step in relieving demand on public hospitals March 2016. URL: https://svha.org.au/home/newsroom/announcements/healthcare-package-trial-a-welcome-first-step-in-relieving-demand-on-public-hospitals

Figure 25: POWH Emergency Department Occupancy by Hour (Yearly Cycle)
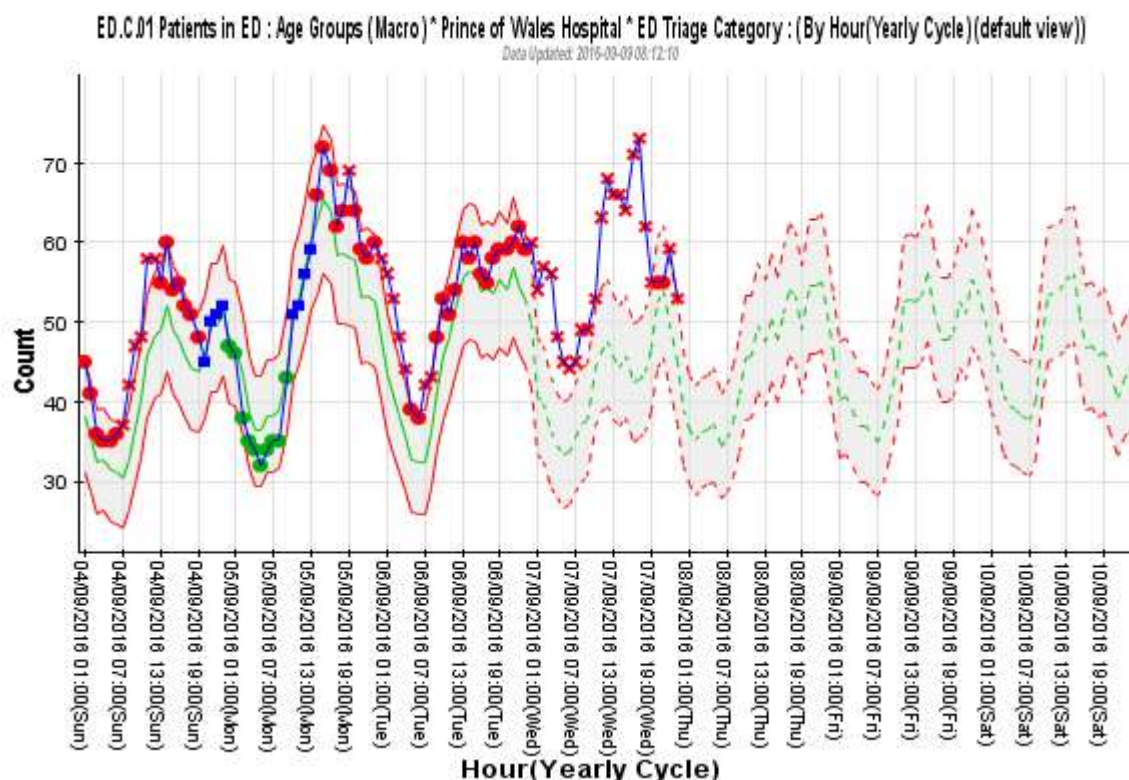
The constraints outlined above cannot be addressed by changes in models of care alone. More capacity (treatment spaces and short stay beds) is required to prevent access block, overcrowding and adverse events in the future. POWH ED has already implemented new models of care, e.g. fast track, ASET teams, etc. to improve efficiencies, and this is reflected in the ETP improvements in the lower acuity Triage Categories. However to improve ETP performance, particularly for the higher Triage Categories, more acute treatment spaces and short stay beds will be required to meet projected demand and ensure patient access, flow and safety.

According to NSW Health Whole of Health Program,[217] "prolonged stays in the ED result in overcrowding, delayed ambulance access, reduced patient/carer satisfaction and increased adverse outcomes for admitted patients. Research also shows that there is a link between performance against the 4 hour target and in-hospital mortality for admitted patients."

Models of care
Models to improve the care of patients who require rapid support in times of crisis and provide care in the most appropriate setting and reduce pressure on the ED, reduce patient length of stay, reduce access block and improve flow through the health system include:
- **Emergency Department Short Stay Units** (EDSSU)[218], co-located with the ED and managed under the clinical governance of specialist emergency physicians. EDSSUs are designated and designed for the short term treatment, observation, assessment and reassessment of patients with selected conditions, initially triaged and assessed in the ED, who are clinically stable and anticipated to require a period of observation or treatment less than 24 hours.
- **General Medical Assessment Units**[219,220] provide streamlined short stay admission for non-critically ill medical patients with complex problems for intensive multidisciplinary assessment, observation and treatment prior to discharge or transfer to inpatient wards if required. These units have priority access to diagnostic services and facilitate early consultant and/or senior

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[217] NSW Health Whole of Health Program. Whole of Health Program Fact Sheet 2016. URL: http://www.health.nsw.gov.au/wohp/Documents/wohp-factsheet.pdf
[218] NSW Health, 2014. Emergency Department Short Stay Units Policy Directive URL: http://www0.health.nsw.gov.au/policies/pd/2014/pdf/PD2014_040.pdf
[219] NSW Health. NSW Medical Assessment Unit Evaluation. www.health.nsw.gov.au
[220] Health Facility Briefing and Planning: Medical Assessment Unit. Accessed from: http://www.healthfacilityguidelines.com.au

medical registrar review, community health review and other clinical management resources. Good links with GP and community service providers are required to facilitate discharge and improve integrated care. Generally, facilities should be aligned with an inpatient unit, with processes to refer and admit from the ED as required, and function as a close observation unit, with all beds capable of some degree of flexible monitoring capacity.

- **Hospital in the Home** (HITH) [221] provides a range of daily services to suitable patients for acute, sub-acute and post-acute care that is delivered in home, clinic or other settings as a substitution to or avoidance of hospital. A range of clinical conditions can be effectively and safely managed at home, including cellulitis, pneumonia, deep vein thrombosis, chronic obstructive pulmonary disease, and urinary tract infections. This model has been shown to reduce risk of adverse events from hospital admission, mortality, readmission rates and cost compared with in-hospital care, with increased patient and carer satisfaction[222] and allows increased bed availability for patients that require inpatient care. Additional preventative care (Intermittent HITH) may be provided as an adjunct to maintain the short term continuum of care. HITH intersects with ED models of care, planned admission strategies and short stay options, and interfaces with General Practice, Primary and Community Care and Chronic Disease Management programs.
- **Psychiatric Emergency Care Units** (PECC) are specialist short stay mental health units co-located adjacent the ED, with a length of stay up to 48 hours, providing an opportunity for assessment, close observation, and treatment to support clinical stabilization.
- **Geriatric rapid response** to residential aged care facilities to prevent admission of the frail elderly (see Section 4.2.6: Helping people to live with complex co-morbidities, including dementia and frailty for more detail).
- **Direct admission** to an acute ward for agreed identified conditions in which patients needing admission but not emergency care can bypass the ED altogether to improve flow. This is dependent on access to inpatient beds at the time they are needed.
- **Rapid access/crisis ambulatory care clinics** with a single point of access to prevent emergency presentation or deterioration by providing rapid access to specialist advice from hospital clinicians and a range of multidisciplinary and diagnostic skills. Patients may be referred by GPs, community health workers or other specialists. At this stage the clinics would run in normal business hours, any expansion is subject to funding.
- **Paramedic service models** to prevent emergency presentations via ambulance.
- **National Home Doctor Service (13SICK),** a free (Medicare funded) after hours GP home visiting service for urgent medical care for non-life threatening conditions.
- **Primary care led after hours services** for rapid primary care response. These services may be provided at local GP practices, co-located with hospital EDs, or in multi-purpose centres in areas of need, and may be more appropriate settings for the management of less urgent presentations. Accessible, single shared records may improve the quality of out of hours decision making and help prevent admissions, particularly for the elderly.[223] Although a proportion of presentations that may have previously been seen in ED can safely be seen in these settings, there is little evidence that developing these services will reduce demand on ED.[224] This model requires good liaison with local GPs for providing the service, with referral back to the patient's usual GP for ongoing care.

For the purpose of this Plan, a co-located urgent care centre model has been investigated, however data does not support the implementation of this model, as the demand for ED is greater for the higher acuity categories and the lower triage categories have remained steady for the past 6 years, as outlined above. Also, the population projections indicate that the older age groups (70+) will experience the highest growth and this population cohort is less likely to use urgent care centres.

It is important to note that there is no one single solution in reducing pressure on EDs rather than a whole of health approach is required to improve flow and reduce access block. The focus must be on

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[221] NSW Health Hospital in the Home Guideline URL: http://www0.health.nsw.gov.au/policies/gl/2013/pdf/GL2013_006.pdf
[222] Caplan G, et al. A meta-analysis of "hospital in the home" MJA 197 (9) · 5 November 2012 URLL: https://www.mja.com.au/journal/2012/197/9
[223] Oliver D, Foot C, Humphries R. The Kings Fund 2014 Making our health and care systems fit for an ageing population URL: http://www.kingsfund.org.uk/sites/files/kf/field/field_publication_file/making-health-care-systems-fit-ageing-population-oliver-foot-humphries-mar14.pdf
[224] Imison C., et al. The Kings Fund 2014. Reconfiguration of Clinical Services. What is the evidence? p.39 URL: http://www.nhshistory.net/Reconfiguration-of-clinical-services.pdf

the entire patient journey, not just its commencement in the ED. This involves streamlining systems, people and processes across the whole health and social care continuum[225].

Good Practice Examples:
- The Southcare Outreach Service (SOS) is a multidisciplinary rapid response community team providing short term acute and sub-acute interventions to people aged over 65 years of age residing in the Sutherland Shire, who have been discharged from ED or at risk of presenting to the ED, in order to assist people to remain at home safely and prevent hospital admission.
- Acute Demand Management System (ADMS)[226] in Canterbury NZ has resulted in reduced emergency presentations. General practice and acute community nursing deliver packages of care that allow people who would otherwise need an ED visit and possible hospital admission to be treated in their own homes or community. Services include practice support, mobile nursing service, home IV therapy, logistical support, extended care management, urgent tests/investigations, doctor visits, and home support. Christchurch Hospital ED sees 84,000 patients annually, of which on average 48% get admitted. They have 55 treatment spaces which had been reconfigured in 2008.
- Cardiac model in Sutherland which has created early and direct access to a chest pain clinic lead by the Cardiology Registrar with Physician support
- The Aged Care Emergency (ACE) [227] model of care is a Nurse led integrated model of care that consolidates the successful outcomes of the implementation of the ACE project piloted at John Hunter Hospital. The ACE program has demonstrated improved emergency care for people living in RACFs through dedicated services in the form of telephone support, guidance, direction and collaboration led by an experienced Acute Aged Care Nurse. The pilot of this program at John Hunter Hospital demonstrated transfers and subsequent admissions for people living in the RACFs has reduced including a 35% reduction in occupied bed days 16% reduction in ED presentations

Streaming strategies are recommended, building on current models and introducing new models of care, as outline below.

Proposed Model of Care

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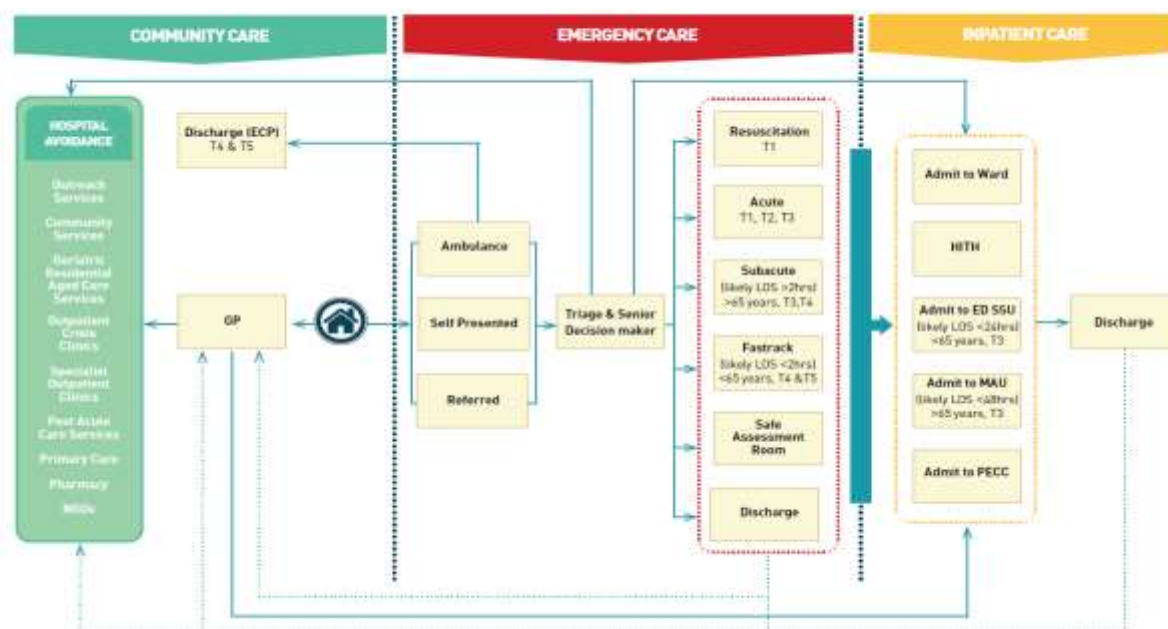
[225] Whole of Health program. Accessed from:http://www.health.nsw.gov.au/wohp/Documents/wohp-factsheet.pdf
[226] Canterbury District Health Board, NZ. Acute demand management Service. URL: http://www.cdhb.health.nz/What-We-Do/Projects-Initiatives/Acute-Demand-Management-Services/Pages/default.aspx
[227] Emergency Care Institute. URL: http://www.ecinsw.com.au/ace

Proposed recommendations
- Continue/enhance existing models of care provided in the hospital and community setting to provide rapid support when required, e.g.:   - Community support   - GRAFS to provide geriatric outreach assessment and short term case management in the residential aged care setting   - HITH and Intermittent HITH   - War Memorial Geriatric Flying Squad.   - Emergency Department   - Aged Care Services Emergency Team (ASET) to ensure the most appropriate model of care and care coordination is provided for patients aged 70 years and older admitted to the ED   - Fast track zones in ED to treat ambulant, non-complex (single clinical system problem) patients who can be discharged in less than 2 hours   - Short Stay Unit, co-located with the ED, for short-term (less than 24 hours) high level management, specialist assessment and observation for selected conditions   - Fast and efficient access to a specialist emergency physician or their delegate i.e. ED senior assessment and streaming with direct access to diagnostic services and inpatient areas   - Sub-acute zone to treat undifferentiated patients who are neither unstable nor do they require intense observation, however they are not suitable for ambulatory areas. These patients may have complex medical problems but do not present with acute illness or injury, and have a length of stay greater than 2 hours, thus are unsuitable for fast track   - Shared care to support complex patients admitted through the ED, e.g. orthogeriatric model   - Psychiatric Emergency Care Centre (PECC) for timely assessment, care and short stay services for patients who present to ED with an acute mental health problem   - Close functional relationships with diagnostics, ICU, General MAU and operating theatres
- Consider the development/ implementation of potential models of care identified to support rapid, streamlined patient flow to the most appropriate point of care, e.g.:   - Community support: - Expand HITH services. This will require a restructuring of the current service to allow a greater number and range of conditions to be delivered at home.   - Expand PACS program to provide rapid response acute and sub-acute multi-disciplinary home based care, with care coordination and care planning and appropriate clinical interventions in the community (e.g. Southcare Outreach Service from Sutherland Hospital, Quick Response Program from St George Hospital)   - Expansion of the existing GRAFS service, with further geriatrician and allied health support of people in RACFs to avoid hospitalisation for conditions such as chest infections/ aspiration pneumonia, delirium, CCF, cellulitis and assistance with advanced care planning, and implementation of a telephone advice line, to create a multi-disciplinary visiting service to RACFs, linked to HITH and other service providers, to increase hospital avoidance for up to 50% of this patient cohort.[228] (See Section 4.2.6: Helping people to live with complex co-morbidities, including dementia and frailty)   - Introduction of the ACE model of care for improved emergency care for people living in RACFs through dedicated services in the form of telephone support, guidance, direction and collaboration led by an experienced acute aged care Nurse   - A pilot off campus urgent care centre model shared by the St George and Randwick Campus hospitals catchment populations, in partnership with the Primary Health Network and possibly the Universities to upskill GPs to enable

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[228] See ACI Evaluation of GFS model at: http://www.aci.health.nsw.gov.au/__data/assets/pdf_file/0020/262802/Evaluation-of-Geriatric-Flying-Squad.pdf

them to provide a higher level of care, which may reduce ED presentations and provide care in a more convenient location. This would require a communication strategy to ensure participation by the local community for its effective implementation.

- o Emergency Department:
  - Increased access to fast track zones in the ED to treat ambulant, non-complex (single clinical system problem) patients who can be discharged in less than 2 hours to improve ETP
  - Increased number of ED Short Stay Unit (EDSSU) beds to improve flow and consequently ETP
  - ASET expanded to 7 days and extended hours service in the ED with an expanded multi-disciplinary team
  - Other surgical services providing shared care support of complex patients admitted through the ED, based on orthogeriatric model
  - Patient care pathways for unplanned presentations within emergency care to provide a streamlined admission and patient placement process incorporating acute medical and surgical units and inpatient specialties, to identify and support the workforce to make clinical decisions at key points, e.g. decision to admit, initiate treatment plans, interventions (including surgery) and discharge
  - Advanced practice nursing and allied health e.g. musculoskeletal physiotherapist, aged care physiotherapist
  - Implementation of the Aged Care Emergency[229] model of care for RACF patients presenting to the ED to facilitate care delivery within the actual RACF, and reduce the need for transport to an ED
  - Emergency department assessment / bypass specific to older persons- a dedicated area in the ED that is quarantined to provide early specialist assessment of an older person and to provide a care plan early in an older person's hospital journey, with early assessment and care plan developed by an Aged Care physician/registrar
  - Increased number of safe assessment rooms
  - Increased number of PECC beds
  - Appropriate staffing resources (medical, nursing, technical, educational, allied health and clerical) to enhance existing high quality service delivery
  - Advanced diagnostic medical imaging devices such as CT scanner. This technology is increasingly being used as a triage tool. An additional x-ray will also be required
  - Pathology 'Stat' Laboratories offer a larger range of pathology tests than Point of Care Testing (PoCT) Devices. Easily available pathology results will assist decision making in areas of high turnover such as ED and the Medical Assessment Unit (MAU) and contribute to improved ED and acute care benchmarking, such as patient length of stay and NEAT requirements. Establishing a small 'Stat Lab' adjacent to POWH ED would provide a rapid and effective service for a broad range of core tests for ED physicians.
- o General MAU:
  - Enhance ED capacity by the early identification of non-critically ill undifferentiated medical patients (and the assessment, admission and supported discharge processes involved in managing these patients) to MAU.
  - Co-location with rapid access to diagnostics adjacent to the ED and a care pathway so patients can be sent directly from triage to the MAU for assessment and work up and managed as in inpatient.
  - To reduce access block to inpatient beds with flow-on benefits to ED efficiency
  - To reduce outlier patients located in wards separate from home wards, and eliminate inefficiencies from misdistribution of admitted patients
  - To standardise care on the basis of agreed care protocols, procedures and guidelines.
  - To provide a more effective use of resources with savings in inpatient bed days

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[229] POWH Aged Care Emergency Model Evaluation Report. URL:
https://aci.health.nsw.gov.au/__data/assets/pdf_file/0009/273483/pow-ace-final-report.pdf

> - o Other pathways:
>   - ▪ Direct admission/fast track pathways to an inpatient bed and clinical protocols for agreed conditions once an assessment and diagnosis has been made by an appropriate health professional, with improved access and pathways between primary and specialist care e.g. for identified infectious diseases, those being managed in the community on a chronic disease pathway, geriatric SSU for multidisciplinary assessment to initiate immediate and appropriate care planning, treatment and investigations
>   - ▪ A day only rapid access outpatients crisis clinic for rapid specialist outpatient review and multi-disciplinary support to prevent deterioration and ED presentation, whereby patients referred from ED, community based programs e.g. RCCP, or GPs can be assessed and referred for HITH or short stay admission if required
>   - ▪ Timely access to ambulatory diagnostics including imaging and pathology to prevent delays in assessment, treatment and discharge

Intensive Care

POWH Intensive Care Unit also provides a Level 6 tertiary referral service, providing comprehensive critical care to patients requiring ventilation and/or complex multiple system support. It also provides services to RHW (patients requiring ICU Level 1 and some Level 2 care), SCH (for some adolescents and young adults) and Prince of Wales Private Hospital (for some long stay patients). In addition, it provides care and management to patients with:

- Spinal cord injury (one of two in NSW)
- Interventional Neuroradiology
- Hyperbaric support (state-wide service) e.g. for necrotizing fasciitis, carbon dioxide poisoning, etc.

Demand for intensive care services is also increasing, due to more complex procedures being undertaken and increasing numbers of people with multi-morbidity. The greatest source of admission is from surgery, with other sources from ED, medical and radiology. There are also increasing numbers of ventilator dependent tetraplegics due to increasing numbers of patients with non-traumatic spinal cord injury (in addition to people with traumatic spinal cord injury) requiring intensive care management. There are also increasing cohort of patients requiring intensive care management for thrombolysis and thrombectomy (neurointerventional) for stroke.

Proposed recommendations
- Continue/enhance existing models of care provided in ICU to provide rapid support when required, e.g.:   - o Continued operation as a Level 6 tertiary referral intensive care service including ongoing support to other hospitals and intensive care support to POWHs state-wide services   - o Continued management of patients with multi-system failure   - o Close functional relationships with operating theatres, ED and diagnostics.
- Consider the development/ implementation of potential models of care identified to support rapid, streamlined patient flow to ICU, e.g.:   - o Clinical pathways to facilitate patient transfers for patients with single system failure (e.g. respiratory, cardiology ,etc.) and less complex patients requiring frequent monitoring (e.g. hourly neurology observations) through the development of a step-down units with Close Observation Beds on acute wards   - o Overnight Close Observation Beds in recovery to more appropriately manage post-operative patients requiring frequent observations but without system failure   - o A new model of care for the routine care of ventilator dependent tetraplegics who are otherwise are stable with regards to haemodynamics and ventilation. For example these patients' routine care may be managed by their established care team outside the ICU, by nurses competent in managing tracheostomies, at a ratio of 1:1 without carers in either the HDU or Acute spinal unit   - o The rollout of Electronic Record in Intensive Care (ERIC) to improve data capture and provide robust and comparable state-wide data

> o Safe patient care and best outcomes by complying with minimum standards for intensive care units including work practice, caseload, staffing and operational requirements, design, equipment and monitoring and educational staff and resources.[230]

4.2.9 Streamlined surgery

Goal: To optimise access to planned and unplanned surgery for our patients.

"Improving the journey for surgical patients can be difficult. These patients can be critically ill requiring complex emergency surgery through to those who are fit and well requiring minimally invasive day surgery"[231].

In addition there is and will continue to be increasing demand for surgery resulting in problems accessing care and patients waiting longer for their surgery.

For example "unplanned emergency surgery competes with scheduled elective surgery, and, when resources are limited, elective procedures are cancelled, which disrupts patient flow and may compromise patient safety"[232]. Separating planned and unplanned surgery through the use of dedicated beds, theatres and staff can provide more predictable and timely access to appropriate surgical services, therefore improve the quality of care delivered to patients.

Work by the NSW Surgical Services Taskforce has mapped a path that better utilises the surgical infrastructure and workforce to improve services for patients, attract and retain surgeons, anaesthetists and operating room staff, optimise available funding and enhance clinical training[233].

Some models include:
- Separating high volume short stay surgery aiming to concentrate suitable planned surgical cases in dedicated high-volume, short stay surgical units[234]
- Streaming planned and emergency surgery encouraging hospitals to plan for the predictable surgical workload for all specialities, to allocate the necessary operating theatre time and to plan for immediate access to operating theatres for the most urgent emergency surgery patients[235]
- Continuing development of speciality centres recognising the high cost and complexity of some surgical services (e.g. spinal cord injury surgery, renal transplant)
- Consolidating low-volume high complexity procedures, a sub-set of some speciality centres, where rare procedures which are very costly and/or requiring lengthy hospitalisations are consolidated into facilities with caseloads above a certain threshold (e.g. oesophagostomies, pancreatectomies)
- Reducing unwarranted clinical variation where clinicians are actively involved in identifying, analysing and ultimately developing solutions to reduce unwarranted clinical variation
- Integrating service models e.g. POWH's orthogeriatric service where medical care for older patients with orthopaedic disorders is provided collaboratively by orthopaedic services and, aged care or rehabilitation services.

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[230] College of Intensive Care Medicine of Australia and New Zealand (CICM), 2011, CICM - Minimum Standards for Intensive Care Units IC-1 (2011). Available at: http://www.cicm.org.au/Resources/Professional-Documents

[231] SESLHD, 2013, SESLHD Surgical, Perioperative and Anaesthetic Services Integrated Health Services Plan 2013-2018 URL: http://www.seslhd.health.nsw.gov.au/Planning_and_Population_Health/Key_Planning.asp

[232] Lowthian JA et al Streamlining elective surgery care in a public hospital: the Alfred experience, Streamlining elective surgery care in a public hospital: the Alfred experience, Med J Aust 2011, 194 (9): 448-451. URL: : https://www.mja.com.au/journal/2011/194/9/streamlining-elective-surgery-care-public-hospital-alfred-experience

[233] NSW Health. (2011). Surgery Futures: A Plan for Greater Sydney. Accessed at URL:http://www.archi.net.au/documents/resources/hsd/surgery/futures/surgery-plan.pdf

[234] NSW Health. (2012). GL2012_001 High Volume Short Stay Surgical Model Toolkit. Accessed at URL: http://www0.health.nsw.gov.au/policies/gl/2012/pdf/GL2012_001.pdf

[235] NSW Health. (2009). GL2009_009 Emergency Surgery Guidelines. Accessed at URL: http://www0.health.nsw.gov.au/policies/gl/2009/pdf/GL2009_009.pdf

Good practice examples

- The Alfred, Melbourne implemented a process redesign to streamline clinical pathways for elective surgery, with a focus on the patient journey from referral to discharge, and establishing a separate, dedicated elective surgery facility. This … resulted in a sustained downward trend in the number of elective surgery patients waiting longer than national recommended maximum waiting times. Hospital-initiated postponement rates for elective surgery rates were reduced to 1% in the dedicated elective surgery facility, and there was a significant reduction in the combined length of stay, as well as the length of stay for the most common surgical procedures[236]
- Waxman advocates "whether a patient is having an elective or emergency procedure, ideally their journey will follow a pathway that has been mapped out from the time of entering the hospital until their discharge summary is generated"[237]. The ideal scenario, in which elective patients have:
  - Multidisciplinary preoperative assessment
  - An "enhanced recovery after surgery" (ERAS) pathway and
  - A "preflight" checklist in the operating theatre
  - Benefiting patients postoperatively including reduced morbidity and a shorter length of stay.

  He notes "[s]imilar principles apply to patients who undergo emergency surgery, although the planning cannot be so strategic".

Proposed recommendations
- Models of care: - Continuation of the orthogeriatric model and consideration of other shared care models as deemed clinically appropriate   - Continued development of surgical clinical pathways across SESLHD, e.g. hernia, hand, cataract, hip replacement, knee replacement, etc.   - Increased streaming of short stay planned activity through dedicated high volume short stay infrastructure   - Ongoing improvement of the patient journey through multidisciplinary preoperative assessment, 'enhanced recovery after surgery' pathway and a 'preflight' checklist in the operating theatre   - Appropriately sized anaesthetics department collocated or very close to operating theatres   - Anaesthesia bays adequately sized and equipped for treating patients to increase efficiency of operating theatres   - Expand perioperative service in line with guidelines currently being developed by ACI   - Ongoing cooperation and integration with the Prince of Wales Private Hospital   - Increased use of HITH where clinically and socially appropriate   - Establish an integrated bariatric management service, i.e. with gastroenterology, endocrinology, respiratory medicine, upper GI surgeons, rehabilitation, allied health, etc.   - Consideration of intraoperative radiotherapy as a technique, impacting on radiotherapy services   - Investigate potential integration and/or partnerships for clinical and translational research, e.g. Universities, industry, etc.   - Improve access to surgical services for vulnerable populations including: - Ensure preadmission, admission and discharge planning processes / pathways adequately identify and address the needs of vulnerable populations   - Ensure identification of vulnerable patients with special needs, chronic conditions and co morbidities   - Involve carers and family as partners in care throughout the continuum of care   - Ongoing monitoring of the recording of Aboriginality and rates of hip or knee

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[236] Lowthian JA et al Streamlining elective surgery care in a public hospital: the Alfred experience, Streamlining elective surgery care in a public hospital: the Alfred experience, Med J Aust 2011, 194 (9): 448-451. URL: : https://www.mja.com.au/journal/2011/194/9/streamlining-elective-surgery-care-public-hospital-alfred-experience

[237] Waxman B. (2013). Smoothing out the ride for surgical patients. Medical Journal of Australia, 407 URL: https://www.mja.com.au/journal/2013/198/8/smoothing-out-ride-surgical-patients

> replacements and ophthalmic surgery for Aboriginal people
>   - o Improved support for data collection (including clinical outcomes) and maintenance,
>   - o Access to real-time activity and financial data
>   - o Integration of clinical activity, data and patient outcomes with campus-wide clinical research (e.g. tissue banking) with all staff involved
> - Staffing:
>   - o Appropriate staffing resources (medical, nursing, technical, educational, allied health and clerical) to enhance existing high quality service delivery and support new outpatient clinics, higher acuity ward patients, a greater number of HITH patients and expanded community based outreach services
> - Infrastructure:
>   - o Construct a dedicated standalone HVSS facility for appropriate streaming of planned short stay surgical and procedural patients away from more complex and/or unplanned activity
>   - o Invest in appropriate information, communication and technological to support the efficient operation of the HVSS unit e.g. ensure all patients are notified 10 days in advance of procedure, confirmation call 3 days prior and SMS 2 days prior.
>   - o Physically integrating the peri-operative unit with the operating theatres to improve patient flow, work-flow for staff and efficiency of elective surgery while reducing waiting lists
>   - o Maintain a capital replacement program for equipment to provide excellent care specifically operating theatre equipment including:
>   - ▪ navigation system (including a linked intraoperative CT) relevant for a number of specialities,
>   - ▪ image guidance (e.g. for base of skull work),
>   - ▪ robotics (e.g. for trans-oral surgery),
>   - ▪ hybrid theatre(s) (e.g. for vascular surgery),
>   - ▪ intraoperative CT/MRI,
>   - ▪ stack with image capture,
>   - ▪ mini-C arm, etc
>   - o Consider the integration of all aspects of some surgical services in one place, the "Pod concept" i.e. co-location of outpatient / clinic area, ward, theatre/procedure room availability
>   - o Infrastructure in ward setting and operating theatre to adequately accommodate morbidly obese people having orthopaedic surgery
>   - o Need facilities for the development of on-campus clinical research
>   - o Require improved teaching and learning facilities and access including
>   - ▪ point of care teaching facilities,
>   - ▪ multi-purpose teaching/meeting room and
>   - ▪ labs for staff, trainees and students from all clinical disciplines
>   - o Provide appropriate accommodation and facilities for patients and relative, childcare, etc.

4.2.10 Good acute care and post discharge planning and support

Goal: To provide timely access to person centred quality assessment, treatment and management and early discharge planning, with good post-discharge support in the community when required to ensure harm minimisation and unimpeded flow through the health service.

Acute health services should provide timely access to specialist input, minimise harm, and provide care that is effective, person centred and compassionate. Lack of timely acute care can result in adverse medical outcomes, increased ED visits and hospitalisations, and potentially higher health care costs.

Improving access may be created by providing the needed specialty service, consult, or procedure more efficiently. This includes access to senior medical assessment after hours and weekends, and availability of multidisciplinary team including allied health, pharmacy, diagnostic and support staff to provide 7 days per week services.

The total cost of care may be reduced and resources to care for more people enhanced by increasing the availability of specialty practitioners, e.g. with telehealth, expanding the role of primary care providers to manage less complex patients, and enhancing communication and coordination e.g. with linked and shared medical records and care coordination roles enhanced.[238]

> ## Better Pathways – 'easy in and easy out'
>
> Developing care pathways that support patients early on to prevent them reaching crisis point, with smart triaging to the right clinician at the right time to ease access to services; and supportive networks in the community to help people keep well after discharge from secondary care.
>
> **Wilson S and Langford, K. 10 Ideas for 21st century healthcare. Innovation Unit URL: http://www.innovationunit.org/sites/default/files/DIGITAL%20VERSION10%20Ideas%20Final.pdf**

Providing care pathways that provide standardised clinical processes can be effective in the minimisation of harm and variation in care and improve patient outcomes and experience.

Infrastructure to support good acute care requires close functional relationships with related specialties. This may include the 'pod' concept of care to co-locate specialties to promote integrated care, e.g. the colocation of cardiology, cardiac surgery and Eastern Heart Clinic theatres, associated laboratories (e.g. cardiac catheter laboratory, transoesophageal echocardiography (TOE), etc), ward (including the coronary care unit), with integration of services and information.

Discharge planning should start at first contact. Early discharge planning, with clear clinical criteria for discharge, can deliver significant reductions in length of stay and reduce delays to transfer of care. Timely discharge, including on weekends, is assisted by 7 day working of all services, including multi-disciplinary community based services to allow earlier supported discharge. This can be assisted by complex case discharge coordination and management roles and systems.

The Kings Fund[239] identified key factors to providing good acute care:
- All emergency admissions should be reviewed by a consultant within 14 hours
- of admission
- Hospital inpatients must have timely access to diagnostic services to prevent delays in assessment, treatment and discharge
- Hospital inpatients must have 24-hour access, seven days a week, to consultant-directed interventions that meet the relevant specialty guidelines, either on-site or through formally agreed networked arrangements with clear protocols, such as:
  - Critical care
  - Interventional radiology
  - Interventional endoscopy
  - Emergency general surgery.

Good acute care also recognises the importance of the patient's goals and preferences during their treatment and discharge planning process, in order to better prepare patients and their caregivers to be active partners for their anticipated health and community support needs.

Good practice examples
- Intermountain Health Care, USA introduced standardised clinical processes that produced dramatic improvements in patient outcomes and costs, e.g. glucose control of patients in intensive care units led to a statistically significant reduction in mortality rates in this patient

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238 Felland L, Lechner E, Sommers A. The Commonwealth Fund 2013. Improving access to specialty care for medicaid patients: policy issues and options. URL: http://www.commonwealthfund.org/~/media/files/publications/fund-report/2013/jun/1691_felland_improving_access_specialty_care_medicaid_v2.pdf
239 Imison C, Sonola L, Honeyman M, Ross, S. Kings Fund 2014. The reconfiguration of clinical services. What is the evidence? URL: **http://www.nhshistory.net/Reconfiguration-of-clinical-services.pdf**

- group, more appropriate ventilator use led to a 10% reduction in the rate of ventilator-associated pneumonia, shorter length of stay in ICU and a reduction in cost by more than $3,000 per ICU patient over two years[240]
- The Kaiser Permanente Colorado region offers a telephonic care coordination program to improve follow-up care for patients discharged from hospital, and for patients who frequently visit the ED or are at risk of hospitalization because of multiple long term health conditions. Care coordinators contact discharged patients within 24 hours to assess needs and stratify them to receive short- or longer-term services, with communication to the care team. This decreased readmissions (2.4% of intervention patients vs. 14% of usual-care patients at 12 months) and ED visits (7% vs. 16%), respectively[241]
- The Orthogeriatric model of care, as currently practiced at POWH provides integrated care for frail older orthopaedic patients across the continuum of care.[242]

Proposed recommendations
- Continue and expand/enhance existing models, e.g.   - Specialist geriatric assessment and management services and wards, with liaison with other medical and surgical specialties, e.g. Orthogeriatric model with expansion to other surgical specialties   - Risk assessments, e.g. for delirium, falls   - Infection control management   - Utilisation of early supported hospital discharge with transitional care support programs, e.g. TACS, PACS   - Hospital in the Home Program for suitable patients
- Consider the development/implementation of: - A day only rapid access clinic with multi-disciplinary support, whereby patients referred from GPs, community based programs e.g. RCCP, or ED can be assessed and referred for HITH or short stay admission if required   - Increased access to HITH, with staff working across specialties and specialists maintaining clinic involvement with their patients for review   - Continuity of care for patients with multiple conditions, i.e. to minimise ward moves   - Access to step down, low-acuity beds for patients needing rehabilitation, palliative care or waiting for other services, community support or residential placement   7 day access to interventional radiologist (currently not 7 days) e.g. for when bleeding occurs in renal patients   - Appropriate staffing resources (medical, nursing, technical, educational, allied health and clerical) to enhance existing high quality service delivery and support outpatient clinics, higher acuity ward patients, a greater number of HITH patients and expanded community based outreach services   - A multidisciplinary early discharge model from Neurology with immediate/ intensive outpatient follow up in collaboration with allied health and nursing to improve timely discharge and patient flow   - A CNC in headache and in Parkinson's disease to reduce length of stay of such patients, including admission for other medical problems, improve care coordination and reduce ED presentations.   - Dedicated nurses in the management of patients with Alzheimer's and Parkinson's disease. These patients have longer lengths of stay and are subject to increased morbidity and mortality on hospital admission   - Formal and informal communication with Mental Health Services e.g. meetings, service level, multi-disciplinary teams, etc. to improve patient transfer and patient experience   - A Respiratory non-invasive ventilation (NIV) service model for high acuity respiratory patients including acute respiratory failure with other organ disease who require NIV. This requires increasing nursing ratio and central monitoring including ECG

[240] Baker G.R., MacIntosh-Murray A, Porcellato C, Dionne L, Stelmacovich K and Born K. 2008. "Intermountain Healthcare." High Performing Healthcare Systems: Delivering Quality by Design. 151-178. Toronto: Longwoods Publishing URL: http://www.longwoods.com/content/20146
[241] Commonwealth Fund: Kaiser Permanente: Bridging the Quality Divide with Integrated Practice, Group Accountability, and Health Information Technology URL: http://www.commonwealthfund.org/publications/case-studies/2009/jun/kaiser-permanente
[242] NSW Agency for Clinical Innovation. The Orthogeriatric Model of Care Clinical Practice Guidelines URL: http://www.aci.health.nsw.gov.au/__data/assets/pdf_file/0013/153400/aci_orthogeriatrics_clinical_practice_guide.pdf

- o Increased respiratory isolation capacity with negative pressure capability to deal with a potential increase in the number of respiratory viruses that will require isolation in an institution that will have more at-risk immunocompromised patients. This requires more isolation rooms and tele-monitoring capability
- o Expansion of Infectious Diseases and HIV Review outpatient clinic to daily weekday clinics, with possible expansion to weekend and a 12 hour service, to reduce ED presentations, increase capacity for urgent referrals, improve shared care with GPs and reduce length of stay with timely outpatient follow up
- o The provision of a fever clinic in Influenza season
- o Availability of and access to 24 hour/7 day community services to better respond to the health needs of those in the community, and allow more timely discharge from hospital
- o Increased communication with and engagement of CESPHN/ primary care and Community services to ensure greater integration and continuity of services and care, e.g. with electronic referrals, medications, results, etc.
- o An integrated shared care record across health and social care
- o GP liaison services to assist seamless patient care and better respond to the health needs of local communities, e.g. Alfred Hospital, Melbourne provides a GP Liaison service[243].

4.2.11 Access to specialty care

Goal: to provide high quality specialty care to the wider community when needed

POWH provides statewide services for adults including:
- NSW Complex Epilepsy Service (State-wide specialist referral service
- Acute spinal injury services and rehabilitation
- Hyperbaric medicine (only chamber in NSW).

In addition, POWH also provides a number of specialist services for adults including
- Complex neuroscience (including Interventional Neuroradiology, Moods Disorder Unit).
- Lithotripsy (only NSW service)
- Renal transplantation
- Rural outreach ophthalmology services
- Toxicology
- Neuropsychiatric Institute.

POWH is also working towards attaining statewide stroke centre status, subject to final approval by the Ministry of Health.

The Mental Health Intensive Care Unit is also statewide networked service on campus.

Proposed recommendations
- Continue all existing models of specialty care to meet projected demand in activity, including: - Maintain hyperbaric service in situ due to its structural requirements, with close functional relationships with the helipad, key clinical and clinical support services such as operating theatres, intensive care unit, procedural rooms and ED   - Maintain co-located acute spinal injury and rehabilitation services on campus   - Completion of the Nelune Comprehensive Cancer Centre in 2017 to enable consolidation of cancer outpatient services including radiotherapy, chemotherapy and clinics, improved collaboration between SESLHD and research, and the clinical trials centre creates opportunity for participation in early Phase 1 and 2 studies   - Research collaboration with clinical trials facilities, the UNSW, research institutes and other departments.   - Consider the development/implementation of: - Upgraded and expanded nuclear medicine facilities, including:

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[243] http://www.alfredhealth.org.au/Page.aspx?ID=49

- Capacity for a cyclotron facility in the future
- A radiopharmaceutical synthesis facility for production and utilisation of novel radiopharmaceuticals for imaging and therapy
- A PET/MRI imaging facility
- Introduction of Solid State Detectors (SSD) and digital imaging technology
- Inclusion of a dedicated area for paediatric sedation, monitoring and recovery in nuclear medicine
- Upgrading obsolete gamma cameras to state of the art SPECT/CT

o A reviewed model of care to create separate transplant and nephrology teams to support transplant growth with the improved availability of donor organs, and to meet increasing demand and patient acuity and complexity

o Gaining comprehensive stroke centre status in Sydney, with key clinical partners such as neurosurgery, rehabilitation and radiology (in collaboration with ACI to understand timeframes, expectations, and opportunities), with clear patient clinical criteria for INR access established. Ensuring there is sufficient capacity in key departments to support the increase in stroke patients

o Further development of research partnerships (e.g. bench-to-bedside and bedside-to-bench translational research) and increased participation in clinical trials

o Close functional relationships of specialty services to core services (e.g. intensive care, nuclear medicine, radiology services, and ED).

4.2.12 Good pre-habilitation, rehabilitation and re-ablement

Goal: People will receive adequate rehabilitation and re-ablement when needed, in the appropriate setting, to prevent further disability and greater reliance on care and support, and prevent delayed discharge from hospital.

Pre-habilitation, rehabilitation and re-ablement are restorative services on a continuum of care that promote an individual's functional ability. Individual goals may include mobility, self-care and activities of daily living. Shared assessment and treatment plans across health and social care are required to promote person centred, integrated care to maximise re-ablement potential. These restorative services seek to ensure an individual's function is enabled and restored, not just maintained, and require close links to other services that help address functional limitation such as equipment and home modifications

> ### Prescribe more than medicine
>
> Many health conditions have social as well as medical causes, but few patients ever receive a 'social prescription', such as referral to social activities or other suitable activities around self-defined goals, to boost confidence, reduce social isolation and help meet other people who can support them.
> Wilson S. and Langford K. 10 Ideas for 21st century healthcare. Innovation Unit URL:
> http://www.innovationunit.org/sites/default/files/DIGITAL%20VERSION10%20Ideas%20Final.pdf

Services tend to be time limited, with re-ablement activities often continuing at home or in the community. There is a growing body of evidence[244] on the effectiveness of these approaches in assisting older people to improve their ability to function and reduce their need for ongoing services, with associated cost savings. It should be noted that restorative care services will not be suitable for everyone, and some people will continue to need ongoing home support services.

Inactivity is well documented as one of the leading causes of physical functional decline, and increasing physical activity is the most effective interaction to counteract this decline. Pre-habilitation is designed to prevent physical functional decline in those at risk, for example to those identified at risk of falling, or pre-operatively to those identified at risk of post- operative decline, particularly older people living with complex long term health conditions.

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[244] Australian Govt. Dept. of Social Services Discussion Paper Key directions for the Commonwealth Home Support Programme https://www.dss.gov.au/ageing-and-aged-care-programs-services-commonwealth-home-support-programme/discussion-paper-key-directions-for-the-commonwealth-home-support-programme

Evidence indicates that individuals who have limited physical fitness preoperatively have higher rates of morbidity and mortality during their hospital stay. Conversely, individuals who have better preoperative physical fitness experience less postoperative pain and have better physical functional status postoperatively.[245] Current evidence supports exercise rehabilitation to enhance physical fitness after surgery, and pre-habilitation aims to maintain a normal level of functionality and achieve a quicker recovery of functional status during postoperative inactivity.[246]

Rehabilitation is a health model that includes allied health support to prevent decline in function and promote independence to avoid delay to discharge from hospital, avoid higher care needs e.g. nursing home placement, or facilitate a step down pathway out of hospital, with continued support as an outpatient or in the community as required.

Wellness and re-ablement or restorative approaches and programmes are emerging as a powerful way to help older people improve their function, independence and quality of life,[247] in order to help people regain and/or maintain their physical and cognitive function and independence after an illness, disability or crisis or to halt any decline in function, and to reduce their reliance on support services.

This means building on people's strengths, capacity and goals to help them remain independent in their daily living tasks, to live safely at home and to continue to participate and remain engaged in their local communities, and requires working with people and their carers and family to determine their needs and goals during the assessment, planning and delivery of support services. The active involvement of carers and families is an important factor in any re-ablement approach.

Good Practice Examples
- Canterbury, NZ shifted hospital activity into community based programs such as Acute Demand Management and Community Rehabilitation Enablement Support, saving 45,000 bed days each year[248]
- Day Therapy Centres e.g. Calvary Hospital at Kogarah Day Hospital has a complete suite of pre-habilitation, rehabilitation and re-ablement services
- Transitional Rehabilitation Program, is an outreach program to patient's homes or nursing homes successfully implemented in Queensland[249]. It "assists individuals with new spinal cord injury in their transition from hospital rehabilitation to community living through the delivery of specialist, community-based, time limited, and goal directed rehabilitation programs". This service recognises the improved survivorship of spinal cord injury patients and considers different settings for ongoing care. Planning towards a better resourced outreach service that continues rehabilitation support in the patient's final care environment with appropriate care allows earlier discharge and a more tailored rehabilitation planning.

Proposed recommendations

• General rehabilitation
   o Continue and expand/ enhance existing models e.g.
      ▪ The general rehabilitation service on site for inpatient and outpatient care to a case mix that includes stroke, neurological disorders, and deconditioning after a variety of acute medical and surgical diagnostic groups, in order to restore functional ability. The rehabilitation unit should remain on the acute hospital site to allow concurrent high acuity medical issues to be addressed, allow earlier intervention in the acute setting and timely transfer to the appropriate rehabilitation setting

[245] Cabilan C, Hines S, Munday J. Prehabilitation for surgical patients: a systematic review protocol. The JBI Database of Systematic Reviews and Implementation Reports, [S.l.], v. 11, n. 5, p. 112 -122, jun. 2013. ISSN 2202-4433. URL: http://joannabriggslibrary.org/index.php/jbisrir/article/view/517/1224.

[246] Ibid

[247] Australian Govt Dept of Social Services Discussion Paper Key directions for the Commonwealth Home Support Programme https://www.dss.gov.au/ageing-and-aged-care-programs-services-commonwealth-home-support-programme/discussion-paper-key-directions-for-the-commonwealth-home-support-programme

[248]Canterbury District Health Board: Hospital Efficiency http://www.cdhb.health.nz/What-We-Do/Projects-Initiatives/Hospital-Efficiency/Pages/default.aspx

[249] Queensland Health, Queensland Spinal Cord Injury Service Model of Care Available at: https://www.health.qld.gov.au/qscis/documents/qscis-moc.pdf.

- In-reach Acute Rehabilitation Team (ART), which allows rehabilitation to start in the acute setting to avoid decline in function, facilitates earlier discharge home and potentially avoids in-patient rehabilitation admissions where possible. This team has reduced the waiting list for rehabilitation and approximately 20% of patients are able to be discharged home without requiring transfer to the rehabilitation ward
- Transitional aged care service for short term restorative care post admission
- Referral to community based exercise programs, e.g. falls prevention programs, WAVES hydrotherapy, AIM for fitness, the Centre for Healthy Aging at WMH
- RCCP and Heartlink
- Day rehabilitation at War Memorial Hospital Waverley – rehabilitation before a patient has deteriorated to the point of needing an admission, or prehabilitaion prior to surgery – an anticipatory model, with the focus on rehabilitation, education and enablement.
  - o Consider the development/implementation of:
    - A rehabilitation precinct, with close functional links to the spinal unit (e.g. shared gym and expertise), neuroscience and aged care, this is particularly important given the increase in the patient cohort requiring access to thrombolysis and thrombectomy for stroke needs. The NSW Rehabilitation Model of Care is the recommended model, allowing different solutions for patients at different stages of their journey and reducing length of stay by minimising over-reliance on expensive in-patient rehabilitation. This would include a co-located Inpatient unit, outpatient service and in-reach service to acute wards, which would consolidate expertise and infrastructure. To duplicate this expertise and infrastructure to separate sites and/or locations would be an unnecessary expense
    - Weekend rehabilitation to improve patient outcomes and enhance patient flow, i.e. 7 day a week model with allied health working collaboratively and integrated with a 24hr therapeutic nursing service
    - An expanded outpatient service, (preferably as a day rehabilitation service), with adequate staffing to allow out-patient intensity to substitute for in-patient, and prevent delays to discharge, and transport provided as required
    - An outreach domiciliary service to the community, with specialised rehabilitation staffing, potentially as part of a PACS or HITH service, for those people who can't access day rehabilitation
    - Shared care pathways for surgical patients, starting with pre-habilitation, with established markers of variance (process indicators and health outcomes) for post-procedure quality of recovery (e.g. physiological, physical, mobility with limited pain, post-operative cognitive (dys)function post anaesthesia/ surgery and/or dementia, emotional and social mental health)
    - Establishment of a Day Rehabilitation Unit or increased outpatient rehabilitation services at War Memorial Hospital Waverley (further consideration of funding and staffing requirements are needed)
    - Better integration with community support providers that currently significantly block and delay discharge. This would involve developing and strengthening links with partners in social care and primary health services to form integrated person centred pathways with multiple teams working in partnership with clients and carers and family, in order to address social disadvantage and the social determinates of health
    - Consolidate and build on the direct relationship and partnerships between sub-acute and primary healthcare to enable people to remain at home or facilitate a direct admission to sub-acute services if required, in order to avoid costly acute admission and emergency presentations
    - For people below the age of 65 with a new disability, the National Disability Insurance Scheme may offer greater levels of enabling community care and participation
    - Increased referral to targeted consumer co-designed programs for self-management support of long term conditions
    - Personalised health records to better facilitate individualised goals, values and

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preferences that promotes the health & wellbeing of an engaged and active growing community of older people
- Establishment of a multidisciplinary early discharge model from Neurology with immediate/ intensive outpatient follow up in collaboration with allied health and nursing to improve timely discharge and patient flow.
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- Spinal rehabilitation
  - Continue and expand/ enhance existing models e.g.
    - Statewide spinal cord injury services being provided at POWH as a co-located acute/ rehabilitation service. This joint service model is best practice, improving continuity of care for patients, allowing streamlined care between the units, providing best practice care with improved patient outcomes, increasing flexibility of bed utilisation and improving staff skill mix and reducing treatment and therapy delays, length of stay and associated costs. The co-location of spinal's acute and rehabilitation units allows for close collaboration in therapeutic approaches and appropriate timing of interventions, approximately 50% of patients develop an acute illness during their rehabilitation admission and so will require acute treatment.
  - Consider the implementation of:
    - Close proximity of inpatient areas to therapy areas and Departmental offices to facilitate ward / allied health interaction and minimise need for porters.
    - Continuation of partnership with Trapeze for adolescents and young adults (e.g. transition patients with congenital spinal deformities from SCH to POWH).
    - Strategies to avoid diversion to Royal North Shore Hospital, then repatriation back to POWH
    - A Telehealth medical clinic to follow up rural clients with spinal cord injury
    - A transitional care model including:
      - An outreach Transitional Rehabilitation Program to patients homes or nursing homes[250] that continues rehabilitation support in the final care environment with appropriate care, allowing earlier discharge and a more tailored rehabilitation planning.
      - Outpatient spinal rehabilitation 'day therapy' – allows multidisciplinary therapy packages (e.g. 10 day bundles of therapy time for 2-3 hours per day) for up to one third of spinal rehabilitation inpatients (e.g. patients not requiring overnight stay at the hospital and transitioning to local hospital and/or those in transitional accommodation but still benefiting from intensity of therapy). This would reduce length of stay in rehabilitation, provide continuity of care, and allow trouble shooting of problems encountered when first going home and possible prevention of readmission. This model of care would be dependent on an increase in outpatient resources (staff, space, and equipment) to accommodate the additional occasions of service and patients having appropriate home care and access to transport. People from rural areas would require access to suitable transitional accommodation and care
      - A range of community accommodation options including:
        - Developing LHD service level agreements – Memorandums of understanding need to be in place to enable transitioning of patients with spinal cord injury from Prince of Wales Spinal Unit to local rehabilitation units once they have finished spinal specific rehabilitation and have a management plan in place
        - Service level agreements with the Department of Housing, facilitating early access to housing. It is important this is seen as a whole of government approach as the lack of coordination between departments results in huge waste including extended hospitalisations and/or subsidies of hotel housing, etc
        - A coordinated and fast tracked state-wide system of home

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[250] Queensland Health, Queensland Spinal Cord Injury Service Model of Care Available at: https://www.health.qld.gov.au/qscis/documents/qscis-moc.pdf.

modification to ensure rapid approval and carrying out of home modifications (as exists in Queensland)
- o A back-up arrangement with a large community care provider e.g. ParaQuad who could provide temporary care for those needing it once funding for it was approved as part of the community support package. An equipment pool may also be necessary
- Develop models of care for people with spinal cord injury aged 65 years and older as there are different entitlements to community support, worse functional outcomes and poor family support. Different models of care are required for :
  - Robust elderly people with significant ADL independence and/or extensive spousal support so that they are likely to be able to manage on a 14 hour care package per week. This group needs conventional spinal rehabilitation programme
  - Frail / severely impaired elderly people who do not have extensive support in the community. These people will be discharged to a nursing home. They require a streamlined programme with rapid provision of appropriate equipment to be used in the nursing home (including but not limited to wheelchair cushion, manual wheelchair and appropriate mattress)
- The establishment of alternative accommodation
  - A Medihotel, aligned with Queensland spinal model, which offers an integrated, cost effective strategy for the delivery of alternative, hotel style accommodation in close proximity to an acute hospital for people who do not require acute nursing care or an inpatient bed before, during or after their treatment. This may include self-caring, medically stable consumers, e.g. rural clients or carers and family, and people making the transition between acute or sub-acute sectors into the community. Medihotels can alleviate the pressure on acute hospital beds by reducing length of stay, can decrease theatre cancellations by freeing up beds in both the inpatient and Day Procedure areas and thus reduce elective surgery waiting lists, and form part of an integrated approach to improving access to hospital services
  - Purpose built transition accommodation on site or close to the spinal cord unit to provide a supportive environment for people with spinal cord injury transitioning to the community, rural clients requiring easy access to outpatient services or review, and/or people who are awaiting home modifications, a package of care, and/or other suitable accommodation. This would allow independent living testing and early discharge trial with outpatient supported rehabilitation. This option requires trained care attendants, and appropriate physical space and equipment[251]. This could result in a reduction in spinal bed requirements in the acute hospital setting
  - Bridging the gap between primary and secondary/tertiary care with step up (from home) or step down (from acute/sub-acute care) beds, either on or off campus, to avoid admission to secondary care facilities, to support timely discharge from an inpatient admission and provide flexible levels of transitioning between levels of care as people's needs change.

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[251] Queensland Health, Queensland Spinal Cord Injury Service Model of Care Available at: https://www.health.qld.gov.au/qscis/documents/qscis-moc.pdf.

4.2.13 Planning for End of Life: Choice, control, care and support

Goal: Improve end of life care by integrating patients' wishes into and throughout the management of life-limiting illness, normalising Advance Care Planning and ensuring that people will receive timely help if they want or need it, to discuss and plan for the end of life.

Ongoing changes in disease and society influence who should receive end-of life and palliative care, how, where and from whom they receive it. Changes in living and social circumstances mean that current generations cannot expect informal caregiving and look to formalised healthcare and social services. Greater choice is expected in healthcare, including the opportunity to be cared for and die in places of preference.

An Australian systematic review of models of palliative care[252] concluded that best practice palliative care should be accessible to all who need it, tailored to individual patient and family's palliative care needs in a timely manner, and extend beyond organisation and disciplinary boundaries as required via strategies that support community and coordination. It recommended that population-based models of palliative care should include elements that support case management via integration of specialist palliative care with primary and community care services, and enable transitions across settings, including residential aged care settings. Service delivery beyond medical and nursing services (i.e. extended to a multidisciplinary team) is required to incorporate services addressing social and environment determinants of health.

Advance care planning (ACP) is a critical aspect of care in virtually all medical specialties, and comprises case identification, needs assessment, discussion and documenting the parameters of care in terms of what is possible or recommended from a clinical point of view along with what is explicitly desired or unacceptable from an individual's point of view. It generally involves ongoing conversations between patients, their families and their treating health professionals introduced over a period of time. In the context of chronic illness. ACP may differ from well populations and might often result in documentation of treatment refusal by a patient, or discussions between clinician, patient and family regarding rational care.

The NSW Agency for Clinical Innovation *Framework for the Statewide Model for Palliative and End of Life Care Service Provision*[253] describes a comprehensive model of care which takes into account a range of clinical, community and home settings. It aims to ensure that all NSW residents have access to quality care based on assessed need as they approach and reach their end of life.
This is relevant for the entire population. There are however, some groups in the community who have special needs in relation to palliative and end of life care. These include people with dementia, children and adolescents, Aboriginal people and those from different cultural and linguistic backgrounds.

Sustainable approaches to the delivery of care to people approaching and reaching the end of life will require a collaborative approach between various providers. A multidisciplinary model of care with good communication between primary and secondary care and with the voluntary sector is essential in end-of-life care. There is evidence that early involvement in end-of-life care planning increases satisfaction and can increase the likelihood of someone being able to die at home[254]. Consultation within the first 24 hours of admission has been demonstrated to positively impact length of stay.

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[252] Luckett et al 2014. Elements of effective palliative care models: a rapid review. BMC Health Services Research201414:136. DOI: 10.1186/1472-6963-14-136 URL: http://www.ncbi.nlm.nih.gov/pubmed/24670065
[253] ACI (2013) Framework for the Statewide Model for Palliative and End of Life Care Service Provision URL: http://www.aci.health.nsw.gov.au/__data/assets/pdf_file/0019/184600/ACI-Framework-for-Statewide-Model-of-PEoLC-Service-Provision.pdf
[254] Oliver D, Foot C & Humphries R. (2014) Managing our health and care systems fit for an ageing population The King's Fund, London pp50 URL: http://www.kingsfund.org.uk/sites/files/kf/field/field_publication_file/making-health-care-systems-fit-ageing-population-oliver-foot-humphries-mar14.pdf

Level of Need within the Population of People Approaching and Reaching the End of Life[255]
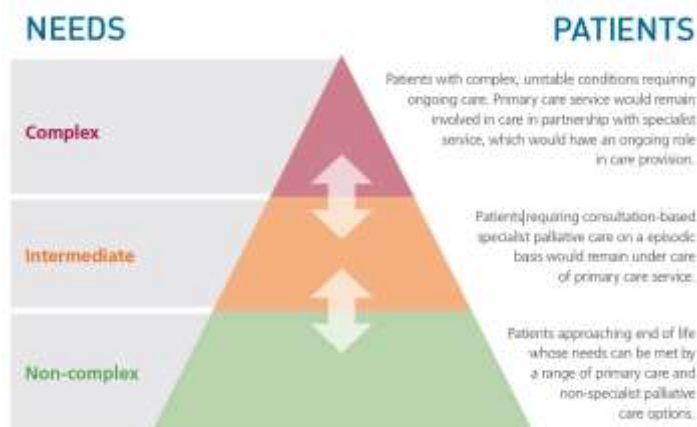
In 2014 palliative care services at POWH provided:
- More than 800 inpatient consultations with 65% of new referrals for cancer patients and
- Nearly 450 community referrals supporting nearly 600 active community patients with 70% of new referrals for people with cancer[256].

Over the past decade (2004 to 2014) there has been a strong upward trend[257] of
- Registrations for palliative care services
- Community referrals
- Number of active patients
- Symptom severity and co-morbidities.

By comparison there has been a variable trend over the same period for
- Hospital consultations
  - Approximately 65-70% of consultations being consistently for new referrals
  - A gradual increase in the proportion of new non-cancer referrals
- Non admitted occasions of service
- Palliative care deaths.

Good Practice examples
- The Catalan Institute of Oncology[258] (Barcelona, Spain) is designated as the World Health Organization Collaborating Centre for Public Health Palliative Care Programmes. Palliative care medicines, including those for pain relief, are included in WHO's list of essential medicines for adults and children. The centre has recently adopted "*a community-wide chronic care approach which moves beyond cancer and focuses on the early identification of patients with any chronic disease in need of palliative care*"[259], including addressing patient's psychosocial needs. Evaluation of this approach "*supports more widespread adoption by other key care programs, particularly chronic care programs*".[260] This approach is similar to the recent initiatives in renal respiratory medicine and motor neuron disease at the POWH.

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[255] ACI (2013) Framework for the Statewide Model for Palliative and End of Life Care Service Provision
[256] POWH, 2015, POWH palliative care activity trends 2000 – 2015 PowerPoint presentation presented 18 March 2014
[257] Prince of Wales Hospital, 2015, Palliative Care Department Plan (draft document)
[258] Catalan Institute of Oncology URL: http://ico.gencat.cat/en/inici/
[259] Ela S, Espinosa J, Martínez-Muñoz M, Lasmarías C, Beas E, Mateo-Ortega D, Novellas A, Gómez-Batiste X. The WHO collaborating centre for public health palliative care programs: an innovative approach of palliative care development. J Palliat Med. 2014 Apr;17(4):385-92. doi: 10.1089/jpm.2013.0203. Epub 2014 Jan 16. URL: http://www.ncbi.nlm.nih.gov/pubmed/24432817
[260] Gómez-Batiste X, Blay C, Martínez-Muñoz M, Lasmarías C, Vila L, Espinosa J, Costa X, Sánchez-Ferrin P, Bullich, Constante C, Kelley EJ. The Catalonia WHO Demonstration Project of Palliative Care: Results at 25 Years (1990-2015). J Pain and Symptom Management. 2016 Jul;52(1):92-9. doi: 10.1016/j.jpainsymman.2015.11.029. Epub 2016 May 24. URL:http://www.ncbi.nlm.nih.gov/pubmed/27233146

- The King's Fund[261] identified some of the most important opportunities for improving end-of-life care:
  - o Providing workforce training and support across a range of health and social care settings
  - o Identifying people in the last year of life in advance in order to discuss and plan care
  - o Ensuring effective assessment and advance care planning
  - o Strengthening coordination and discharge planning
  - o Ensuring adequate provision of specialist palliative care services
  - o Supporting residential aged care facility residents to die in the care facility rather than in hospital
  - o Providing home-based services, including care provided by primary care, domiciliary care teams, home health care providers and focused home nursing services, and training of these services in end-of-life care especially for elderly people and people with dementia.
  - o Improving end-of-life care for people with dementia.
- There are many other examples of integrated palliative care. All combine the elements described in the 1997 management model by Field and Cassel[262] that has informed development of palliative care in SESLHD and Australia. In general, Australian systems predate international ones and suffer not from lack of understanding but a need to re-iterate the approach in the contemporary setting.

Mixed Management of Various Eventually Fatal Illnesses
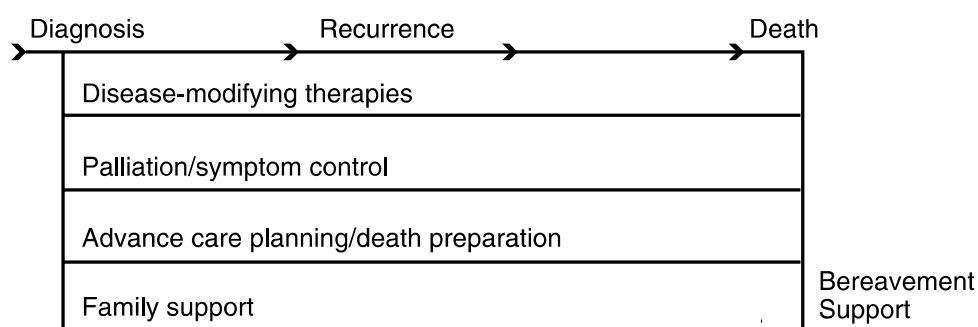
- One well-articulated model is from Frimley Park Hospital in Surrey UK which implements a collaborative strategy across medical specialties and care settings, guiding governance and service delivery. Needs assessment for people with cancer and non-cancer diagnoses are in place, supporting an integrated approach. Practical approaches to diversity include realtime availability of interpreters and flexible approaches care provision. The hospital worked with other local services, including hospice at home and community teams, to reduce the number of people dying in hospital by 28% between 2008 and 2013.
- POWH has developed an integrated approach of using the Cerner alert system (as part of Plan Early projects) medical orders for life sustaining treatment such as the NSW ambulance plan, NSW Resuscitation order, enduring guardian or other substitute decision maker details. Opportunities to transfer documented plans via other system wide ICT e.g. eHealth exist
- POWH has developed Plan Early: My Future Care. Delivering advance care plans to patients with chronic respiratory disease. This provides advanced care plans at the point of care to prevent ED presentations and/or hospital readmissions as well as inappropriate or unwanted levels of intervention or treatment once a person is admitted.

Proposed recommendations
- Specifically address impact of hybrid palliative care outreach and develop independent funding model for a Prince of Wales palliative care service to provide direct inpatient care, outreach service including specialist nurses, multidisciplinary clinics for patients with cancer and non cancer diagnoses

[261] Oliver D, Foot C & Humphries R. (2014) Managing our health and care systems fit for an ageing population The King's Fund, London pp50 URL: http://www.kingsfund.org.uk/sites/files/kf/field/field_publication_file/making-health-care-systems-fit-ageing-population-oliver-foot-humphries-mar14.pdf
[262] Field M.J and Cassel C.K.(Editors). Approaching Death. Improving Care at the End of Life. Committee on Care at the End of Life. Division of Health Care Services. Institute of Medicine. National Academy Press. Washington, D.C. 1997

- Exploit synergy and integration opportunities between palliative care, respiratory, renal, cardiology and degenerative neurological conditions (e.g. MND) to create an integrated service across, inpatient, outpatient, outreach
- Establish approach for subacute admissions at the end of life e.g for patients who can be managed by medical subspecialty (e.g respiratory or renal ward) and those requiring complex management or multidisciplinary care in a purpose designed inpatient palliative care unit.
- Increased use of advanced care planning: 1. Support evaluation of needs identification processes developed in Plan Early My Future care 2. Support work processes developed and aim at scaling and spreading in a staged and integrated way 3. Support evaluation of this model in regard to patient related outcomes and health services utilisation.
- Develop POWH palliative care service to have a fully staffed community team including outreach nursing to support care at home or RACFs and for inmates of Long Bay Correctional Centre
- Address Justice Health for a funding model for service provision
- Ensure culturally appropriate end of life care
- Establish a palliative care clinic in large RACFs in the area. This will improve patient related outcomes and appropriate healthcare utilisation
- Foster the view that "*Providing care to people approaching and reaching the end of their life, their families and carers is everybody's business*."[263]
- Improve and enhance integrated care for example:
  o Working with the Primary Health Network to establish communication lines, improve prioritisation, resource analysis, etc.
  o Partnering with 'Family Care' – an afterhours home doctor service providing a 'house of care' model – anticipatory care (e.g. St George Hospital's recent trial admissions with Respiratory medicine/palliative and supportive care DCS)
- Increase in workforce to meet demand over time.

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[263] NSW Agency for Clinical Innovation, Palliative and End of Life Care – A Blueprint for Improvement ("The Blueprint"). Available at: http://www.aci.health.nsw.gov.au/palliative-care-blueprint Accessed 18 March 2016

4.3 Making it happen

We will transform our model of care to allow a focus on person-centred care which accommodates Predictive, Preventive, Personalized and Participatory[264] health care.

Enabled by our principles and a common vision across the health campus, and taking account of the drivers shaping contemporary health systems described in 'Section 2.0 The Case for Change', our model of care[265] will provide opportunities for:

- People centred compassionate care, putting the consumer, carer and their family at the heart of every decision and empowering them to be genuine partners and producers of their own healthcare. Focus on what matters to people to address their wellness needs and aspirations. Predictive medicine focused on the whole person, with improved use of genomics and diagnostics.

- A focus on wellness, protective factors and community resilience, identifying the contributions and assets (experiences, resources, strengths) of individuals and communities to support community health and mental and social wellbeing. Redefining health with an emphasis on community co-production.
- Integrated care across the health and social care system, changing where health happens, opening up consultations, prescribing more than medicine, with an emphasis on community and home based care and self-management.
- Adaptive leadership and deep clinical engagement to support innovation and continuous improvements in population health and wellbeing
- Transforming health care through being digitally connected and digitalized, with innovations such as virtual care delivery, health apps, e-referrals, data sharing, personal monitoring devices, test results at point of service. Additionally, analytics capability to target care and improve planning for predictive medicine/care.
- A transformed interconnected multidisciplinary workforce, with consumer and community participation, in a learning organisation, stronger partnerships with universities and a culture that supports the shared vision.
- Applying translational research in practice, to build organisational capacity and capability to deliver optimal healthcare and outcomes.
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[264] P4 Medicine Institute URL: http://www.p4mi.org/p4medicine
[265] Diagram adapted from Australian Physiotherapy Association *InPublic 2025* URL: https://www.physiotherapy.asn.au/DocumentsFolder/APAWCM/Resources/PublicPractice/InPublic_2025_v2_150526.pdf

4.3.1 Providing integrated care

Integrated care across the health system continuum, i.e. primary, secondary, tertiary and social care systems, provides health care that is **predictive, preventive, personalised and participatory**[266]. Integrated care seeks to improve the quality and cost-effectiveness of care for individual people, communities and populations by ensuring that services are well coordinated around their needs. It is by definition, therefore, both 'people-centred' and 'population-oriented'.

Integration is required at every organisational level, and needs to function both horizontally and vertically, as outlined in the diagram below.[267]

Integrated care is most effective when it is population-based, with a focus on the multiple needs of whole populations, not just to care groups or diseases. It requires public health strategies to influence healthy environments and promote healthy behaviour, and also takes into account the holistic needs of patients for their wellbeing. The aim is for a pro-active 'life-course approach' to improving health outcomes by tackling the socio-determinants of ill-health, not just episodes of care or disease-based approaches which ultimately lead to new silos of care.

Examining the socio-determinants of ill health and pathology are an important building block for integrated care. Population based models of care, designed around local risk stratification and shared population registries, anticipate and address care at an early stage, and are tailored to a person's needs. Care is delivered where possible in the community by multi-agency teams with clear care pathways, focussing on personalised support to help individuals manage their own health conditions and wellbeing.

Integrated care also contributes to meeting the Triple Aim in health systems of:
- Improving the user's care experience
- Improving the health of people and populations
- Improving the cost-effectiveness of care systems.

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[266] P4 Medicine Institute URL: http://www.p4mi.org/p4medicine
[267] Valentijn P et al (2015) Towards an international taxonomy of integrated primary care: a Delphi consensus approach. BMC Fam Pract, 16(1):64-015-0278-x URL: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4446832/table/Tab5/

Integrated Care in SESLHD

An Integrated Care Strategy[268] has been developed in SESLHD in collaboration with consumers, SESLHD services and service partners, and other stakeholders. It outlines the goals of integrated care in SESLHD:

to create an agile, joined up system and a health intelligence structure that enables targeted action through innovative models that deliver care proactively.

This system needs to be supported by change management and robust evaluation to allow transfer and spread of successful ways of working. It also involves taking a population health approach to planning and delivering services in order to provide "seamless, effective and efficient care in the right place and at the right time" for service users and their families.

SESLHD has adopted the "House of Care"[269] model the implementation of new innovative models of multi-disciplinary integrated care across the health system, with effective organisational support structures. With a focus on **person-centred coordinated care,** components are:

• Engaged, informed individuals and carers and family– enabling individuals to self-manage and know how to access the services they need when and where they need them.
• Organisational and supporting processes – structured around the needs of people and carers and family using the best evidence available, co-designed with service users where possible.
• Health and care professionals committed working in partnership – listening, supporting, and collaborating for continuity of care.
• Commissioning – which is not simply procurement but a system improvement process, the outcomes of each cycle informing the next one.

In order to deliver person centred integrated care, acute hospital services need to work seamlessly in partnership with primary and community sector service providers and the person and their family/carer.

Proposed recommendations
• Organisational and supporting processes
o Identification of patient cohorts at risk, in partnership with primary care, to avoid reactive care and prevent deterioration and/or hospitalisation e.g. risk stratification tools and frailty tools
o Develop health pathways for long-term and complex health conditions in collaboration with primary care
o Explore home tele-monitoring to allow patients with long-term and complex conditions to better manage their own health and avoid hospital admission
o Risk stratification on admission for those with multiple long-term conditions to proactively prevent further decline or complications
o Electronic alerts for changed medical status for pre-emptive care in hospital
o Develop protocols/pathways for common conditions in inpatient setting to reduce variation of outcomes
o Agreed guidelines for care coordination and implement care coordination roles
o Review current structure of specialty groups within POWH to allow greater facilitation

[268] SELHD Integrated Care Strategy 2015 URL:
https://www.seslhd.health.nsw.gov.au/CDM/documents/SESLHD_Integrated_Care_Strategy.pdf
[269] NHS England. Enhancing the quality of life for people living with long term conditions – The House of Care. URL:
https://www.england.nhs.uk/house-of-care/

- of integrated care between all specialties
  - o Improve information sharing technology so that timely access to patient information is available to all providers to allow coordinated care
- Engaged, informed individuals and carers and family
  - o Improve health literacy to ensure people understand their condition, treatment options available and success rates of treatment, and ensure the health literacy responsiveness of our health services[270]
  - o Forward planning to ensure a home care pathway is already developed prior to discharge, with community based services in place
  - o Review of outcome measures to address what is important to the patient, e.g. quality of life, hospital avoidance, reduced medical interventions
  - o Improve people's awareness and access to chaplaincy services to provide another avenue to talk about their worries and fears
- Health and care professionals committed to partnership working
  - o Improve relationships with local GPs to formulate pathways to allow early identification of chronic health issues, better care planning and coordination, better referral processes and coordinated care on discharge, i.e. provide better joined up care between primary and tertiary care
  - o Initiate shared care arrangements between specialties, e.g. build on the orthogeriatric model and its principles, respiratory, Heartlink, HITH, PACS, Community Health
  - o Early input sought from other health care providers on admission to ensure care is not siloed
  - o Increase recognition of vital role of chaplains as members of an holistic care team
- Commissioning
  - o Integrate and enhance existing outreach programs
  - o Develop new funding models for long-term disease management to achieve better targeting of care for patients with complex conditions in the community e.g. a move towards a broader payment for integrated care rather than a patient related payment for GPs, funding of GPs for care coordination.

4.3.2 Embedding continuous quality improvement and innovation across the system

Quality improvement and innovation requires a systematic process focussing on activity to reduce waste, harm and variation, safety, transparency, providing efficiencies, and to improve health outcomes, performance, and patient satisfaction. Measurable goals need to be identified for tracking performance and evaluation so that improvements are linked to performance measures. Using the 'Triple Aim' as a framework, health systems can simultaneously pursue "improving the patient experience of care, improving the health of populations, and reducing the per capita cost of health care".

SESLHD is currently making significant investment in building the capacity and capability of staff across the system to use the 'science of improvement' as an enabler to transform healthcare. The science of improvement is "an applied science that emphasizes innovation, rapid-cycle testing in the field, and spread in order to generate learning about what changes, in which contexts, produce improvements. It is characterized by the combination of expert subject knowledge with improvement methods and tools. It is multidisciplinary — drawing on clinical science, systems theory, psychology, statistics, and other fields".[271] Improvement models employ Plan-Do-Study-Act (PDSA) cycles for small, rapid-cycle tests of change.

The SESLHD Improvement Academy aims to build a centre for lifelong learning within the District and to foster a culture of staff-led, continuous improvement. This will be achieved through building capacity and capability in improvement using customised education for the entire workforce at all levels of the organisation. SESLHD is also identifying and nurturing its current and future leaders

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[270] See URL: http://seslhnintranet/POWH/Diversity_Health/health_literacy/default.asp
[271] Institute for Healthcare Improvement. The Science of Improvement. URL:
http://www.ihi.org/about/Pages/ScienceofImprovement.aspx

through offering a range of leadership programs, such as the Emerging Leadership program, and offers mentoring and professional development opportunities for high-potential staff members.

Other opportunities for staff education and further program development/ improvement exist through iiHub initiatives such as the Bright spots program to identify innovations that improve patient care, and The Inspiring Ideas Challenge (TIIC) to test and implement innovative ideas from staff members. Initiatives such as the 'Big Conversation' provide opportunity for staff feedback on ways we can improve service and system performance and find out what is important to them. Whole of system improvements using the Breakthrough Series Collaborative with facilities, teams and services are being used to identify specific and measurable aims in a chosen topic area, measure improvements over time (generally 6-15 months), and identify changes that facilitate the desired improvements.

Improvement programs currently underway include:
- *SESLHD Acute and Mental Health Safety Program – Towards Zero Together*, which aims to reduce harm to patients in hospital and those accessing our mental health services through initiatives such as improving the reliability of our clinical processes
- *The Patient Safety Program*, with eight clinical teams from across the District coming together to work on reducing harm and improving reliability for ventilator associated pneumonia, catheter associated urinary tract infections and recognition and management of the deteriorating patient. More teams and points of care will come on board every three months
- *'The Heart of Caring'*, a framework to support the wellbeing of our nurses in delivering patient care. A range of resources have been developed, based on a collection of quotes and excerpts from fifty nurses and midwives who shared their stories of compassion, encouraging reflection on practice and engagement with one another to work towards providing the compassionate care every person deserves. This includes providing 'Person Centred Compassionate Care, 'making a difference to the care experience', 'supported by 'teamwork' and that 'self-care and well-being is essential to achieving better outcomes'
- Emergency department – Management of Pain in the Fractured Neck of Femur Patient, with Fascia Iliaca Block (FIB).

The Evaluation and Quality Improvement Program (EquIP) provides accreditation for health services across Australia, and is the quality assessment and improvement framework used by Randwick Hospitals and Health Services' Campus services to ensure quality and safe care. Every four years the EquIP program is reviewed and revised. EquIP supports excellence in consumer/patient care and services and has been designed to assist and support health services in their quality improvement efforts.

Good practice examples:
- Clinically led pathway redesign focused on inpatient cohorts e.g. standardised clinical pathways/protocols for agreed conditions embedded in the workflow to prevent variation in outcomes (e.g. see Intermountain Health Care, USA[272]which has over 120 standardised workflows)
- Utilizing evidence-based appropriateness criteria
- Using quality improvement interventions, such as Lean, Toyota Production System, Six Sigma, Plan-Do-Study-Act
- A Quality Improvement Strategy, e.g. Salford Royal Hospital, UK launched a three-year Quality Improvement Strategy in 2007 which has resulted in: 100% reduction in MRSA blood stream infection; 90% reduction in Clostridium difficile infections; 51% reduction in cardiac arrests; and 45% reduction in Grade 2 pressure ulcers.[273]
- WHO: 'Safe Surgery Saves Lives Challenge'[274] to improve the safety of surgical care around the world by ensuring adherence to proven standards of care in all countries. The WHO Surgical Safety Checklist has improved compliance with standards and decreased complications from surgery in eight pilot hospitals where it was evaluated.

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[272] Baker G.R., et al 2008. "Intermountain Healthcare." High Performing Healthcare Systems: Delivering Quality by Design. 151-178. Toronto: Longwoods Publishing. http://www.longwoods.com/content/20146
[273] Salford Royal NHS Foundation Trust Service Development Strategy 2014/15 to 2018/19 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/390716/SALFORD_Publishable_Summary_StrategicPlan_1415.pdf
[274] WHO: Safe Surgery URL: http://www.who.int/patientsafety/safesurgery/en/

- Clinical networking with other hospitals and health services, e.g. with Specialised Care Centres for better quality and greater standardisation of care. Specialised providers develop networks of services over a geography, integrating different organisations and services around patients
- Ongoing quality improvement training for staff
- Regular quality audits
- Validated standard measures of patient satisfaction.

Proposed recommendations
- Continue to build on improvement and innovation using the Improvement Academy initiatives   - Continue to build the capacity of Randwick Hospitals and Health Services' Campus leaders and staff to participate in and implement evidence based improvement and innovation   - Ensure ongoing staff education programs   - Implement standardised clinical pathways and protocols for agreed conditions   - Continue to build on staff education to avoid IIMS related events, prolonged length of stay or avoidable admissions, etc. e.g. in the responsible use of medications such as anticoagulants and insulin.

4.3.3 Building strong community engagement and genuine partnerships

Health service redevelopment provides an opportunity to foster ongoing productive community relationships to improve community wellbeing. Collaboration with the community involves partnering with communities and agencies through assets/strengths based and other community development approaches, to actively seek out the assets that individuals and communities possess and can share. This includes adopting co-production and social impact approaches and integrating health and social care with other service providers and agencies to improve access to and deliver better person centred care, and improve community empowerment and resilience.

Community partnerships enable better outcomes for the community as a whole and for the individuals and groups involved. They allow all parties to identify needs, risks, opportunities and potential solutions to community issues and lead to more informed decision-making and improved (and often more sustainable) solutions.

Person and community centred care is an enabling approach whereby treatment and care provided by health services places the person and community at the centre of their own care. It requires a collaborative partnership between the person, their carers and family, social networks, and service providers, with each respecting the knowledge and experience, i.e. the assets, the other can bring. It also means a shared responsibility and accountability for health care.

The concept of co-production and an asset based approach uses the strengths and resources of people and communities, with a shift in the power dynamic between the service provider and consumer. It places equal value on professional training and lived experience, skills and social networks, in order to empower people to make decisions about their own health and to be more responsible for their own health care. This allows people and communities to be actively involved in identifying preferences, values and goals that are important to them, and supports them with interventions to be more independent, including early intervention and prevention, social inclusion, and short term restorative care.

Consumers should be important partners and co-creators of any new care models. The experiences, skills and social networks of consumers as individuals, organisations or groups should be included at all stages of design, testing, implementation and review, in order to support patients' engagement in their own care. This requires widespread community involvement, and respect and value for cultural beliefs and practices.

Person and community centred and asset based approaches are particularly relevant for self-management of chronic conditions, and have been found to increase patient engagement with their treatment recommendations, decrease length of stay and mortality, and increase satisfaction with their treatment overall. By recognising and leveraging community assets, frontline service providers can develop solutions better tailored to service user need, increasing their impact. Service users and communities experience improved service outcomes and become partners in the delivery of their own care, building their capacity and resilience for the future. Ultimately this is more effective care, immediately and preventatively.[275]

A Consumer and Community Engagement Strategy has been developed to provide a framework and governance structure for consumers and community members to engage with the District and ensure that the Randwick Hospitals and Health Services' Campus redevelopment is consumer and community centred and co-designed, and to ensure all aspects of the National Safety and Quality Health Service Standard 2: 'Partnering with Consumers'[276] are met.

A SESLHD Community Partnerships portfolio has been formed to provide support to staff to engage and partner with consumers, carers and family, diverse community groups and individuals, our volunteers, NGOs and other partners so that services are designed around our communities needs and assets to reduce their need for hospital care. A Community Partnerships Strategy[277] was developed in 2015 to provide a framework to build effective and enduring partnerships to improve community health and wellbeing. The aim is to give communities a greater sense of control over their own health and wellbeing, resulting in better health and wellbeing outcomes such as decreased mortality, readmission rates, healthcare acquired infections, length of stay and improved self-management and adherence to treatment plans.

Good practice examples:
- The Kia Kaha: Manage Better, Feel Stronger[278] project in NZ developed a model of care in the primary care setting to address the needs of people living with two or more long-term conditions who required significant levels of hospital-based care. Using case co-ordination and a collaborative approach, training was provided in self-management program delivery, health coaching, and self-management care planning, resulting in a 41% drop in visits to Emergency Care among the patient cohort in the first year
- In Rotherham, UK, GPs and community nurses work with advisers who know what voluntary services are available for patients with long term conditions. This "social prescribing service" has cut the need for visits to accident and emergency, out-patient appointments and hospital admissions.[279]
- Care coordination Service funding by Cancer Institute NSW for 5 care coordinators for cancer across the District
- Building strong intersectoral partnerships with other organisations working at the community level
- Strong lines of communication
- Providing adequate resources to support the process.

Proposed recommendations
- Ensure services are co-produced and take an asset-based approach to improve community involvement in service design and delivery   - Ensure community voices are heard and understood   - Improve responsiveness to community input   - Ensure services are equitable and consider the needs of marginalised and vulnerable

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[275] SESLHD Equity Strategy URL:
https://www.seslhd.health.nsw.gov.au/HealthPlans/documents/2016/SESLHD%20equitystrategy%20FINAL.pdf
[276] The Australian Council on Healthcare Standards. Equip National URL: http://www.achs.org.au/publications-resources/equipnational/
[277] SESLHD Community Partnerships Strategy 2015 URL:
https://www.seslhd.health.nsw.gov.au/Community_Partnership/docs/2015/SESLHDComPartStrategyFINAL.pdf
[278] Counties Manakau Health. Kia Kaha: manage better, feel stronger Feb 2016 v. 1 URL: http://koawatea.co.nz/the-kia-kaha-team-publish-a-health-system-improvement-guide/
[279] NHS England 5 Year Forward View. What will the future look like? New Models of Care
https://www.england.nhs.uk/ourwork/futurenhs/nhs-five-year-forward-view-web-version/5yfv-ch3/

communities
- Ensure organisational support to provide resources and build the capacity of staff and the community to achieve community engagement and build meaningful partnerships
- Collect evidence of change to support community partnerships and engagement
- Consider a Centre for Patient Health Education, possibly run in conjunction with the UNSW
- Ensure staff receive education in how to educate patients, how to create resources and to deliver programs to the local communities
- Build a community-recognised identity around research, education and service delivery.

4.3.4 Fostering adaptive leadership and deep clinical engagement

To be successful, organisations must constantly adapt and change in order to respond to a changing health context and environment. Leaders need to be responsive in seeking out and supporting new ways of working. Evidence suggests that the best performing hospitals have high staff engagement in decision making and widely distributed leadership. Leaders who engage staff, patients and others deliver better results on a range of measures, and engaging staff and patients is essential in making change and improvement happen.[280] Effective leaders need to motivate and engage staff and work across organisations and systems to deliver the transformational improvements and changed ways of working on which the health care system of the future depends.

Rising to the challenges of future healthcare will require leaders giving priority to patient and staff engagement, and to working in partnership with other systems. Integrated care and integrated systems require strong leadership across the different organisations and systems of care to support the needs of patients and populations. Leadership development programmes should thus bring together leaders from different groups and professions within and outside health care.

There is strong evidence to show the link between managerial and clinical leaders who have learned the skills of improvement and are able to put them into practice, with high levels of staff engagement and development and organisational performance.[281]

Good Practice example:
A 2012 report by the Kings Fund[282] demonstrated that organisations with engaged staff deliver better patient experience, fewer errors, lower infection and mortality rates, stronger financial management, higher staff morale and motivation and less absenteeism and stress, and that patient engagement can deliver more appropriate care and improved outcomes, with specific evidence that links medical engagement with organisational performance both from the NHS and other health care systems.

Proposed recommendations
- Building the capacity of senior staff with leadership and general management skills for the benefit of the health service of the future, with Staff Education programs including research and technology, population health, leadership, change management, system redesign and quality assurance and ensuring adequate time is made available away from clinical responsibilities for these initiatives   - Facilitate new career pathways into senior administrative roles beyond traditional boundaries, which will allow more diverse career pathways   - Provide organisational opportunity to create the cultural and structural conditions that facilitate clinicians to become more actively involved in leadership and management activities to ensure clinical engagement.

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[280] The Kings Fund Leadership Review 2012. Leadership and engagement for improvement in the NHS URL: http://www.kingsfund.org.uk/sites/files/kf/field/field_publication_file/leadership-for-engagement-improvement-nhs-final-review2012.pdf

[281] Baker G 2011. The Roles of Leaders in High-Performing Health Care Systems. London: The King's Fund. URL: www.kingsfund.org.uk/publications/articles/leadership_papers/the_roles_of_leaders.html

[282] The Kings Fund Leadership Review 2012. Leadership and engagement for improvement in the NHS URL: http://www.kingsfund.org.uk/sites/files/kf/field/field_publication_file/leadership-for-engagement-improvement-nhs-final-review2012.pdf

4.3.5 Digitally connecting – people, process and technology

The potential for digital technologies to transform the way healthcare is delivered is widely recognised, and is a critical enabler. Harnessing technology has the potential to provide training and clinical decision support, to support standardisation of processes where required, to improve safety, reduce variation in outcomes, to improve access to services, and to enhance self-management.

The Kings Fund[283] identified key areas of technology that will continue to advance the provision of health care:
- The thin client or smartphone (app's and large scale research)
- At home or portable diagnostics (hospital level diagnostics in the home or Smart assistive technology)
- Smart or implantable drug delivery mechanisms (Smart pills and implants)
- Digital therapeutics (computerised cognitive behavioural therapy and new preventative digital therapies)
- Genome sequencing (falling costs and population level studies)
- Machine learning (Big data sets)
- Block chain (decentralised health records)
- Connected community (peer support and contributions to research).

Innovative health technology also facilitates the linking of information and services to improve patient access and efficiency, including MyHealth Record, telehealth and teleweb services, remote health monitoring and medication management technologies.

Good Practice examples:
- Developing a health intelligence system, which includes:
  - Deep dive data analysis to determine community needs and assets and provide evidence for new ways of working, and to measure outcomes
  - The use of risk stratification tools for chronic disease to improve identification and management of those at risk of poor health and hospitalisation
  - The development of population and disease registries
- Development of support structures for integrated care such as shared care plans, remote patient monitoring, patient reported measures
- Providing feedback of performance data at the provider level
- Standardizing processes of care and implementing evidence-based guidelines and pathways
- Electronic systems that connect patients at home to their health care team, personal health information, and to relevant medical knowledge to promote integrated health care e.g.
  - Philips eIAC[284] for home monitoring of complex patients.
  - Kaiser Permanente's KP HealthConnect.[285] Use of this system in their Hawaii region

> ## Let's get digital
>
> "If used for the right reasons, and in the right way, technology is perhaps the single most powerful way in which we can deliver health transformation." It can support and supplement the health professional-patient relationship. Professionals are no longer the only gateway to access health information and support. It can also aid in the commissioning and delivery of services, harnessing big data to improve outcomes and save money.
> Wilson S. and Langford K. 10 Ideas for 21st century healthcare. Innovation Unit URL: http://www.innovationunit.org/sites/default/files/DIGITAL%20VERSION10%20Ideas%20Final.pdf

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[283] Gretton C, Honeyman M. The Kings Fund 2016 The digital revolution: eight technologies that will change health and care URL: http://www.kingsfund.org.uk/publications/articles/eight-technologies-will-change-health-and-care

[284] Phillips Enterprise Health http://www.hospitaltohome.philips.com/programs/eIAC

[285] McCarthy D and Mueller K. Kaiser Permanente: Bridging the Quality Divide with Integrated Practice, Group Accountability, and Health Information Technology, The Commonwealth Fund, June 2009. http://www.commonwealthfund.org/publications/case-studies/2009/jun/kaiser-permanente

- resulted in a 26% decrease in the rate of consumers visiting their physician
    - o Electronic prescription service to pharmacies to enable an electronic 'click and collect' or 'click and deliver' service for prescriptions
- Other E-Health technology, e.g. health data tracking, health apps, smart phone technologies
- The creation of a National Minimum Data Set of de-identified information to help measure and benchmark primary health care performance to inform policy and help identify regionally-specific issues and areas for improvement
- eHealth NSW is currently piloting a patient/guest Wi-Fi solution at the Sydney Children's Hospital Network. It is intended that the service will be made available to all NSW Health Hospitals following the completion of the pilot and once a funding model is identified.

Proposed recommendations

Improved systems that optimise processes and measurement are required, including:
- Data analytics to drive improvement and change. More detailed extracts (more variables, particularly ED) from PAS systems into the Health Information Exchange/EDWARD
- HealthPathways collaboration between SESLHD and Central and Eastern Sydney PHN – a web-based information portal supporting primary care clinicians to plan patient care through our primary, community and secondary health care systems
- Patient flow management systems e.g. electronic journey boards
- Accessible information systems e.g. electronic medical records, electronic medication management, diagnostic solutions, HealtheNet clinical repository, and incident management systems
- Wi-Fi systems at point of care
- IT systems that allow compatibility of existing systems, streamlined processes and adaptability (where clinical reports can be run with any variable of interest), e.g.
    - o Access to medical records and information sharing for staff across the hospital, including outpatients, e.g. linking of eMR (including ordering of tests and reporting) to:
        - ▪ eRIC (ICU)
        - ▪ MosaiQ (Cancer)
        - ▪ Cardiological investigations
        - ▪ Neurophysiology results
        - ▪ Lung function data
        - ▪ Sleep Lab and sleep data
        - ▪ PACS/RIS to support sharing of digital images
    - o Access to medical records and information sharing for health workers in the community e.g.
        - ▪ access to shared records for community based and outreach teams
        - ▪ referrals and procedural results for GPs
    - o Development of full eMR platforms and IT platforms will allow for the ease of transfer of information between any hospitals on the campus.
    - o Opportunities for data linkage between SCHN and SESLHD to help transfer patient information
    - o Wireless patient monitoring systems across the campus
    - o Implementation of an electronic referral system to streamline the triaging process and capture accurate data about the number of referrals received, to measure demand and capacity to better manage waitlist and plan service delivery
    - o Linked EEG monitoring
    - o Wireless technology for inpatient sleep studies
    - o Access to tele rehab and tele monitoring for RCCP patients in the community, building on the success of a pilot program
- Advanced telemetric monitoring with sophisticated IT algorithms to reduce staff time in performing routine observations and allow efficiency gains
- Further implementation of Computers on Wheels
- Explore the potential for ward-based iPads provided by the health service
- A centralised booking system for all diagnostics, OPD and community services
- An SMS reminder system for all outpatient appointments and planned admissions
- Use of 3 way phones and video conferencing for interpreters
- Multi-lingual health apps as an educational tool

- Relevant and meaningful performance indicators and standardised key outcomes for services measured and transparently reported
- Further e-health technology use e.g. apps for patient education, integration with social media
- Further telehealth opportunities, e.g. for rural patients to enable an earlier supported discharge
- The systematic identification of innovations that improve patient care e.g. quality improvement activities identified and shared
- Establish and sustain adequate training and support staff prior to rollout of new systems
- Development of a comprehensive hospital website that is easy to navigate and contains information for health professionals, community, patients and visitors on services available, access to services, central referral system/information on referral, bookings/appointments, health information and fact sheets
- Build coalitions (e.g. with UNSW, nuclear medicine, medical imaging, neurology) to advocate for investment in new technologies and capabilities, i.e. onsite radiopharmaceutical manufacture, Cyclotron on-site in future
- Develop and support tools to support multi –organization collaboration efficiently and effectively, e.g. remove firewalls
- Real-time IT support to collect patient outcome data, linked to individuals, services, and hospitals
- Working with eHealth NSW to facilitate implementation of new IT systems. eHealth NSW has developed and is in the process of deploying a number of clinical, corporate and infrastructure programs that can mitigate some of the information Technology (IT) constraints identified in this Plan.

4.3.6 Transforming the workforce

A sustainable, skilled and adaptable health workforce is crucial to delivering high quality healthcare in the changing health landscape and to meet the challenges for health and social care into the future. Our aging population and the increasing incidence of chronic disease requires new ways of working to sustain local access to health services. This may be achieved with more flexible use of current staff, greater use of non-medical staff and new digital technologies.[286] New structures and career pathways will be required to retain and develop the health workforce of the future.

Future work practice and changing models of health care will shift from acute to chronic care settings to address population health needs and a sustainable health economy, and will have greater emphasis on primary and preventative health care and addressing the inequities of health outcomes.[287] New workforce roles may emerge, and interventions to improve care for complex patients may require a realignment of clinical and professional roles of the workforce. This may mean a change of setting for the delivery of health services from the traditional hospital- based model, and making use of our workforce in a way that makes best uses of

> ## Doctors can't do it all
>
> *"A changing landscape calls for the right workforce. We need to diversify the provision of care and be smart about who does what".* This may mean the creation of new roles such as care coordinators, or trained community members and peer support workers.
> Wilson, S. and Langford, K. 10 Ideas for 21st century healthcare. Innovation Unit URL: http://www.innovationunit.org/sites/default/files/DIGITAL%20VERSION10%20Ideas%20Final.pdf

their skills, allows further changes in roles, and provides sustainable services. It may mean working in multidisciplinary and multi-organisational settings to deliver person centred care, as well as partnering with staff from non-medical backgrounds to meet people's social needs.

Workforce redesign will need to ensure the most efficient distribution of services, remove duplication of services, and ensure that patients receive the right care, in the right place, at the right time, with

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[286] Imison C, Sonola L, Honeyman M, Ross, S. Kings Fund 2014. The reconfiguration of clinical services. What is the evidence? URL: http://www.nhshistory.net/Reconfiguration-of-clinical-services.pdf
[287] NSW Health. Health Professionals Workforce Plan 2012-2022 URL: http://www.health.nsw.gov.au/workforce/hpwp/pages/default.aspx

staff and consumers engaged in change management. Specialised staff will be required to provide the highest quality, high technology care available when such specialised intervention is required, however patients with multiple conditions may need clinicians with broader based skills who can provide more generalist care.

Key health staff will include senior medical cover out of hours and at weekends, and nurse practitioners and advanced scope of practice allied health practitioners, particularly for lower-risk patients. It will also include a greater variety of and access to community health providers. A shortage of these key staff may limit the implementation of new models of care as a solution to the growing and unsustainable demand for health services.

It is also necessary to consider the complementary non clinical workforce and the enabling infrastructure and systems necessary to support the clinical workforce of the future. This includes managers, administrative staff, human relations, project support, business intelligence, finance, analytics, food services, cleaning, engineering, portering, etc. that allow the efficient delivery of patient care.

It is important to note that although evidence supports community-based alternatives to improve the quality of care, they are unlikely to deliver significant net savings.[288] In the current climate of ABF funding, this is an important consideration in implementing new models of care and workforce transformation.

Proposed recommendations
Transforming the workforce will require: - Appropriate staffing resources (medical, nursing, technical, educational, allied health, clerical and support staff) to enhance existing high quality service delivery, support new outpatient clinics, a greater number of HITH patients, expanded community based outreach services and higher acuity inpatients   - Strong partnerships with universities will be required to enable new career pathways and align teaching and education with the challenges of future public health service delivery   - Staff Education programs around research and technology, population health, leadership, change management, system redesign and quality assurance   - Changing work place roles, e.g.:   - Nurse led clinics   - Advanced practice physiotherapy in ED   - CNCs in specialised areas such as headache, Parkinson's, dementia/delirium   - General physicians or physicians interested in general medicine for Medical Assessment Unit   - Changed settings, e.g.:   - Specialist clinics in residential aged care facilities or community based settings   - Digital remote monitoring and consultation   - Expanded ambulatory and community based services, e.g.:   - Geriatric residential aged care team to a 7 day service with increased capacity   - Community services for home based delivery of care, including crisis management to rapidly escalate the levels of care during an exacerbation of illness to maintain them in their homes, e.g. SOS model at Southcare   - Outreach services, e.g. for palliative care to home and RACFs, cancer care   - Community based specialist outpatient clinics   - Outpatient clinics, including crisis clinics and increased day only procedures   - Non-clinical support staff and appropriate infrastructure to support the delivery of clinical care   - A focus on a healthy environment and preventive health/health promotion for our staff, with media unit support, such as healthy canteens, outdoor gyms, standing meetings, making Randwick pedestrian and cycling friendly, access to health screening, etc.

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[288] Ibid

4.3.7 Strengthening teaching, education and research

A high quality health service is dependent on a synergistic trilogy of clinical services, teaching and education and research. The Randwick Hospitals and Health Services Campus is a thriving environment for teaching and research and the integration of teaching and research with clinical services is a fundamental philosophy of the Campus and its drive for innovation and outcomes. There are likely to be tangible and significant benefits financial benefits in addition to health and social outcomes through this approach.

Teaching and education

Strong partnerships will be required with universities and other key stakeholders such as professional colleges to enable new career pathways and align teaching and education with the challenges of future public health service delivery. In recognition of this, Prince of Wales Hospital and Health Services has fostered strong links with its associated Universities, and an Education Strategy is currently being developed, with a formal academic governance structure being proposed.

The provision of a Teaching and Education Precinct on the Randwick campus has also been proposed, with opportunities for undergraduate teaching, clinical placements and postgraduate training for all clinical students and staff. It will provide a full range of staff development services across all clinical disciplines.

The main objectives of the Teaching and Education Precinct are to:
- Foster training and education to medical, nursing and allied health students
- Support professional development for POWH staff and health professionals in SESLHD
- Serve as a focal point for educational activities across the Randwick Hub and the wider health community, including General Practice, non-government organisations and community groups.
- Provide an opportunity to share & collaborate as interdisciplinary health care professionals.

Workplace based education also requires integration with ward and outpatient based services, with education being delivered at point of care, and capacity to debrief close to but away from patient areas to maintain confidentiality. To enable this, requirements include:
- Teaching rooms on wards
- Dual purpose outpatient/education spaces.

High performing international models of teaching and education include:
- Point of care education, with integration of ward and outpatient services and teaching opportunities
- Dedicated multi-disciplinary teaching precincts with advanced technology, effective communication systems
- An acknowledgement of the importance of the role of teaching in the facility
- Strong alliances with associated universities and learning organisations
- Linked IT systems
- Research education, with an education program in how to conduct research.

Good Practice examples:
- **Singapore General Hospital**[289] provides post-graduate teaching for specialist medical, nursing and allied health, continuing education for GPs and medical specialists, and medical undergraduate training. Advanced multi-disciplinary training brings together all surgical, simulation and procedural skills courses under one roof, with faculty from across all surgical and procedural specialties and the use of state-of-the-art facilities and infrastructure, adequate communication resources and technology support, and access to appropriate reference material, including electronic medical literature databases with search capabilities. In recognition of the Hospital's teaching role, the National University and the Ministry of Health appointed a senior clinician as Associate Dean. About 48% of the hospital's clinicians are also appointed as clinical faculty of the University.

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[289] URL: http://www.sgh.com.sg/Education/Pages/education-training-overview.aspx

- **Jönköping County Council, Sweden**[290] established the Qulturum learning centre on its central health campus, which allows small and large groups to meet and learn together in "learning arenas." Senior leaders regularly participate in teaching and learning. Jönköping partnered with a medical school and other Swedish health professions and programs to develop a network of medical residency supervisors trained at Qulturum, and developed modules these supervisors can use for training of physicians and other professionals. This work has expanded into a national-level initiative across four Swedish universities.
- **Salford Trust, UK**[291] delivers both under and postgraduate teaching. As a teaching trust, the Salford Royal is linked to the University of Manchester for medical students and works in partnership with the University of Salford in the education of nursing and allied health professionals. Postgraduate Medical Education provides and manages the training of all junior doctors. Changes in the funding arrangements for education provided new service level agreements to protect time for teaching and enhance the Trust's position as a centre of excellence for education. The Trust is a partner in the Manchester Academic Health Science Centre and the Greater Manchester Academic Health Science Network.
- **Li Ka Shing Center for Learning and Knowledge**, **Stanford University Medical School, USA**[292] provides an Immersive Learning Center for medical and post graduate students, which centralises all modalities of simulation to allow students to integrate their classroom understanding in parallel with simulation-based practice. The ground floor creates a virtual hospital for a variety of learning experiences and patient scenarios. Classrooms and conference facilities can be reconfigured for varied group sizes and activities. Spaces are designed so that specific medical or surgical procedures can be practiced until the learner is competent.
- **Li Ka Shing International Healthcare Education Centre, St Michael's Hospital, Toronto, Canada**[293] supports education programs through its Simulation Centre, Centre for Faculty Development, Health Sciences Library and Student Centre, partnerships with academic and health institutions, and interprofessional education across all disciplines.

Proposed recommendations

- The delivery of up-to-date and evidence based quality healthcare is the cornerstone of a modern health system, and this is underpinned by active and ongoing workplace based education. As such, there will be a commitment to deliver a culture that supports and values the training and education of all employees, as well as nurturing supervisors and facilitators by:
  o Recognising teaching as an important and valued part of the organisation
  o Building teaching and research as a core element in recruitment and staff development process for clinicians across the professional disciplines, and in senior management appointments
  o KPIs for participation in a broad variety of teaching programs as an annual requirement for senior staff and administrative heads of the hospital
  o Active promotion and support of delivery of teaching during the day-to-day activities of the hospital
  o Ensuring that protected teaching time, away from clinical duties, and suitable for their craft group and skill level, is embedded in employee's rosters.
  o Fostering better integration with the University of New South Wales to seek synergies and opportunities for common ground
- Improved teaching and learning facilities and access with a variety of technology-enabled educational spaces including:
  o Point of care teaching facilities, with multi-purpose teaching/meeting rooms in the ward and outpatient settings
  o An Education Precinct, as identified in international models such as the Li Ka Shing Centre at Stanford University, which will ideally feature:

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[290] Baker G.R., A. MacIntosh-Murray, C. Porcellato, L. Dionne, K. Stelmacovich and K. Born. 2008. "Jönköping County Council." High Performing Healthcare Systems: Delivering Quality by Design. 121-144. Toronto: Longwoods Publishing.URL: https://www.longwoods.com/content/20144

[291] Salford Trust Service development Strategy 2014/15-2018/19. URL: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/390716/SALFORD_Publishable_Summary_StrategicPlan_1415.pdf

[292] URL: http://www.nbbj.com/work/stanford-university-li-ka-shing-center-for-learning-and-knowledge/

[293] URL: http://www.stmichaelshospital.com/education/index.php

- ▪ Co-location with or in close proximity to clinical spaces
- ▪ Specialised facilities including a centralised Simulation and Learning Centre, Library, and Computer Training Room
- ▪ Consistent communications, booking, and conditions of use across facilities
- ▪ A conference type venue which can be used for larger group and community education, GP education or group education for patients, with a large lecture theatre, large group room and smaller break out rooms. This would allow larger events such as conferences and courses to be undertaken, with an extensive range of educational offerings that would benefit the organisation financially and with enhanced reputation
- ▪ Provision for Chaplaincy training in education facilities
- ▪ An integrated multi-disciplinary student space with lockers, showers, room for social interaction and potential for a MedSoc bookshop
- ▪ A management structure for the precinct, with appropriate budget and administrative support, and to provide support for marketing and coordination of events

- Changing modes of clinical delivery for students, including:
  - o Technology driven learning with effective IT support
  - o Increased simulation learning
  - o Sharing resources with other high performing educational institutions, such as lecture modules and reading materials
  - o Web based tutorials, on-line discussion forums and virtual meetings
  - o Increasing emphasis on competency-based requirements
- A focus on inter-professional education to support development in teamwork, decision-making, referral, communication and clinical processes through joint activities
- Learning in the workplace, facilitated by programs aimed at improving the quality of supervision of trainees, and extending the role of the supervisor to that of 'facilitator of learning'
- Technology requirements for enhanced education and teaching, including:
  - o Wi-Fi access to online resources in the hospital and from universities and other institutional networks for work, teaching and study (it is noted that the University of NSW already provides Wi-Fi access (eduroam) to most of the teaching areas)
  - o Wi-Fi access and dedicated computers and projection equipment in teaching rooms in the precinct
  - o Cloud or web based systems for sharing educational resources, accessible for study on and off campus
  - o Centralised booking system for teaching and training rooms
  - o Dedicated, reliable web-based/video-conferencing facilities across the campus
  - o The use of mobile devices and applications, e.g. clinical decision making apps such as UpToDate, and the use of iPads by assessors in clinical examinations
  - o High quality simulation resources
  - o labs for staff, trainees and students from all clinical disciplines
- Establishing an education program, with a research education support office to help staff carry out research, and conversely, to perform research on our Education to ensure that what we are doing adds value and improves patient care
- Build global relationships, together with the UNSW School of Public Health, to create a Centre for Global Health Education, which would mark our campus as a true international body
- Upskilling of GP's and continued training of medical students and JMOs by Specialities
- The initiation of General Physician training to meet the demand for increasing management of multi-morbidity and for the creation of a general MAU on site.

Research – collaborative health-science alliances

Progressing academic alliances is a key driver to enable the bringing together of the intellectual and clinical expertise, infrastructure, resources and capabilities of partners to improve the health and wellbeing of the local community as well as broader community of NSW. Collaborating with other research institutes and education providers will allow the Randwick Hospitals and Health Services' Campus to broaden its education and training system and build the capacity of all of its staff to participate in research and innovation and further education. It will also expand its ability to attract quality staff, and increase its potential for grant allocation.

The Health Science Alliance[294] is a major collaborative partner for the Randwick Hospitals and Health Services' Campus and includes fourteen of the country's top health and medical research institutes and health care providers. It is driven by a belief that the best healthcare for the community is delivered in an environment where active research is also taking place. Its vision is to be recognised internationally as providing the best possible healthcare, informed by cutting-edge research activity translated rapidly into the clinical setting by a world-class team of healthcare providers and medical researchers.

The alliance will break down traditional "silos" between various research institutions and patient-care centred institutions, and facilitate communication and collaboration between them to enhance the quality and relevance of research, and the translation of that research into improved patient outcomes and smoother transitions for patients between hospital and community-based services/facilities. Institutions working together will optimize the impact of investment in research and training to improve population health and individual wellbeing.

The campus is also a part of the Academic Health Science Partnership[295], which aims to provide timely translational research to practice through the development of collaborative clinical academic streams.

Good practice examples:
- Establishing key enabling platforms and systems including Big Data in health, biobanking, research governance, research translation (including Clinical Trials) and industry engagement has been shown to be integral to success and allows research that is not possible using single data sources, or limited resources
- Scientia Clinical Research[296] (SCR), part of The Bright Alliance on campus, is the first publicly funded purpose built early phase clinical trials centre in NSW. The facility will support first into human and first into patient studies and later phase trials across a broad range of disciplines, including cancer, ophthalmology, neurology, addiction medicine, rheumatology and paediatrics. It will also provide a world class state of the art facility for the investigation of medicines, biomedical equipment, devices and other procedures and treatments; phase I to IV clinical trials in healthy and patient volunteers; and clinical research methods development and support
- The Melbourne Biomedical precinct, Victoria provides a teaching precinct with its 25 health service, research and academic partners, including The Royal Melbourne Hospital and Melbourne Health, The Royal Women's Hospital, The Royal Children's Hospital, and Research Institutes including Walter and Eliza Hall Institute, The Murdoch Children's Research Institute, Peter MacCallum Cancer Centre, The Florey Institute of Neuroscience and Mental Health, CSIRO and the University of Melbourne
- The South Australian Health and Biomedical Precinct[297] will be the largest health precinct in the southern hemisphere. The new Royal Adelaide Hospital and South Australian Health and Medical Research Institute facilities will provide the foundation for a cluster of organisations to deliver new models of training, research and clinical service delivery. This will include the University of Adelaide Integrated Clinical School delivering integrated teaching and research to undergraduate and post graduate health students, and the University of South Australia

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[294] The Health Science Alliance. URL: https://thehealthsciencealliance.org/
[295] Academic Health Science Partnership URL: https://research.unsw.edu.au/node/126956
[296] URL: https://powcs.med.unsw.edu.au/about/partners/scientia-clinical-research
[297] URL:
http://www.sahealth.sa.gov.au/wps/wcm/connect/public+content/sa+health+internet/health+reform/the+new+royal+adelaide+hospital/south+australian+health+and+biomedical+precinct/south+australian+health+and+biomedical+precinct

Interprofessional Health Clinic to enable teaching and student led clinical delivery of nursing and allied health services
- The HSA Biobank has imbedded processes for universal patient consent, biobanking and health data collection within the standard of care across the Randwick and St George campuses. This initiative established by UNSW Australia, SESLHD, and SEALS Pathology Network has proven to be a successful partnership, developing a large-scale resource for translational research.

Proposed recommendations
- Continue to strengthen existing alliances   - Pursue links with other research institutions and universities   - Progress arrangements to feature cancer, neuroscience, mental health, spinal and integrated care centres of excellence.

4.3.8 Translating research into practice

"Inward-facing and fragmented research groups monopolised by one research leader is an obsolete research model – the future has arrived. We must operate as 'one' to maximise our internal and external collaborations."
Gerry Marr, CEO, SESLHD

Advances in research and technology and consumer-driven health care are changing the focus of medicine from treating disease, to health care that is "predictive, preventive, personalized and participatory".[298] Translational clinical research programs deliver sustainable health and medical research outcomes that advance knowledge and practice to improve patient care and health system performance, and consider advancing practice in areas of high clinical need. This includes medical, nursing and allied health research and multi- disciplinary research.

With links formed through the Health Science Alliance and its membership of the Academic Health Science Partnership, and alliances with specialised research institutes, such as the Kirby Institute for HIV research, and networks with other universities and LHDs, clinicians are able to more effectively translate new research to clinical practice. This will also provide opportunities to identify new specialist and multi-disciplinary research priorities to meet the community's needs, for example in regard to clinical variation, low value healthcare, integrated care and health outcomes.

Randwick Hospitals and Health Services' Campus translational research should thus consider a focus on a science based wellness approach, to facilitate the understanding of the causes of disease and the creation of more cost effective treatments. This will enable the health campus to strengthen integrated care to those living with multiple long term conditions, to embed prevention into its core work, to prevent hospital admission and re-admission among its residents, and to provide better access to high quality care in the community setting, particularly to vulnerable and disadvantaged groups to reduce health inequities. This will be aided by a change of emphasis within the NSW Office of Health and Medical Research that is seeking, creating and supporting opportunities for research translation situated within clinical sites rather than universities.

An active research translation agenda for POWH&CHS is anticipated to improve care quality, staff retention and cost effectiveness. Participation in clinical trials has been shown to improve outcomes for patients. Implementation of a strategic plan to achieve this should be delivered within the framework of a cost benefit evaluation.

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[298] P4 Medicine Institute, Seattle, WA, USA. URL: http://www.p4mi.org/p4medicine

Model of Translational Research for SESLHD[299]
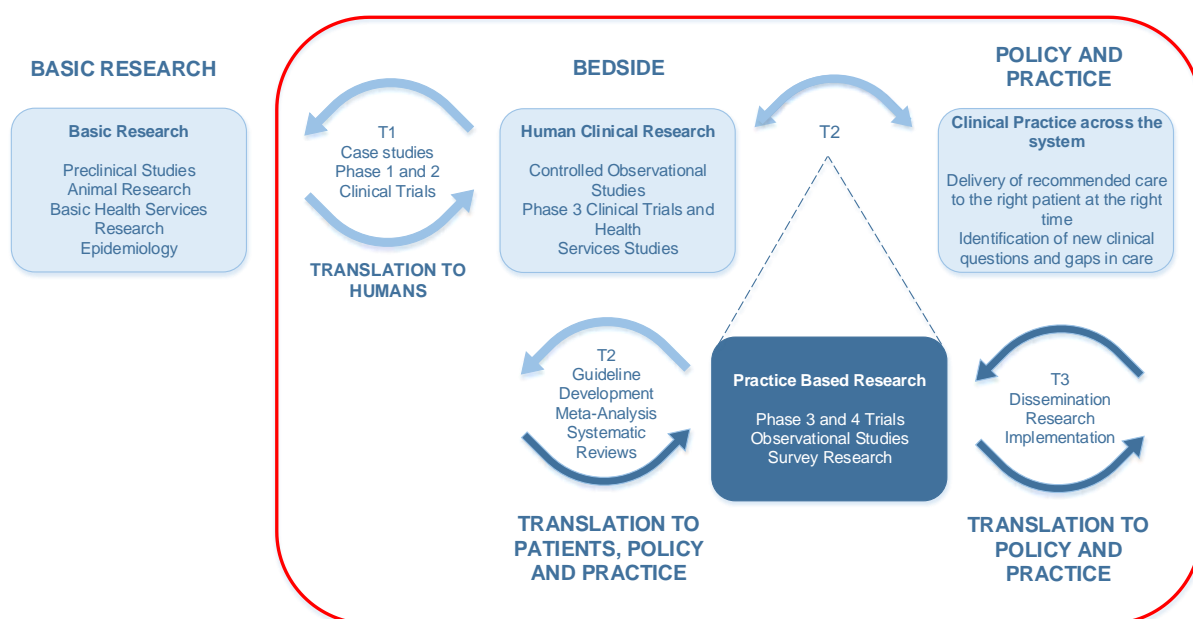
Good practice examples
- Collaborative Health Science Alliances involving the Randwick Hospitals and Health Services' Campus, including:
  - The Bright Alliance on campus, which houses the Nelune Comprehensive Cancer Centre, Scientia Clinical Research (a facility of UNSW), and the SCHN to create a comprehensive cancer treatment and translational research centre of excellence, providing NSW's first facility for early phase clinical trials and clinical research facilities for all drugs, tests and devices. The co-location of a range of ambulatory, outpatient and radiotherapy services previously provided across eight sites on the Randwick Hospitals and Health Services' Campus with clinical trials provides an opportunity for fast tracking new medical discoveries
  - The Health Science Alliance, which includes fourteen health and medical research institutes and health care providers
  - The Translational Cancer Research Network (TCRN) has supported translational projects that demonstrate an impact on cancer patient care. For example, a Family Communication tool to improve dissemination about genetic risk information; and a recent drug trial to protect patients from chemotherapy induced peripheral neuropathy during chemotherapy
- Professor Henry Brodaty, Co-Director of UNSW's Centre for Healthy Brain Ageing (CheBA) and UNSW Scientia Professor, has won the 2016 Ryman Prize for his work to combat dementia. The prize rewards the best work in the world that has enhanced quality of life for older people
- A Translational Research Grant for Prof J. Close, Consultant Geriatrician at POWH and Principal Research Scientist, Falls, Balance and Injury Research Centre Neuroscience Research Australia, on the implementation and evaluation of an enhanced model of care for older surgical patients This study examines a shared care model between surgeons and geriatricians to better manage sick elderly patients, to allow earlier discharge, better post discharge management which will likely decrease re-admission rates
- The Karolinska Institute, an academic health science centre, is Sweden's largest centre for medical training and research, accounting for 30 percent of the medical training and 40 percent of the medical academic research conducted nationwide. It includes the Karolinska University Hospital, Research Institutes, with 9 key areas of research, education facilities for over 8,000 students and the Karolinska Science Park, with over 75 companies
- Korea's Samsung Research Institute for Future Medicine is a leading research driven hospital

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[299] Accessed from Mary Haines Consulting SESLHD Research Strategy presentation June 2016

and provides a wide range of research support systems. It is part of a network of global medical and research centres that nurtures translational research and researchers

- Greater Manchester Academic Health Science Network[300] is a collaborative network of 34 NHS organisations, together with East Lancashire Trust, higher education institutes and industry. The focus is to create the environment, culture, pathways and processes to efficiently set up, deliver and monitor studies. It provides a unified point of access for life sciences and biotech companies, and has developed Datawell, an innovative informatics platform that: enables health data to be shared across organisations and GP practices and links data from and to social care, to accelerate the delivery of improvements in health outcomes and cost effectiveness
- Clinical research laboratories located in close proximity to clinical areas to encourage staff participation.

Proposed recommendations

- The development of a SESLHD Research Strategy (currently under development)
- Investigate further potential partnerships for clinical and translational research, (e.g. bench-to-bedside and bedside-to-bench translational research) with universities, professional colleges, other LHDs, industry, etc.
- Examine existing translational research networks (e.g. TCRN) to inform initiatives in other research and clinical streams
- Work with existing campus partners to expand linkages and synergies at the organisational, physical asset and collaborative level on specific research projects
- Focus on robust health systems research broadly and service evaluation locally
- Develop research streams within clinical streams, directorates and improvement initiatives as a vehicle to embed research within service delivery
- Commitment to deliver a culture that values research as essential and integral to core business, including:
  o Research embedded into the leadership governance of the LHD, e.g. a Research Director reporting to the Chief Executive, the Research Office reporting to the Research Director and a research and teaching subcommittee of the executive
  o KPIs for research as an annual requirement for senior staff and administrative heads of the hospital, with outcomes embedded across leadership roles
  o A more academically focused recruiting process for all staff but especially senior staff, targeting appointments with a proven academic record and current, active research work to build up a significant cohort of academic clinicians of all disciplines
  o Active promotion and support of delivery of research criteria within job descriptions: when recruiting; as a component of annual appraisal; as promotion criteria
  o Advocating for evidence-based policy and decision-making in every forum
  o Equitable treatment for research training alongside other mandatory training activities
  o Seeking, engaging and supporting research opportunities, including allocation of study time for conference attendance, and secondments for staff.
  o Allocated research and teaching hours
  o Build upon the already strong research culture of the campus e.g. with the SCR and a dedicated clinical trials facility for phase I studies and across disciplines, particularly with the exploratory research potential with the on-site lab
- Improving staff development opportunities. Specific objectives include:
  o Development of specific academic – clinical career frameworks. This is an agenda item for NSW MoH Nursing & Midwifery Office, but needs to be across all professional groups and delivered, with positions created and progression pathways established
  o Support for research career development as indicated to enable a research culture:
    ▪ The formal structure of research units where research is an operationalised strategic goal, with mentors, collaborators, juniors, with clinical staff appointed for their research as well as clinical expertise
    ▪ Recognition of research skills as mandatory (in line with job description criteria) and supported as such

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[300] Greater Manchester Academic Health Science Network Ltd
URL: http://www.gmahsn.org/research-and-informatics

- Clinically based research education & training which staff are supported to attend, support for secondments
- Creation of research traineeships – 2/3 per discipline per year, for trainee and senior levels, backfill for traineeship positions.
  - Support to develop research skills within the workforce in alignment with requirements set out for education development (see Section 4.3.7 Strengthening teaching, education and research)
  - Harnessing academic strength in clinical streams
- Improved infrastructure, including:
  - All research-active staff need fast internet access and Wi-Fi, communication software for teleconferencing, website support for research dissemination/ communication
  - A database of SESLHD research for the Research Support Office
  - Whilst the human research ethics review process is well developed, the research governance review process is slow and not well understood
  - LHD infrastructure to support grant writing and delivery:
    - Software & tools e.g. salary/ overhead calculations, statistical analysis, reference management, grant and finance management software
    - 'Critical readers' – for grantsmanship, compliance checking, governance & sign off
    - Contract monitoring and compliance: lack of this basic infrastructure poses a risk to the organisation from grants managed in-house
    - Personnel support: statisticians, research managers, data managers
  - It is noted that nursing and allied health affiliate with multiple universities. All POWH&CHS clinical staff need to have the same access to resources, while maintaining their tertiary relationships with their relevant universities.
- Appropriately designed laboratory space and clinical trials staffing for ongoing translational research, either co-located with ambulatory precinct or located nearby.(n.b. SCR will have a lab on site and may provide a training opportunity for staff interested in clinical trials)
- Resource support , including:
  - Creation of research traineeships – two to three per discipline per year, for trainee and senior levels
  - Appointment of research support positions: two administration officers to cover research and data management
  - Software with support: statistical, reference management, grant and finance management software
  - Link to statistics/grant management support already available at UNSW
- Collaboration with Cancer Institute NSW and NSW Health to improve cancer outcomes for Aboriginal and culturally and linguistically diverse people and those from lower socioeconomic backgrounds
- Increased participation in clinical trials, for example with phase I trials at SCR
- Secure academic appointment for a nephrologist with immunology Training to establish POWH based translational transplantation research to ensure POWH kidney transplant recipients receive state-of-the-art evidence-based care.

4.3.9 New funding models

In order to reduce the increasing demand on health services into the future, there will be a greater emphasis on prevention, self-management and individual responsibility, and stronger links with social care support to address social determinants, improve health, increase resilience, and add purpose to lives. Health services will need to develop a flexible range of solutions to meet people's needs.

This will include leveraging external funding sources for translational research, including for clinical trials and access to new technologies and drugs, in order to provide ongoing improvements in services and quality of care.

Improving integration across the care continuum is an effective way to reduce unwarranted variation and costs and improve outcomes—for the health care organization, the community, and the individual. New delivery models such as accountable care organizations, bundled payment arrangements, and medical home models mean that providers will require changes to current payment incentives, where value is rewarded over volume.

> ### Make healthy pay
>
> Could incentives be used more to drive healthier behaviours? 'What difference would we see if making the healthy choice was not only the smart choice long term, but a choice that paid off in the short term?....... People can be motivated to change their behaviour around health through various types of reward."
> Wilson S. and Langford K. 10 Ideas for 21st century healthcare. Innovation Unit URL:
> http://www.innovationunit.org/sites/default/files/DIGITAL%20VERSION10%20Ideas%20Final.pdf

In recognition of this need for change, a recent commonwealth government initiative to implement a pilot program for primary care management of people living with complex and long term conditions, the *Healthier Medicare* package, has commenced. 'Health Care Homes' delivered by GP practices or Aboriginal Medical Services, will be responsible for the ongoing co-ordination, management and support of a patient's care, as part of a person centred care plan. Risk stratified eligible patients will be able to enrol with the Home of their choice, empowering patients and their families to be partners in their own tailored care plan and take greater responsibility for the management of their conditions.

Payments for Health Care Homes will be bundled together into regular quarterly payments, a change from the current fee for service model. This will allow greater co-ordination between Primary Health Networks and Local Health Districts in the planning and procurement of health services for their local communities, and improved flexibility and innovation in the delivery of care.

Health Commissioning

Commissioning refers to the process of buying and planning healthcare for local areas. Commissioning involves determining what the needs of the population are, usually via a form of health needs assessment process, and so therefore encompasses a process more extensive than simply procurement, which is the process of securing or purchasing services (NHS Commissioning Board, 2012)[301].

Commissioning for populations[302] is characterised by approaches that:
- Are outcomes based, where outcomes attend to patients' priorities and to indicators of social and economic value alongside traditional metrics
- Reflect people's real lives, creating systems that are coherent & responsive to those engaging with them & aligned with everyday life
- Incentivise and support collaboration, giving rise to new and sustainable partnerships, networks and alliances
- Make and shape new markets, with rapid expansion of disruptive technologies to support individuals in their ordinary lives, and engagement with private sector investment in supporting this work
- Lead to culture change, under the leadership of visionary commissioners.

There are a number of different models of commissioning employed:
- Prime contractor model: the commissioning body makes a contract with an organisation or consortium, who then makes sub–contracts with other service providers and takes responsibility for the day–to–day management of these providers
- Prime provider model: the commissioning body makes a contract with an organisation or consortium, but the organisation/consortium provides some of the services contracted for while making sub – contracts with other providers for other services
- Alliance model: a set of individual providers each enter into a single arrangement with a commissioning body to deliver services, with all the providers and the commissioners sharing

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[301] Accessed from SESLHD Commissioning in Healthcare Feb 2016
[302] G. Marr, Chief Executive SESLHD. August 2016 presentation: Reshaping the healthcare, teaching and research landscape to improve community health and wellbeing

risks and responsibility for meeting agreed outcomes. Relationships and delivery of care are managed by internal governance arrangements.
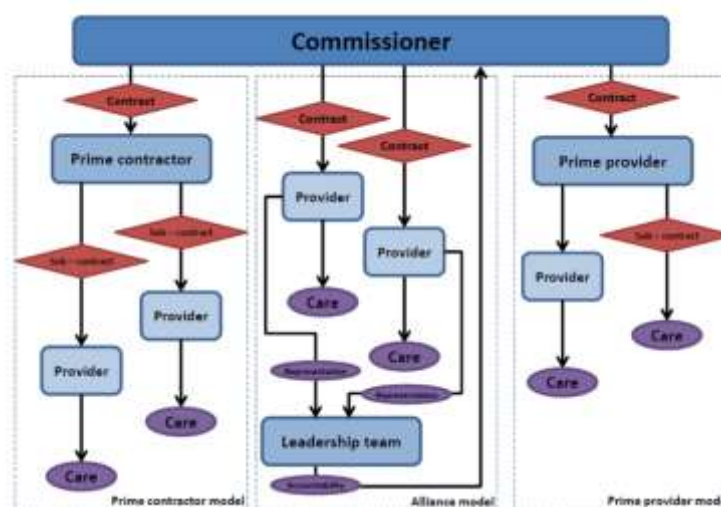
Commissioning Contract Models[303]

Collaborative commissioning involves two or more commissioning bodies working together to negotiate with a service provider. It is becoming increasingly relevant in integrated care delivery, with the potential for the collaboration of SESLHD and the Central and Eastern Sydney Primary Health Network to commission the provision and procurement of community services.

Although minimising costs, particularly the high costs of hospital care, is vital to all health systems, evaluations of interventions designed to improve care for complex patients point to very limited reductions in hospital costs in the short term, and sometimes increased investment in other services is required. Policy-makers need to have realistic expectations about cost savings. Implementing and evaluating new interventions, particularly those with new or adapted clinical roles, takes time to show improved outcomes or generate cost savings.[304]

Good Practice examples:
- Kaiser Permanente [305] is a private, not for profit health care organisation which provides care to over 8 million people across 9 states in the USA, and operates hospitals, primary and community based services, including home based care. Doctors from primary and secondary care share the same budget and function within multi-disciplinary centres, and an unplanned admission is viewed as a system failure. A high degree of focus is on prevention, health education, self-management and chronic disease management to avoid hospital admission and to be cost effective. Under this model, people with long term conditions are stratified according to need, with intensive management targeted at those at highest risk
- A WHO review[306] found that increased availability of primary health care spending was associated with higher patient satisfaction and reduced aggregate health care spending as well as improved population health outcomes
- South West London Collaborative Commissioning Groups are committed to supporting local practices in the formation of practice networks and developing commissioning incentives for collaboration. Networked general practices share best practice and joint agreed outcomes, specialist skills and support, and may provide cover for extended hours or other service arrangements. This provides cost efficiency for the health system and enables further

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[303] SESLHD Commissioning in Healthcare Feb 2016
[304] Hubertus J, Thorlby V&J. Developing care for a changing population: supporting patients with costly, complex needs. Nuffield Trust UK Discussion paper, May 2016. URL: http://www.nuffieldtrust.org.uk/node/51
[305] URL: https://healthy.kaiserpermanente.org/html/kaiser/index.shtml
[306] WHO Regional Office for Europe's Health Evidence Network (HEN) January 2004 What are the advantages and disadvantages of restructuring a health care system to be more focused on primary care services? http://www.nhsalliance.org/wp-content/uploads/2013/06/Jan-2004-What-are-the-advantages-anddisadvantages-of-restructuring-a-health-care-system.pdf

development of increased quality at scale.[307]

Proposed recommendation
• Development of co-commissioning between the SESLHD and Central and Eastern Sydney Primary Health Network.

4.3.10 Shared services

While many organisations have adopted shared services for back-of-house functions the Randwick Health Campus is unique in NSW and in health for its long history of shared clinical services (refer to Section 3.3: Shared services).

This shared approach to the delivery of clinical services has:
• Provided clinical expertise across multiple facilities
• Encouraged professional collegiality
• Ensured cost effective and efficient use of high cost infrastructure and resources.

Despite the campus's extensive experience in sharing clinical services there remain some challenges including:
• The delivery, hosting, management, funding and formalisation of these shared clinical service arrangements are varied
• Resource constraints (e.g. funding, equipment, space and/or workforce shortages) limit access, capacity and/or sustainability of some shared services
• Shared services hosted in an adult setting do not necessarily provide a physical environment suited to care of children, adolescents, and young adults.

Proposed recommendations
• Shared service arrangements should be continued
• Where POWH, RHW and/or Eastern Suburbs Mental Health Service hosts a service utilised by SCHN, consideration should be given to ensuring the physical environment is suited to all patients and their families – regardless of age
• The increased focus on shared services and campus integration provides an opportunity to review and update or formalise service level agreements for these services.

4.3.11 The healing environment

Health facilities of the future need to be open and connected to urban life, and be receptive to cultural and social events and shared community values. The design of health facilities should promote a healing and safe environment for all, particularly for people with mental health issues, children, older people and people with dementia.

The physical space can contain a variety of components that may contribute to a healing environment and support wellness and recovery in its design. These include interior design, colour, nature (images and green spaces), natural light, fresh air and ventilation, visual art, music, and aroma. In addition to these physical components, hospitals can offer healing spaces for patients, families, visitors, and staff to gather in or retreat to during the day as a way to enhance well-being. These include community spaces such as gardens, foyers, or resource centres, sacred or quiet spaces such as a chapel or meditation room, and places for employees to retreat to during their work or patients and families to retreat to during their hospital stay. Using Aboriginal designs also acknowledges the traditional custodians on which the hospital is built. This is an important visual reminder that the campus is a 'culturally safe place' to visit.

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[307] London Borough of Sutton Health and Wellbeing Board June 2014. South West London Collaborative Commissioning 5 year Strategy. URL: http://www.croydonccg.nhs.uk/news-publications/Documents/South%20West%20London%20Collaborative%20Commissioning%205%20Year%20Strategy%2030th-Jun-2014%2019.00%20Health%20and%20Wellb.pdf

Health facilities can be alien and confusing places to a person with cognitive problems or dementia. An unsuitable environment can quickly contribute to confusion, agitation, distress, falls, longer lengths of stay and reduced independence. Examples include poor lighting reducing visibility, or bright lighting leading to overstimulation, poorly placed handrails limiting access, poor signage and cluttered spaces causing disorientation, and poor colour contrast between toilet seats, rails and sanitary ware increasing the risk of falls.

Activities such as de-cluttering, improving signage to help with wayfinding, even lighting that can be adjusted to the time of day to improve vision and orientation, placing easy-to-grip handrails along ward corridors in contrasting colours to encourage activity, changing flooring to non-shiny surfaces, minimising unnecessary noise, making small social spaces to encourage conversation and reduce social isolation, the therapeutic use of outdoor space, and giving patients something meaningful to do have all been shown to benefit the clinical outcomes of people with dementia, be cost effective and improve staff satisfaction.[308]

Good Practice examples:
- Lady Cilento Children's Hospital[309], Brisbane used therapeutic indoor and outdoor spaces in its design to provide a positive influence on wellbeing, with sensory gardens and landscaped spaces to appeal to the senses and reduce stress and anxiety, provide a place for retreat and contemplation, and opportunities for outlook, restorative exercise, play, and socialising
- The Johns Hopkins Hospital[310] in Baltimore, USA designed 'healing gardens' to promote rest and recovery, including an interactive garden for children in an outdoor courtyard, and a Meditation Garden, part of a series of connected gardens for both patients and guests, which provides a quiet space for meditation and relaxation.
- The NHS England funded 26 schemes in acute, community and mental health hospitals to improve the environment of care for people with dementia as part of the King's Fund's Enhancing the Healing Environment (EHE) programme[311], with positive patient outcomes. The design principles developed are now used widely across the UK
- Blacktown Hospital redevelopment included the provision of carer zones[312] in single rooms to provide dedicated facilities for a patient's carers or relative to stay overnight. The inclusion of carer zones has a number of reported benefits for the staff, patient and carers, including improved patient and carer experience, improved opportunity for staff-carer communication, and an enhanced opportunity for staff to work in a patient centred care model. It has also supported better discharge planning, education opportunities and the exchange of relevant information.

Proposed recommendations
- Consider the use of specific design principles for a healing environment when commissioning and/or refurbishing clinical areas
- Consider developing dementia friendly design guidance for all health facilities, in consultation with consumers, carers and family and staff
- Consider the implementation of carer zones in single rooms
- Consider the provision of a resource centre, with potential to act as a Spiritual Care Centre for patients, family members and staff and a base for chaplains of all faiths, in an easily accessible location, to enhance the timely provision of spiritual care and provide holistic patient centred care to the whole health precinct
- Continuation of the community garden for long term spinal rehabilitation patients.[313]

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[308] Developing Supportive Design for People with Dementia. The King's Fund's Enhancing the Healing Environment Programme 2009-2012. URL: http://www.kingsfund.org.uk/publications/developing-supportive-design-people-dementia
[309] Lady Cilento Children's Hospital URL: www.childrens.health.qld.gov.au/home/lcch
[310] The John Hopkins Hospital URL: http://www.hopkinsmedicine.org/the_johns_hopkins_hospital/
[311] The Kings Fund, 2012, Developing Supportive Design for People with Dementia. The King's Fund's Enhancing the Healing Environment Programme 2009-2012. URL: http://www.kingsfund.org.uk/publications/developing-supportive-design-people-dementia
[312] Western Sydney Local health District Carer Program. URL: http://www.bmdhproject.health.nsw.gov.au/WWW_Blacktown/media/Media/Files/Fact%20Sheets/Blacktown-Hospital-Carer-Zone-Information-Sheet.pdf
[313] For further description of this see URL: http://seslhnweb/POWH/Diversity_Health/Wellbeing.asp

4.3.12 External partnerships

Internationally health care providers are faced with balancing the evolution of healthcare with increasing costs within financial constraints. To this end governments, health care providers and clinicians have adopted a range of strategies including amalgamating hospitals into regions and increasing their autonomy, fostering networked services, linking hospital funding to outputs and efficiency, adopting new models of care, etc.

Other opportunities exist through external partnerships which can provide innovative ways to reduce costs and improve services. These partners can include other public or private hospitals; other health and social care providers; research, education and training organisations; private industry, etc.

Randwick Hospitals and Health Services' Campus has a number of successful partnership arrangements. These arrangements include:
- Shared services (Section 3.3)
- Contracting in – where a contractor is paid to manage within an existing system
- Contracting out – where a contractor is paid to manage a service with substantial autonomy e.g. interventional cardiology (Section 3.5.2 Collaborative care)
- Leasing or licensing where an organisation manages and finances existing health facilities or utilises the facility (e.g. retail arrangements)
- Public Private Partnerships (e.g. cardiac services – see Good Practice example below).

While partnerships can be a powerful tool for improving the quality of care and controlling costs, attention must be paid to some key issues:
- Equity: maintaining universal access.
- Quality: ensuring accountable service delivery
- Costs: reducing perverse funding incentives and ensuring sound and transparent contractual arrangements[314] [315].

Good Practice examples
- Cardiac Services at POWH: The Cardiac Service has a well-established and successful integrated public private service since 1991. It incorporates the Departments of Cardiology and Cardiothoracic Surgery and Eastern Heart Clinic (a private cardiac catheterisation clinic which provides a full range of invasive cardiac diagnostic and interventional procedures). The services provided by Cardiac Services are unique with a single on-call team, serving both POWH and SCH.
- There are numerous agreements in place across the Randwick campus, whereby the public hospitals provide services to Prince of Wales Private Hospital including:
  - The most significant of these is the Intensive Care and Cardiothoracic services (including cardiac theatres), whereby services are provided by and to Prince of Wales Private Hospital, which has been in place for many years
  - Breast care CNC – Care provided from POWH to inpatients as required
  - Paediatric Resuscitation – medical support services to Prince of Wales Private Hospital with internal resuscitation team provided from SCH
  - Neonatal resuscitation – medical support services to Prince of Wales Private Hospital with internal resuscitation team provided from the RHW
  - Pathology – all inpatient pathology provided by SEALS
- Royal North Shore Hospital Redevelopment[316]: The project involves:
  - The financing, design, construction and commissioning of the new acute health facility, Community Health Facility, multi-storey car park and refurbishment of the Douglas Building
  - The facilities management and delivery of ancillary non-clinical services in both the new

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[314] Taylor R and Blair S, 2002, Public Hospitals: Options for Reform through Public-Private Partnerships. URL: http://siteresources.worldbank.org/EXTFINANCIALSECTOR/Resources/282884-1303327122200/241Taylo-010802.pdf
[315] Mitchell M. An Overview of Public Private Partnerships in Health. URL: https://www.hsph.harvard.edu/ihsg/publications/pdf/PPP-final-MDM.pdf
[316] URL: http://www.treasury.nsw.gov.au/ppp/nsw_projects/projects_which_have_been_awarded/health/royal_north_shore_hospital_redevelopment-_stage_2

facilities and existing buildings under a Labour Services Agreement with Northern Sydney and Central Coast Area Health Service
- o The performance based monthly payments will be made to the private sector over the term of the project
- o The commercial components of the project include the private sector to manage and operate the car park facilities in return for payment of an annual license fee and a share in revenue generated, and have a lease of the retail premises in return for payment of base and turnover rent

Proposed recommendations
- Existing external partnerships should be continued   - Further development of external partnerships with other health care providers, teaching, research, private and non-government organisations where improved quality of care can be achieved   - Support precinct stakeholders, who are already working together as part of the Academic Health Science Centre, through the configuration of infrastructure across the precinct and consistent with the vision   - Consider Public Private Partnerships particularly for capital procurement.

4.3.13 Technological trends shaping the future of health

In the future, health care will be increasingly personalised, with intelligent designs to improve the management of our health and wellbeing. Some of these intelligent designs may include[317]:
- Artificial intelligence: Using big data from virtual computer networks working together to advise on medical decisions from translational research, generating insights into lowering costs and creating better outcomes
- Genomics: DNA analysis will become a standard step when prescribing treatment, to ensure it is personalized and optimized for a particular patient's metabolic background
- Surgical and humanoid robots: Robotic-assisted surgery to enhance the skill of the surgeon and allow for less invasive procedures. Advanced robots will be able to perform an operation remotely. It is noted that robots have poor versatility and adaptability compared to humans, but they will become much more integrated into surgical teams
- Body sensors: Technology to measure critical health parameters in order to make better, more informed quantifiable decisions in convenient and inexpensive ways. E.g. electronic clothing paired with sensors
- Portable diagnostics and management: Evidence based customised medical applications for personalised care to allow diagnostic procedures with portable devices and able to be performed from home, e.g. for monitoring blood pressure or choosing medications. The smartphone may serve as a health-medical dashboard
- Simulation: Computational cognitive architecture will simulate how human physiology works. Virtual experimentation through simulation could test numerous samples on virtual patients in an extremely short time period, reducing the need for animal or human experimentation and improving the time to translation of research
- Augmented reality and virtual reality: To expand and enhance communication, e.g. a surgeon can stream a live surgery procedure in order to create an enhanced learning tool for students, or to allow patients to share information and concerns directly with health and social care providers
- Regenerative medicine: Seeks to aid those who suffer from organ failure or loss by providing them with artificially created replacement organs. We will be able to replace the functionality of organs with biomaterials and synthetic devices, and to grow functioning organs for replacement
- Proton Therapy: Technologically advanced treatment of cancer that causes less damage to healthy tissue surrounding the tumour, resulting in fewer side effects and a better quality of life during and after treatment. It is likely to replace traditional radiation therapy in the future

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[317] Meskó B. The Guide to the Future of Medicine. URL: https://medicalfuturist.com/wp-content/media/2013/10/the-guide-to-the-future-of-medicine-white-paper.pdf

- Adherence Control: improving adherence and compliance are crucial to improving patients' health and decreasing the cost of healthcare. Technological solutions to make compliance easier such as a pill bottle that glows blue when a medication should be taken and red when a dose is missed, or tiny digestible sensors that can be placed in pills and transmit pill digestion data to physicians and family members is already under development
- Inter-disciplinary Therapies: Combining knowledge from different specialties and cognitive computing to improve patient outcomes, e.g. using social media and other digital technologies to help us collaborate for solutions

4.4 Turning the curve

4.4.1 Integrated Health Services Planning for the Future

Base case projections are a requirement of the NSW Government for capital projects. They take account of population growth and ageing, patterns of disease but assume models of care and patient flows remain unchanged.

However, recent activity (Section 3.5 Recent patient activity at POWH) shows that:
- The current acute overnight average length of stay has decreased for most clinical groups. This is mostly due to improved type changing between the acute and subacute sectors
- Subacute separations have increased significantly due to COAG funding and improved type changing
- ED presentations being delayed by a lack of inpatient beds and short stay beds
- Ambulatory care analysis being constrained by a lack of robust trend data.

Activity from the RHW shows that the Neonatal Intensive Care Unit are severely constrained by the lack of cots with the average occupancy between 100%-120%. This is due to the improved survival rates for very premature babies.

While Eastern Suburbs Mental Health Service activity shows an ongoing commitment to focusing community based care.

What this and examples outlined in Integrating across the health and social care system (Section 4.2) indicate is that the hospitals and health services on the Randwick campus have the opportunity to "turn the curve" that is changing the way health services are delivered.

Scenario analysis is a process of analysing possible future events by challenging the base case and considering alternative possible outcomes which must be quantifiable in terms of separations, bed days and/or length of stay. A number of scenarios were developed for POWH to modify the base case analysis for the campus redevelopment, these scenarios include modelling alternate length of stay, occupancy and planned changes to service delivery. These are represented diagrammatically below:

Specifically these scenarios include:
- Acute inpatients:
  - Increasing the proportion of patients using Hospital in the Home
  - Sustaining the shorter average length of stay for select SRGs
  - Establishing a general Medical Assessment Unit to cater for the increasing demand from acute medical patients who present to ED
- Subacute inpatients:
  - Revising trend analysis to include most recent inpatient activity
  - Improving access for palliative care patients
  - Adopting best practice for statewide management of non-traumatic spinal injury rehabilitation patients
- Emergency:
  - Improving ED throughput (by reducing bed block through additional short stay inpatient beds and treatment spaces)
  - Increasing the use of direct referrals to outpatient crisis clinics for select ICD-10-AM Codes (e.g. infectious diseases, endocrinology, respiratory, early miscarriage, etc.)
  - Reducing avoidable presentations (e.g. cellulitis, chronic obstructive pulmonary disease, angina, congestive cardiac failure, urinary tract infection, dental, pneumonia, etc.)
  - Increasing the use of direct admissions (GP to inpatient bed)
  - Establishing the Extended Care Paramedic (ECP) model of care
  - Introducing more advanced medical imaging devices such as CT scanner. CT scanners are increasingly being used as a triage tool
- Ambulatory care
  - Refining projection methodology
  - Increasing use of community / home based anticipatory care and chronic disease assessment, review and management
  - Meeting unmet demand e.g. palliative care
  - Reducing the number of overdue patients on the wait list
  - Establishing new clinics
  - Accounting for incomplete data
- Operating theatre
  - Including provision for dedicated theatres to accommodate specialised fixed equipment and technology including advanced medical imaging devices such as intraoperative MRIs
  - Streaming of planned patients (i.e. separating High Volume Short Stay patients from those requiring more complex procedures).

For detailed projection methodologies including scenarios considered refer to Appendix 4.

4.4.2 Base case and scenario projections

Acute inpatient activity – Prince of Wales Hospital

Base Case Projections

Assumptions
- Uses NSW Health's projection tools (aIM2012 v2.2)[318]
- Accounts for state-wide populations projections, epidemiological, clinical practice and technological changes
- Assumes POWH models of care and patient flows remain largely unchanged.

Note
aIM2012 trends off pre-2011 data and since this time there has been a noticeable reduction in the average length of stay (see Table 15 and Section 3.5.1 Acute inpatient activity). The impact of this change has been accommodated in the scenario modelling.

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[318] aIM uses "historical trends of hospitalisation and projected population growth and structure to project future hospital admission rates and length of stay by age group, sex, LGA of residence and clinical specialty. [The tools use] … the state-wide admission rates and applies various assumptions (e.g. public/private mix, proportion of urgent versus non urgent activity, hospital of treatment) to develop the base case projections.

Table 15: Base case projections for acute inpatient activity, Prince of Wales Hospital, 2010/11 to 2031/32

Data	2010/11	2014/15	2022	2027	2032	Change	AAGR
Separations	26,384	30,226	33,900	37,377	41,267	14,883	2.38%
Bed days	127,185	122,290	151,100	165,423	182,173	54,988	1.91%
Average length of stay	4.8	4.0	4.5	4.5	4.4	-0.4	-0.46%
Beds required	410	394	487	533	587	177	1.91%

Source: aIM2012 v2.2 and FlowInfo v15.0 for historical data
Inclusions: POWH including Collaborative Care
Exclusions: SRGs – chemotherapy, renal dialysis, unqualified neonates, psychiatry, subacute, ED only, HITH (projections)
Beds required is based on an 85% occupancy.

Table 16: Base case projections for Hospital in the Home activity, Prince of Wales Hospital, 2010/11 to 2031/32

Data	2010/11	2014/15	2022	2027	2032	Change	AAGR
Separations	742	990	1,230	1,436	1,592	850	4.1%
Bed days	5,691	6,478	8,390	9,793	10,856	5,165	3.5%
Average length of stay	7.7	6.5	6.8	6.8	6.8	-0.9	-0.6%
Beds required	16	18	23	27	30	14	3.5%

Source: FlowInfo v15.0 for historical data, SESLHD, Strategy and Planning Unit (methodology)
Exclusions: SRGs – chemotherapy, renal dialysis, unqualified neonates, psychiatry, subacute, ED only
Beds required is based on an 100% occupancy

Scenario Projections

Assumptions
- Increase the HITH proportion of activity
- Reduction in the (base case) projected length of stay for select ESRGs
- Expansion of Acute Spinal medicine to accommodate increasing rates of non traumatic spinal cord injury patients across NSW.

Note
The scenarios (HITH and length of stay) are modelled on the base case projections which accounts for state-wide populations projections, epidemiological, clinical practice and technological changes.

Scenario modelling for NSW's acute non-traumatic spinal cord injury patients based on incidence[319], applied to half NSW population and assuming a shorter average length of stay (15 days).

As detailed in Section 4.2.6: Helping people to live with complex co-morbidities, including dementia and frailty, increasing the HITH proportion will require a restructuring of the current service to allow a greater number and range of conditions to be delivered at home.

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[319] Raj et al, 2013, Rehabilitation and treatment of spinal cord tumours, The Journal of Spinal Cord Medicine, 2013 VOL. 36 NO. 1 URL: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3555105/

Table 17: Summary of scenario projections for acute inpatient activity, Prince of Wales Hospital, 2010/11 to 2031/32

Data	2010/11	2014/2015	2022	2027	2032	Change	AAGR
Separations	26,384	30,226	32,703	36,053	39,760	13,406	2.2%
Bed days	127,185	122,290	137,208	150,468	165,594	38,409	1.4%
Average length of stay	4.8	4.0	4.2	4.2	4.2	-0.6	-0.7%
Beds required	410	394	443	485	534	124	1.4%

Source: aIM2012 v2.2 and FlowInfo v15 for historical data
Notes: HITH Medium + Partial Length of Stay reduction scenario applied
Inclusions: POWH including Collaborative Care
Exclusions: SRGs – chemotherapy, renal dialysis, unqualified neonates, psychiatry, subacute, ED only, HITH (aIM base case projections)
Beds required is based on an 85% occupancy.
* 'Beds required' includes changed flows of non-traumatic spinal cord injury patients (an additional 4 acute beds by 2027)

Table 18: Scenario projections for Hospital in the Home activity, Prince of Wales Hospital, 2010/11 to 2031/32

Data	2010/11	2013/2014	2022	2027	2032	Change	AAGR
Separations	742	990	2,427	2,760	3,069	2,327	7.8%
Bed days	5,691	6,478	14,918	16,959	18,818	13,127	6.5%
Average length of stay	7.7	6.5	6.1	6.1	6.1	-1.6	-1.2%
Beds required	18	18	41	47	52	34	5.7%

Source: aIM2012 v2.2 and FlowInfo v15.0 for historical data
Notes: HITH Medium + Partial Length of Stay reduction scenario (HITH scenario developed within aIM). HITH base case projections developed internally by SESLHD, Strategy and Planning Unit.
Inclusions: POWH including Collaborative Care
Exclusions: SRGs – chemotherapy, renal dialysis, unqualified neonates, psychiatry, subacute, ED only
Beds required is based on an 100% occupancy

Subacute inpatient activity – Prince of Wales Hospital

Base Case Projections

Assumptions
- Uses SESLHD, Strategy and Planning Unit base case projections
- Accounts for state-wide population projections, epidemiological, clinical practice and technological changes
- Assumes POWH models of care and patient flows remain largely unchanged.

Note
The Ministry of Health, Subacute Planning Tool (SiAM) was not used in the development of the projections. SiAM V2.2 Base case projections do not reflect the recent growth in subacute activity. Subacute activity has increased significantly recently, which is most likely due to the increased funding of subacute care (from the COAG National Partnership Agreement on Hospital and Health Workforce). This resulted in better recording/type changing of subacute activity. The 2013/14 data already supersedes the SiAM 2027 projections as the increased activity was not reflected in the historical utilisation data for the SiAM projections. As such, the SESLHD, Strategy and Planning Unit developed their own projections.

Table 19: Base case projections for subacute inpatient activity, Prince of Wales Hospital, 2010/11 to 2031/32 – Excluding Rehabilitation Spinal Cord Injury

Data	2010/11	2014/15	2022	2027	2032	Change	AAGR
Separations	678	1,315	2,016	2,678	3,445	2,767	8.9%
Bed days	15,896	17,339	21,897	25,519	29,925	14,029	3.3%
Average length of stay	23.4	13.2	10.9	9.9	8.7	-14.8	-5.1%
Beds required	48	53	67	78	91	43	3.3%

Source: SESLHD Strategy and Planning Unit (methodology) and FlowInfo v15.0 for historical data
Inclusions: POWH including Collaborative Care, patient type flag=subacute and non acute, Version 4.0 SRG/ESRG
Exclusions: HITH (projections), ED only, Psychogeriatrics, ESRG 846 Rehabilitation Spinal Cord Injury
Beds required is based on an 90% occupancy

Table 20: Base case projections for Subacute Spinal Cord Injury Rehabilitation inpatient activity, Prince of Wales Hospital, 2010/11 to 2031/32

Data	2010/11	2014/2015	2022	2027	2032	Change	AAGR
Separations	121	93	144	182	223	102	3.3%
Bed days	6,591	5,292	6,389	7,371	8,405	1,814	1.3%
Average length of stay	54.5	56.9	44.4	40.5	37.7	-16.8	-1.9%
Beds required	20	16	20	23	26	6	1.3%

Source: Spinal Cord Injury projections developed internally by SESLHD, Strategy and Planning Unit, FlowInfo v15.0 for historical data
Inclusions: POWH including Collaborative Care, ESRG 846 Rehabilitation Spinal Cord Injury, patient type flag=subacute and non acute, Version 4.0 SRG/ESRG
Beds required is based on an 90% occupancy

Scenario Projections

Assumptions
- Improving palliative care access
- Expansion of Rehabilitation Spinal Medicine to accommodate increasing rates of non traumatic spinal cord injury patients across NSW.

Note
The scenario is modelled on the base case projections which accounts for state-wide populations projections, epidemiological, clinical practice and technological changes.

Scenario modelling for NSW's rehabilitation non-traumatic spinal cord injury patients based on incidence[320], applied to half NSW population and for those patients assuming a shorter average length of stay due to the limited vocational rehabilitation required.

This increase in spinal rehabilitation beds could be partially offset if purpose built transition accommodation (e.g. medihotel and/or independent living units) were available on site or close to the spinal cord unit[321]. This would be suited to spinal cord injury patients allowing for independent living testing, early discharge trial with outpatient supported rehabilitation. However, such transitional housing options are not straightforward – people with spinal cord injuries require trained care attendants, appropriate physical space and equipment. Should all these factors be realised there could be a saving of one spinal rehabilitation beds by 2027 but a requirement for a larger day rehabilitation centre.

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[320] Raj et al, 2013, Rehabilitation and treatment of spinal cord tumours, The Journal of Spinal Cord Medicine, 2013 VOL. 36 NO. 1. URL: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3555105/
[321] Queensland Health, Queensland Spinal Cord Injury Service Model of Care Available at: https://www.health.qld.gov.au/qscis/documents/qscis-moc.pdf.

Table 21: Summary of Scenario projections for Subacute Inpatient activity, Prince of Wales Hospital, 2010/11 to 2031/32 – Excluding Rehabilitation Spinal Cord Injury

Data	2010/11	2014/2015	2022	2027	2032	Change	AAGR
Separations	678	1,315	2,233	2,874	3,627	2,949	9.2%
Bed days	15,896	17,339	26,453	30,142	34,590	18,694	4.1%
Average length of stay	23.4	13.2	11.8	10.5	9.5	-13.9	-4.6%
Beds required	48	53	81	92	105	57	4.1%

Source: Subacute projections developed internally by SESLHD, Strategy and Planning Unit, FlowInfo v15.0 for historical data
Inclusions: POWH including Collaborative Care, including the palliative care flow reversals from Sacred Heart Health Hospice, patient type flag=subacute and non acute, Version 4.0 SRG/ESRG
Exclusions: Psychogeriatric Care ,ESRG 846 Rehabilitation Spinal Cord Injury
Beds required is based on an 90% occupancy

Table 22: Scenario projections for Subacute Inpatient activity and bed requirements by SRG, Prince of Wales Hospital, 2010/11 to 2031/32 – Excluding Rehabilitation Spinal Cord Injury

SRG	Data	2010/11	2014/2015	2022	2027	2032
Rehabilitation	Separations	473	541	705	826	949
	Bed days	13,953	10,719	12,150	12,765	13,847
	Average length of stay	29.5	19.7	17.2	15.5	14.6
	Beds required	42	33	37	39	42
Palliative Care	Separations	110	222	691	937	1,202
	Bed days	857	1,159	6,724	7,831	8,999
	Average length of stay	7.8	3.5	9.7	8.4	7.5
	Beds required	2	4	21	24	27
Maintenance Care	Separations	95	549	837	1,111	1,476
	Bed days	1,086	5,451	7,579	9,546	11,744
	Average length of stay	11.4	9.9	9.0	8.6	8.0
	Beds required	3	17	23	29	36
Total Beds	Separations	678	1,315	2,233	2,874	3,627
	Bed days	15,896	17,339	26,453	30,142	34,590
	Average length of stay	23.7	13.2	11.8	10.5	9.5
	Beds required	48	53	81	92	105

Source: Subacute projections developed internally by SESLHD, Strategy and Planning Unit, FlowInfo v15.0 for historical data
Inclusions: POWH including Collaborative Care, including the palliative care flow reversals from Sacred Heart Health Hospice, patient type flag=subacute and non acute, Version 4.0 SRG/ESRG
Exclusions: Psychogeriatric Care and ESRG 846 Rehabilitation Spinal Cord Injury
Beds required is based on an 90% occupancy

Table 23: Scenario projections for Subacute Spinal Cord Injury Rehabilitation inpatient activity, Prince of Wales Hospital, 2010/11 to 2031/32 update

Data	2010/11	2014/2015	2022	2027	2032	Change	AAGR
Separations	121	93	215	258	305	184	4.73%
Bed days	6,591	5,292	7,951	9,051	10,206	3,615	2.21%
Average length of stay	54.5	56.9	37.0	35.0	33.5	-21.0	-2.41%
Beds required	20	16	24	28	31	11	2.23%

Source: Spinal Cord Injury projections developed internally by SESLHD, Strategy and Planning Unit, FlowInfo v15.0 for historical data
Inclusions: POWH including Collaborative Care, ESRG 846 Rehabilitation Spinal Cord Injury, patient type flag=subacute and non acute, Version 4.0 SRG/ESRG
Beds required is based on an 90% occupancy
Assumptions: Applied non-traumatic spinal cord injury incidence (26 patients / million adults / year) to NSW population projections, added half of these patients to POWH activity (assume other half go to Royal North Shore Hospital / Royal Ryde Rehabilitation, assumed average length of stay 22 days

Inpatient activity – The Royal Hospital for Women

Base Case Projections

Assumptions
- Uses NSW Health's projection tools (aIM2012 v2.2)[322]
- Accounts for state-wide populations projections, epidemiological, clinical practice and technological changes
- Assumes the models of care and patient flows remain largely unchanged.

Table 24: Base case projections for Obstetrics SRG and Other Acute Activity, Royal Hospital for Women, 2010/11 to 2031/32

Data	2010/11	2014/15	2022	2027	2032	Change	AAGR
Obstetrics							
Separations	7,341	7,831	8,043	8,328	8,545	1,204	0.8%
Bed days	20,323	19,438	23,173	23,588	23,841	3,518	0.8%
Average length of stay	2.8	2.5	2.9	2.8	2.8	0.0	0.0%
Beds required	70	67	79	81	82	12	0.8%
Other Acute Activity							
Separations	3,266	3,491	3,617	3,753	3,894	628	0.9%
Bed days	7,219	6,984	8,020	8,304	8,623	1,404	0.9%
Average length of stay	2.2	2.0	2.2	2.2	2.2	0.0	0.0%
Beds required	23	23	26	27	28	5	1.0%

Source: aIM2012 v2.2 and FlowInfo v15.0 for historical data
Obstetrics SRG includes: 721 – Ante-natal Admission, 722 – Vaginal Delivery, 723 – Caesarean Delivery, 724 – Post-natal Admission. All other Activity excludes: Obstetrics SRG, Qualified Neonate, Qualified Neonate, and Perinatology
Beds required is based on an 80% occupancy for Obstetrics and 85% occupancy for Other Acute Activity
Exclusions: ED only

Scenario Projections

Assumptions
- Uses NSW Health's projection tools
- Separate modelling on ESRGs 721 – Ante-natal Admission and 723 – Caesarean Delivery was undertaken as the aIM base case projections are not reflective of the more recent trends.
- Base Case projections were used for the other ESRGs (722 – Vaginal Delivery, 724 – Post-natal Admission).

Note
No scenario modelling was undertaken for all other acute activity, excluding obstetrics.

Table 25: Summary of Scenario projections for Obstetrics SRG, Royal Hospital for Women, 2010/11 to 2031/32

Data	2010/11	2014/2015	2022	2027	2032	Change	AAGR
Separations	7,341	7,831	9,116	10,147	10,942	3,601	2.1%
Bed days	20,323	19,438	22,479	23,460	24,242	3,919	0.9%
Average length of stay	2.8	2.5	2.5	2.3	2.2	-0.6	-1.2%
Beds required	70	67	77	80	83	13	0.9%

Source: aIM2012 v2.2 and FlowInfo v15.0 for historical data
Obstetrics SRG includes: 721 – Ante-natal Admission, 722 – Vaginal Delivery, 723 – Caesarean Delivery, 724 – Post-natal.
Note total beds include HDU beds
Beds required is based on an 80% occupancy
Exclusions: ED only

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[322] aIM uses "historical trends of hospitalisation and projected population growth and structure to project future hospital admission rates and length of stay by age group, sex, LGA of residence and clinical specialty. [The tools use] … the state-wide admission rates and applies various assumptions (e.g. public/private mix, proportion of urgent versus non urgent activity, hospital of treatment) to develop the base case projections.

Table 26: Scenario projections for Obstetrics by ESRG, Royal Hospital for Women, 2010/11 to 2031/32

ESRG	Data	2010/11	2014/2015	2022	2027	2032
Ante-natal Admission	Separations	2,506	3,117	4,121	5,080	5,815
	Bed days	3,391	4,057	5,308	6,543	7,490
	Average length of stay	1.4	1.3	1.3	1.3	1.3
	Beds required	12	14	18	22	26
Vaginal Delivery	Separations	2,862	2,766	3,413	3,553	3,651
	Bed days	9,211	8,055	10,511	10,770	10,926
	Average length of stay	3.2	2.9	3.1	3.0	3.0
	Beds required	32	28	36	37	37
Caesarean Delivery	Separations	1,197	1,177	1,088	1,016	975
	Bed days	6,443	5,910	5,551	5,053	4,748
	Average length of stay	5.4	5.0	5.1	5.0	4.9
	Beds required	22	20	19	17	16
Post-natal Admission	Separations	776	771	494	498	501
	Bed days	1,278	1,416	1,109	1,094	1,078
	Average length of stay	1.6	1.8	2.2	2.2	2.2
	Beds required	4	5	4	4	4
Total Beds	Separations	7,341	7,831	9,116	10,147	10,942
	Bed days	20,323	19,438	22,479	23,460	24,242
	Average length of stay	2.8	2.5	2.5	2.3	2.2
	Beds required	70	67	77	80	83

Source: aIM2012 v2.2 and FlowInfo v15.0 for historical data
Beds required is based on an 80% occupancy
Exclusions: ED only

Medical Imaging – Ultrasound – The Royal Hospital for Women

Base Case Projections

Assumptions:
- Trend analysis between 2010/11 and 2014/15 segmented by inpatients/outpatients
- Outpatient projections are based on the availability of 8 hours per day and 240 days per year. Inpatient projections are based on the availability of 12 hours per day and 336 days per year.
- 85% occupancy is applied
- Assumes the patient flows remain largely unchanged.

Table 27: Current and Projected Medical Imaging requirements, Randwick Hospitals Campus*, 2015 to 2031/32*

Treatment Modality	2015	2022	2027	2032
Ultrasound	5	7	7	7

Source: RHW Medical Imaging Department, 2015. SESLHD Strategy and Planning Unit (methodology)

No scenario modelling was undertaken for Medical Imaging – Ultrasound RHW.

Inpatient activity – Eastern Suburbs Mental Health Service

Base Case Projections

Assumptions
- Uses the NSW Health's Mental Health Clinical Care and Prevention (MH-CCP) planning tool.

Note

MH CCP is a population-based mental health planning model that provides the clinical and epidemiological evidence base to estimate the need for mental health services in NSW, including mental health promotion, illness prevention and early intervention.

Table 28: Base case projections for mental inpatient beds, Prince of Wales Hospital, 2015 to 2031/32

Data	2015	2022	2027	2032		Change	AAGR
PECC	4	6	6	6		2	2.2%
All other MH beds	84	119	126	134		50	2.5%

Source: MH CCP (version 2010)

Scenario Projections

Assumptions
- Improving the flow and management of mental health ED presentations by increasing the number projected PECC beds
- Growth is anticipated to be experienced primarily in the demand for ambulatory and community Mental Health services not in inpatient beds.

Note

There is a slight increase in the mental health bed projections with increases in PECC by 2027. The Mental Health system continues to move away from an historical model of institutional-based mental health care towards the primacy in the care continuum of community and ambulatory-based models with a psychosocial and recovery-oriented approach. In line with this direction, investment in specialist mental health services is to be complemented by investment in a range of formal and informal community supports and services with a focus on early intervention and recovery.

As a result, provided inpatients are accommodated in purpose-built units of contemporary patient-focused design that contribute to a therapeutic, restorative environment, the inpatient bed base is not projected to grow beyond current levels over the next 10-15 years. Growth is anticipated to be experienced primarily in the demand for ambulatory and community Mental Health services. Asset development is to be future-proofed to allow for expanding care in ambulatory and community setting, with flexibility to cater for evolving models of care.

Table 29: Scenario projections for mental inpatient beds, Prince of Wales Hospital, 2015 to 2031/32

Data	2015	2022	2027	2032		Change	AAGR
PECC	4	6	6	6		2	2.2%
All other MH beds	84	84	84	84		0	0.0%

Source: SESLHD Mental Health Clinical Services Plan, 2013-2018

Emergency Department Activity & Treatment Spaces – Prince of Wales Hospital and Royal Hospital for Women

Base Case Projections

Assumptions

- Trend analysis between 2009 and 2015 segmented by triage category and age group and ED mode of separation (admitted and non admitted)
- Applied the projected population to presentation rate for each combination
- Uses the Australasian College of Emergency Medicine recommendation of 1,460 presentations per treatment space
- Assumes POWH models of care and patient flows remain largely unchanged.

Table 30: Base case projections for Emergency Department activity, Prince of Wales Hospital, 2011/12 to 2031/32

Data	2011/12	2012/13	2013/14	2014/15	2022	2027	2032
Total presentations	45,612	50,956	53,887	56,046	73,808	88,804	106,603
Admitted	15,551	17,281	19,385	19,850	27,398	33,689	42,361
Non Admitted	30,061	33,675	34,502	36,196	46,571	55,115	64,541
Treatment spaces required	31	35	37	38	51	61	73
Resuscitation bays required	3	3	4	4	5	6	7
Isolation Rooms	5	5	5	6	8	9	11

Source: SESLHD, Strategy and Planning Unit, Australasian College of Emergency Medicine
Assumptions: Treatment space calculations based on 1,460 presentations per treatment space assuming an average length of stay of 6 hours in a treatment space. Resuscitation bay are based on the ACEM recommend of 1 resuscitation bay per 15,000 presentations. Isolation rooms are based on the ACEM recommendation of 1 isolation room per 10,000 presentations.

Scenario Projections

Assumptions

- Improving ED throughput by reducing bed block through additional short stay inpatient beds and treatment spaces
- Increasing the use of direct referrals to outpatient crisis clinics for select ICD-10-AM Codes
- Increasing the use of direct admits (from GP to inpatient ward)
- Reducing avoidable presentations (20% target)
- Establishing Extended Care Practitioners model of care
- Removing planned returns from the projections (review clinic).

Table 31: Scenario projections for Emergency Department activity, Prince of Wales Hospital, 2011/12 to 2031/32

Data	2011/12	2012/13	2013/14	2014/15	2022	2027	2032
Total presentations	45,612	50,956	53,887	56,046	73,808	88,804	106,603
Excluding the above assumptions					64,074	77,092	92,435
Treatment spaces required	26	29	31	32	37	45	53
Resuscitation bays required	3	3	4	4	4	5	6
Isolation rooms required	5	5	5	6	7	8	9

Source: SESLHD, Strategy and Planning Unit (treatment spaces), Australasian College of Emergency Medicine (isolation rooms and resuscitation bays)
Assumptions: Treatment space calculations are based on an average length of stay of 4.0 hours at 80% occupancy. Resuscitation bay are based on the ACEM recommendation of 1 resuscitation bay per 15,000 presentations. Isolation rooms are based on the ACEM recommendation of 1 isolation room per 10,000 presentations.

The Australasian College of Emergency Medicine recommendation of 1,460 presentations per treatment space has not been adopted for the redevelopment. This ratio is based on the planning assumption of 4 presentations per treatment space per day with an average length of stay of 6 hours at 100% occupancy. It is inappropriate to model on a 6 hour average length of stay and at a 100% occupancy.

The projections are based on a planning ratio of 1,750 presentations per treatment space. This ratio is based on 6 presentations per treatment space per day with an average length of stay of 4 hours at 80% occupancy. The current length of stay at POWH ED ranges from 3.7 hours to 4.2 hours depending on the time period selected. This planning ratio represents their current length of stay and is also aligned with the National Emergency Access Target.

It is important to note that an increase in the projected presentations will increase the ambulance threshold, which currently sits at 7 ambulances per hour.

Operating theatres / procedure rooms – Randwick Campus

Base Case Projections

Assumptions

Base case projections for operating theatres and procedure rooms used the following assumptions:

- Baseline case numbers and average room duration sourced from Surginet
- Planned theatres operate 240 days per year, 8 hours per day, at 80%
- Emergency theatres operate 365 days per year, 12 hours per day at 65%
- Theatre and procedure rooms are multipurpose and used solely by POWH
- Additional inclusions:
  - given the operating theatre complex is a shared service the projected operating theatre requirements for RHW, SCH Cardiothoracic are included
  - non-admitted urological activity added as not appearing in Surginet
- Projection methodology:
  - Inpatients (POWH and RHW): determined procedure rate by SRG for emergency and planned cases, applied this rate to projected inpatient separations using aIM2012 and SiAM2012, multiplied by the average room duration by SRG and urgency
    - Exclusions:
      - ESRG 421 Coronary Bypass, 429 Other Cardiothoracic Surgery were excluded to prevent double counting with Inpatients (Cardiothoracic)
      - Collaborative Care patients: these patients are treated by the Eastern Heart Clinic under a contracted services arrangement (where public patients have procedures in private facilities).
  - Inpatients (SCH): projections developed by Sydney Children's Hospital Network as part of the Draft Masterplanning for Operating Room Services Randwick Hospitals Campus, May 2015. These projections, including through to 2032, will be confirmed in the SCH Integrated Health Services Plan
  - Inpatients (Cardiothoracic): this is a shared public/private service.
    - Public patients: used ESRGs 421 Coronary Bypass, 429 Other Cardiothoracic Surgery then used methodology detailed for Inpatients (POWH and RHW)
    - Private patients: estimated the number of private cases based on remaining capacity of cardiothoracic theatres, applied the same proportional split of ESRGs as public patients, then applied growth rate of relevant SRG (aIM2012) to the estimated number of cases in 2013/14
  - Non-admitted patients (including Billington Endoscopic Centre and Murnaghan Urology Centre): applied growth rate of relevant SRG (aIM2012) to number of cases by procedure in 2013/14, multiplied by the average room duration.
- Base case assumes models of care and patient flows remain largely unchanged.

Table 32: Base case projections for operating theatres/procedure rooms, Randwick Hospitals Campus, 2013/14 to 2031/32

	POWH	RHW	SCH#	Cardiothoracic^	Total
2013/14					
Emergency operating theatres	2.4	0.5	1.3	0.2	4.4
Other operating theatres	6.9	2.5	3.3	2.7	15.4
Procedure rooms *	2.1				2.1
Total	11.3	3.0	4.6	2.9	21.8
2022					
Emergency operating theatres	3.2	0.5	1.7	0.2	5.6
Other operating theatres	8.2	2.8	4.7	3.1	18.8
Procedure rooms*	2.7				2.7
Total	14.1	3.3	6.4	3.3	27.1
2027					
Emergency operating theatres	3.5	0.5	2.0	0.2	6.2
Other operating theatres	8.9	2.9	4.7	3.3	19.8
Procedure rooms*	3.0				3.0
Total	15.5	3.4	6.7	3.5	29.1
2032					
Emergency operating theatres	3.9	0.5	2.2	0.2	6.8
Other operating theatres	9.8	2.9	5.4	3.4	21.5
Procedure rooms*	3.4				3.4
Total	17.1	3.4	7.6	3.6	31.7

Notes:
* Procedure Rooms based on Billington Centre
# SCH projections were developed by Sydney Children's Hospital Network as part of the Draft Masterplanning for Operating Room Services Randwick Hospitals Campus, May 2015. These projections will be confirmed in the SCH Integrated Health Services Plan
^ Cardiothoracic projections include POWH public patients and an estimate of private patients (see projection methodology). It does not include SCH projected activity as it is assumed this is included in SCH projections.

Scenario Projections

Assumptions
- Developed from base case projections
- Calculated high volume short stay and day only activity by determining proportional split of planned surgical / procedural separations which were day only plus overnight with DRGs suited to HVSS in 2013/14 data (FlowInfo), applied this split to projected planned surgical separations, assumed 230 operating days with 6 cases per operating day[323]
- Balance of planned surgical activity (considered complex planned surgery) streamed to separate theatres
- Included provision for dedicated theatres to accommodate specialised fixed equipment and technology.

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[323] NSW Health, 2012, GL2012_001 High Volume Short Stay Surgical Model Toolkit
http://www0.health.nsw.gov.au/policies/gl/2012/pdf/GL2012_001.pdf

Table 33: Scenario projections for operating theatres/procedure rooms, Randwick Hospitals Campus, 2013/14 to 2031/32

	POWH	RHW	SCH#	Cardiothoracic^	Total
2013/14					
Emergency operating theatres	2.5	1.0	1.5	0.5	5.5
Other operating theatres	8.5	2.5	3.5	2.5	17
HVSS, Day Only, Extended Day Only					0
All other planned					0
Procedure rooms*	3.0				3
Interventional Suites / DSA^^	0.0				0
Total	**14.0**	**3.5**	**5.0**	**3.0**	**25.5**
2022					
Emergency operating theatres	3.5	1.0	2.0	0.5	7.0
Other operating theatres					0
HVSS, Day Only, Extended Day Only	6.0	2.5	2.5		11
All other planned	2.5	0.5	2.0	3.0	8
Procedure rooms*	3.0				3
Interventional Suites / DSA^^	2.0				2.0
Total	**17.0**	**4.0**	**6.5**	**3.5**	**31.0**
2027					
Emergency	4.0	1.0	2.0	0.5	7.5
Planned					0
HVSS, Day Only, Extended Day Only	7.0	3.0	2.5		12.5
All other planned	3.0	0.5	2.0	3.5	9
Procedure rooms*	3.0				3
Interventional Suites / DSA^^	2.0				2.0
Total	19.0	4.5	6.5	4.0	34.0
2032					
Emergency	4.0	1.0	2.2	0.5	7.7
Planned					0
HVSS, Day Only, Extended Day Only	7.5	3.0	2.7		13.2
All other planned	3.0	0.5	2.7	3.5	9.7
Procedure rooms*	4.0				4
Interventional Suites / DSA^^	2.0				2.0
Total	20.5	4.5	7.6	4.0	36.6

Notes:

* Procedure Rooms based on Billington Centre

^^ Interventional suites / DSA (for therapeutic interventional radiology including interventional neuroradiology) are included in operating theatre projections as these rooms are physically located in the operating theatre complex but managed by Medical Imaging. Note an additional Interventional Suite (for diagnostics) is located in Medical Imaging. For information relating to the projection methodology for interventional radiology refer to Medical Imaging projections

SCH projections were developed by Sydney Children's Hospital Network as part of the Draft Masterplanning for Operating Room Services Randwick Hospitals Campus, May 2015. These projections, will be confirmed in the SCH Health Services Plan

^ Cardiothoracic projections include POWH public patients and an estimate of private patients (see projection methodology). It does not include SCH projected activity as it is assumed this is included in SCH projections.

Non-admitted occasions of service – Prince of Wales Hospital, Royal Hospital for Women and Eastern Suburbs Mental Health Service

Base Case Projections

Assumptions

Projected non admitted activity used the following assumptions:

- Baseline outpatient data sourced from WebNAP
- Projection methodology: applied population projection growth rate by age groups to occasions of service for each clinic type by age group using 2013/14 data
- Population projections based on by NSW Department of Planning and Infrastructure in 2014
- Clinic room requirements based on an average 30 minutes per face-to-face occasions of service, with rooms available 7 hours per day for 240 days per year at 80% occupancy.
- All activity not involving face-to-face interaction occurs from staff members work station (as opposed to a clinic, consult or treatment room)
- Assumes POWH's models of care and patient flows remain largely unchanged.

Table 34: Base case projections for non-admitted patient's occasions of service, Prince of Wales Hospital, 2014/15 to 2031/32

Data	2014/15 Cmty Hlth /Home	2014/15 OPD	2022 Cmty Hlth /Home	2022 OPD	2027 Cmty Hlth /Home	2027 OPD	2032 Cmty Hlth /Home	2032 OPD
Individual OOS (Face to Face)	65,063	215,266	71,367	236,125	74,974	248,056	78,513	259,768
Group OOS (Face to Face)	14,340	1,902	15,730	2,086	16,524	2,192	17,305	2,295
All other OOS	35,272	19,779	38,690	21,696	40,645	22,792	42,564	23,868
Total OOS	114,675	236,947	125,787	259,907	132,143	273,040	138,382	285,931
Clinic /Consult /Treatment rooms	64		70		74		77	

Source: EDWARD data. Inclusions: POWH.
Additional source: Population projections used NSW Department of Planning and Environment, 2014, reformatted by NSW Ministry of Health in Jun 14
Exclusions: Service Unit Full Name: SESLHD Area Wide HIV Community Team, The Albion Centre Infectious Diseases, The Albion Centre Infectious Diseases AH/CNS, The Albion Centre Psychology, The Albion Centre Sexual Health.

Table 35: Base case projections for non-admitted patient's occasions of service, Royal Hospital for Women, 2014/15 to 2031/32

Data	2014/15	2022	2027	2032
Occasions of Service	96,698	106,068	111,427	116,688
Clinic /Consult /Treatment rooms	29	32	33	35

Source: HIE
Additional source: Population projections used NSW Department of Planning and Environment, 2014, reformatted by NSW Ministry of Health in Jun 14
Inclusions: RHW
Exclusions: Clinic Class: 30.05 Pathology (Microbiology, Haematology, Biochemistry).

Table 36: Base case projections for non-admitted patient's occasions of service, Eastern Suburbs Mental Health Service, 2014/15 to 2031/32

Data	2014/15	2022	2027	2032
Occasions of Service	51223	56,186	59,026	61,812
Clinic /Consult /Treatment rooms	15	17	18	18

Source: HIE. Inclusions: Eastern Suburbs Mental Health Service, Client present status: present.
Additional source: Population projections used NSW Department of Planning and Environment, 2014, reformatted by NSW Ministry of Health in Jun 14

Scenario Projections

Assumptions

Scenario projections for non-admitted patients used the following assumptions:

- Revised the base case projections used 2014/15 data
- Exclusions: activity performed in a separate setting (e.g. operating theatres, renal dialysis chairs, medical imaging, etc) was excluded.
- Methodology
  - Mapped each Clinic Class to inpatient SRG. Applied growth rate of SRGs to current occasions of service for each Clinic Class.
  - Clinic rooms required based on a face to face occasions of service i.e. they may include clinic rooms, consult rooms, treatment rooms, etc. It is assumed all non-face to face occasions of service are performed from the staff member's office space / work station.
  - Duration of occasions of service based on Victorian Health functional benchmarks and reviewed by clinicians, room availability 7 hours per day for 240 days per year at 80% occupancy.
- Scenarios: Several scenarios were developed including accounting for:
  - Improving equity
  - Overdue patients from wait list
  - Anticipatory care and chronic disease assessment and review
  - Unmet demand
  - Inpatients treated in an outpatient setting (e.g. spinal rehabilitation patients treated in the gymnasium)
  - New clinics
  - Missing data.

Table 37: Revised non-admitted patient's occasions of service, Prince of Wales Hospital, 2014/15

Data	2014/15 Cmty Hlth / Home	2014/15 OPD	Revised following exclusions^ Cmty Hlth /Home	Revised following exclusions^ OPD	Revised following inclusions* Cmty Hlth /Home	Revised following inclusions* OPD
Individual OOS (Face to Face)	65,063	215,266	65,034	138,694	81,096	197,418
Group OOS (Face to Face)	14,340	1,902	8,479	1,902	10,611	2,208
All other occasions of service	35,272	19,721	35,185	4,612	37,062	4,765
Total	114,675	236,947	108,698	145,266	128,769	204,391

Source, inclusion and exclusions refer to Table 34
Additional sources: Cerner allied health patient report 2014/15
^ Exclusions: Clinic Class: 10.03 Minor surgical, 10.06 Endoscopy – Gastrointestinal, 10.10 Renal Dialysis, 10.11 Chemotherapy treatment; 10.12 Radiation therapy treatment; 10.13 Minor Medical Procedures (POWH Cancer Services – Haematology Treatment); 10.20 Radiation Oncology – Simulation and Planning; 20.10 Haematology, 20.42 Medical Oncology (Consultation), 20.43 Radiation therapy – consultation, 40.48 Haematology and immunology, 40.52 Oncology, 40.05 Hydrotherapy, 30.05 Pathology (Microbiology, Haematology, Biochemistry). Service Unit Full Name: POWH Hyperbaric Treatment Clinic
* Inclusions: population benchmarks, overdue patients, anticipatory care, unmet demand, inpatients treated in outpatient settings, proposed new clinics.

Table 38: Scenario projections for non-admitted patient's occasions of service, Prince of Wales Hospital, 2014/15 to 2032

	Community Health / Home	Outpatients
2014/15 revised		
Individual OOS (Face to Face)	81,096	197,418
Group OOS (Face to Face)	10,611	2,208
All other occasions of service	37,062	4,765
Total OOS	128,769	204,391
Clinic / Consult / Treatment rooms required		73
2022		
Individual OOS (Face to Face)	104,671	250,958
Group OOS (Face to Face)	11860	2,993
All other occasions of service	55,858	5,957
Total OOS	172,390	259907
Clinic / Consult / Treatment rooms required		92
2027		
Individual OOS (Face to Face)	117,599	280,699
Group OOS (Face to Face)	12,496	3,484
All other occasions of service	65,947	6,616
Total OOS	196,043	290,798
Clinic / Consult / Treatment rooms required		103
2032		
Individual OOS (Face to Face)	132,252	313,381
Group OOS (Face to Face)	13,524	3,986
All other occasions of service	77,187	7,329
Total OOS	222,963	324,697
Clinic / Consult / Treatment rooms required		115

Source, inclusion and exclusions refer to Table 37
Additional sources: Acute SRG growth rates aIM2012 v2.2 and Subacute SRG growth rates developed internally by SESLHD, Strategy and Planning Unit

Table 39: Revisions to non-admitted patient's occasions of service, The Royal Hospital for Women, 2014/15

	2014/15	Revised following exclusions^	Revised following inclusions*
Occasions of service	195,138	85,886	92,208

Source, inclusion and exclusions refer to Table 35
^ Exclusions: Clinic Class: 10.02 Interventional imaging, 10.03 Minor surgical (Procedure Clinic), 10.11 Chemotherapy treatment; 30.01 Radiology / General Imaging Diagnostic Unit, 30.02 Magnetic Resonance Imaging (MRI) Diagnostic Unit, 30.03 Computerised Tomography (CT) Diagnostic Unit, 30.05 Pathology (Microbiology, Haematology, Biochemistry).
* Inclusions: Unmet demand, missing data

Table 40: Scenario projections for non-admitted patient's occasions of service, The Royal Hospital for Women, 2014/15 to 2032

	Outpatients
2014/15 Revised	
Occasions of Service	92,208
Clinic / Consult / Treatment rooms required	36
2022	
Occasions of Service	102,291
Clinic / Consult / Treatment rooms required	40
2027	
Occasions of Service	109,042
Clinic / Consult / Treatment rooms required	43
2032	
Occasions of Service	116,462
Clinic / Consult / Treatment rooms required	46

Source, inclusion and exclusions refer to Table 39
Additional sources: Acute SRG growth rates (aIM2012 v2.2) developed internally by SESLHD, Strategy and Planning Unit

Table 41: Revisions to non-admitted patient's occasions of service, Eastern Suburbs Mental Health Service, 2015/16

	2015/16	Revised following exclusions^	Revised following inclusions*
Occasions of service	51,223	41,079	53,403

Source, inclusion and exclusions refer to Table 36
^ Exclusions: Community liaison for inpatients, services provided in the client's home, services provided in emergency
* Inclusions: Anticipatory care, missing data

Table 42: Scenario projections for non-admitted patient's occasions of service, Eastern Suburbs Mental Health Service, 2015/16 to 2032

	Outpatients
2015/16 Revised	
Occasions of Service	53,403
Clinic / Consult / Treatment rooms required	40
2022	
Occasions of Service	63,434
Clinic / Consult / Treatment rooms required	47
2027	
Occasions of Service	73,220
Clinic / Consult / Treatment rooms required	55
2032	
Occasions of Service	84,514
Clinic / Consult / Treatment rooms required	63

Source, inclusion and exclusions refer to Table 41
Additional sources: Acute SRG growth rates (aIM2012 v2.2) developed internally by SESLHD, Strategy and Planning Unit

Renal dialysis – Prince of Wales Hospital

Base Case Projections

Assumptions

The projection methodology for future demand for renal dialysis services used NSW Ministry of Health[324]:

- Used ANZDATA for Prince of Wales (including Waverly War Memorial) from 2014
- Applied 3.9% per annum growth rate (sourced from NSW Ministry of Health's, 2010, Revised Projections of Demand for Renal Dialysis Services in NSW to 2021)
- Assumed Prince of Wales in-centre would operate at 90% as per NSW Health guidelines
- Chairs operate for 2 shifts each day, 6 days a week, 52 weeks a year
- Each haemodialysis patient requires an average of 156 treatments per annum (based on 3 treatments per week for 52 weeks
- Each in-centre chair can provide 562 treatments p.a. (based on 2 shifts per day for 6 days per week at 90% occupancy
- Each satellite dialysis chair can provide 624 treatments p.a. (based on 2 shifts per day for 6 days per week at 100% occupancy).

Table 43: Current and projected renal dialysis patients and bed/chair requirements, Prince of Wales catchment, 2015 – 2032

Location	2015 Patients	2015 Beds/Chairs	2022 Patients	2022 Beds/Chairs	2027 Patients	2027 Beds/Chairs	2032 Patients	2032 Beds/Chairs
Prince of Wales Hospital	81	25	106	29	127	35	153	42
Home based dialysis	37		49		59		72	
Total	118	25	155	29	186	35	225	42

Source: ANZData, 2014, Australian and New Zealand Dialysis and Transplant Registry Annual Report, Appendix B – Tab B6. URL: http://www.anzdata.org.au/v1/report_2014.html

Note: While a 50:50 split of home based and in-centre dialysis may be considered ideal, it has been found that this is not clinically achievable given the increasing age of dialysis patients, co-morbidities (e.g. increasing numbers of diabetic patients with peripheral neuropathy) and the requirement for significant storage space (for equipment and consumables) in the patients home

It is proposed that the satellite dialysis at War Memorial Hospital Waverley be moved back to the POWH as War Memorial Hospital Waverley is not fit for purpose and inefficient, with difficulties with staff rostering and patient allocation. There are also serious infrastructure issues such as no emergency power back up available (emergency back-up power is currently being installed at War Memorial Hospital Waverley) and issues with equipment servicing. The current preference is to move services back to a consolidated site at POWH, with potential for expansion in the proposed Integrated Health and Social Care Hub in either Botany Bay or Maroubra (actual site is yet to be determined).

No scenario modelling was undertaken for Renal Dialysis

Chemotherapy – Randwick Campus

Base Case Projections

Assumptions:

NSW Health's Service Planning Guidelines for Intravenous Chemotherapy Services were adapted following discussion with clinicians during the development of the SESLHD Cancer Integrated Health Services Plan and assume 42% of all new cases would benefit from chemotherapy, 25% of those treated will need retreatment, each course of treatment requires 10 Patient Chemotherapy Visits (PCV), chair availability at 285 PCVs per year (1.2 PCVs per day) and average treatment rate for private facilities is 0.45.

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[324] NSW Health, 2007, NSW Renal Dialysis Service Plan to 2011. URL: http://www.aci.health.nsw.gov.au/__data/assets/pdf_file/0007/155059/nswrenalplan_jan2007_final.pdf

Note:
Current demand and projections relate to resident populations (not facilities) so include chair requirements for POWH, RHW, Sydney Children's and St Vincent's Public Hospital.

Table 44: Current and projected chemotherapy chair requirements, northern SESLHD LGAs (including POWH, RHW, SCHand St Vincent's Public Hospital), 2013 – 2032

Northern SESLHD's LGAs	2011 (based on population requiring treatment)	2022	2027	2032
New cancer cases	1,955	2,356	2,601	2,872
Patients requiring chemotherapy	821	990	1,093	1,206
Patients requiring retreatment	205	247	273	302
Chemo chairs/beds required	20	24	26	29

Source: 1. NSW Central Cancer Registry Reporting Module, 2004 – 2008. Available at Cancer Institute NSW: http://www.statistics.cancerinstitute.org.au 2. Service Planning Guideline for Intravenous Chemotherapy Services – December 2007, Statewide Service Development Branch, Service Planning Series

No scenario modelling was undertaken for Chemotherapy

Radiotherapy – Randwick Campus

Base Case Projections

Assumptions:
NSW Health Radiotherapy Strategic Plan to 2016 were adapted following discussion with clinicians during the development of the SESLHD Cancer Integrated Health Services Plan and assumed 48.3% of new cancer cases are treated with radiotherapy, 25% of those treated will require retreatment, and works on 331 new courses of treatment (excluding re treatments) per linear accelerator per year.

Note:
Current demand and projections relate to resident population (not facilities). Current supply for linear accelerators includes in northern SESLHD is: POWH has three and St Vincent's Private Hospital has one

Table 45: Current and projected linear accelerator requirements, northern SESLHD LGAs (including Prince of Wales, Royal Hospital for Women, Sydney Children's and St Vincent's Hospital), 2013 – 2032

Northern SESLHD's LGAs	2011 (based on population requiring treatment)	2022	2027	2032
New cancer cases	1,955	2,356	2,601	2,872
Patients requiring radiotherapy	944	1,138	1,256	1,387
Patients requiring retreatment	236	285	314	347
Linear accelerators required	2.9	3.4	3.8	4.2

Source: NSW Central Cancer Registry Reporting Module, 2004 – 2008. Cancer Institute NSW. 2. Radiotherapy Services in NSW Strategic Plan to 2016, Selected Specialty and Statewide Service Plans (No.7), NSW Health

No scenario modelling was undertaken for Radiotherapy

Medical imaging – Randwick Campus

Base Case Projections

Assumptions:
- Trend analysis between 2009/10 and 2014/15 segmented by inpatients/outpatients and adults/paediatrics and treatment modality
- Outpatient projections are based on the availability of 8 hours per day and 240 days per year. Inpatient projections are based on the availability of 12 hours per day and 336 days per year.
- 85% occupancy is applied
- Average procedure times were provided by the Chief Radiographer
- Medical Imaging is a shared service for the campus, and therefore includes all Randwick campus data
- Assumes the patient flows remain largely unchanged.

Table 46: Current and Projected Medical Imaging requirements, Randwick Hospitals Campus*, 2016 to 2031/32*

Treatment Modality	2016	2022	2027	2032
General X-Ray	6	6	6	7
Fluoroscopic Exams	2	2	1	1
CT Exams	2	2	3	3
Ultrasound Exams	4	5	5	6
Interventional Exams/ DSA	1	1	1	1
MRI Exams	2	4	4	4
Mammography	1	1	1	1

Source: Radiology Information System (Dec 2015), SESLHD Strategy and Planning Unit (methodology)

As with any increase in projected activity, particularly operating theatres, ED and outpatient services there will be a substantial flow on impact on the demand of medical imaging services (including workforce, technology etc.) and any delays in medical imaging will have an adverse effect on the rest of the campus. In addition, with the population aging and growing, medical imaging will play an even more critical role in initial cancer diagnosis, treatment planning, and palliative therapies through interventional techniques and cancer monitoring.

Medical imaging data is robust and it shows strong trends in demand across most modalities and is consistent with the projected trends for medical imaging, that is, the increase utilisation of minimally invasive procedures (i.e. diverting both planned and emergency activity from operating theatres to interventional radiology), increasing use of magnetic resonance imaging, computerised tomography and interventional radiology with declining use of fluoroscopy.

The projections show that by 2027 MRI requirements will increase from 2 to 4 MRI rooms and Ultrasound requirements is projected to increase from 4 to 5 ultrasound rooms and CT requirements will increase from 2 to 3.

The projections show that interventional radiology will increase from 1 to 3 interventional rooms. It is proposed that for the future build that 1 DSA suite is required for the medical imaging department which will provide diagnostic interventional radiology and 2 additional DSA suites is required for the interventional precinct within the campus operating theatre complex which will provide interventional radiology including interventional neuroradiology. As such, the interventional requirements for the medical imaging department will remain at 1 DSA suite as reflected in Table 46 and the 2 additional DSA suites (within the interventional precinct within the campus operating theatre complex) is reflected in Table 33 (operating theatres).

In line with new hospital design, there also needs to be more integration between diagnostic imaging systems and other departments/services, especially operating theatres and ED. This is critical for operating theatre efficiency and produces better patient outcomes by having the capacity to enable precise planning before surgery, support decision making during surgery and evaluate the outcome of surgery whilst the patient is still anaesthetised. As such, it is proposed that the campus operating

theatre complex is built with advanced medical imaging devices such as an MRI scanner and the ED is built with CT capability (as CT is increasingly used as a triage tool).

Please note that the projections include POWH, RHW and SCH data as it assumed that this shared service will continue into the future. The projections developed for Medical Imaging were calculated for each modality using separate trend lines by service delivery mode (inpatient, outpatient) and by adults and paediatrics. The approach was used as the procedure times and operating hours varied between adults and paediatrics and inpatients and outpatients. This approach adequately represents the complexity of the paediatric and inpatient cohort as these patients often have higher average procedure times for each modality. See Appendix 4 for more information on the medical imaging projection methodologies.

No scenario modelling was undertaken for Medical Imaging

Nuclear Medicine – Randwick Campus

Base Case Projections

Assumptions:
- Trend analysis between 2011 and 2015 segmented by adults/paediatrics and treatment modality
- The projections are based on the availability of 9 hours per day and 240 days per year.
- 85% occupancy is applied
- Nuclear Medicine is a shared service for the campus, and therefore includes all Randwick campus data
- Assumes the patient flows remain largely unchanged.

Table 47: Current and Projected Nuclear Medicine requirements, Randwick Hospitals Campus*, 2016 to 2031/32*

Treatment Modality	2016	2022	2027	2032
Gamma Camera (total)	6	6	6	7
PET/CT Scanner	1	1	1	1

Source: Nuclear Medicine projections developed internally by SESLHD, Strategy and Planning Unit. Data sourced from the Nuclear Medicine Department (2011/12 – 2014/15 period).

Scenario Projections

Assumptions
- Increasing use of hybrid imaging technology including but limited to:
  - PET/MRI
  - SPECT/CT.

Table 48: Scenario projections for Nuclear Medicine, Randwick Hospitals Campus*, 2016 to 2031/32*

Treatment Modality	2016	2022	2027	2032
Gamma Camera (total)	6	6	6	6
SPECT/CT	2	4	4	4
Gamma Camera	4	2	2	2
PET (total)	1	3	3	3
PET/CT Scanner	1	2	2	2
PET/MRI Scanner	0	1	1	1

Source: Nuclear Medicine (Gamma Camera & SPECT/CT) projections developed internally by SESLHD, Strategy and Planning Unit. Data sourced from the Nuclear Medicine Department (2011/12 – 2014/15 period). PET projections are based on clinician advice.

Nuclear Medicine is heavily technology driven and there will continue to be rapid technological evolution including further advancement in hybrid imaging (PET/MRI).

For Nuclear Medicine camera's, the base case projections shows no increase in room requirements, however, the technology that is placed in the rooms will be different by 2027. The Department have indicated that gamma cameras without CT capability will reduce from 4 to 2 by 2027 and SPECT/CT cameras will increase from 2 to 4 by 2027. Whilst there is no increase in room requirements, reconfiguration will be necessary as control rooms are required for rooms when a CT is placed there.

The data supports this change in technology, from 2012/13 to 2014/15, SPECT/CT examinations are growing significantly at 5.4% per year and account for 30% of all activity. There is also significant evidence that gamma camera's without CT capability are becoming obsolete technology with increasing use of SPECT/CT cameras. SPECT/CTs are used for attenuation correction which provides better localisation and definition of organs and lesions which results in more accurate diagnoses and improved patient management. Nuclear Medicine is heavily technology driven and there will continue to be rapid technological evolution. It should be noted that while SPECT/CT is beneficial for attenuation correction for more precise imaging it comes at the cost of increased radiation burden.

For the current PET/CT scanner, the base case projections resulted in no increase. However, over the past 3 years PET/CT scanner activity has increased substantially at 9.3% per year, although the numbers are still relatively small, PET imaging and targeted radionuclide therapy are the most rapidly growing areas of nuclear medicine. A future driver of demand is the increasing use of PET for cancer diagnosis and staging. Oncology is currently a major source of referrals which will increase with the growing and ageing population combined with earlier detection of cancers and widening indications for molecular imaging. The ageing population will also increasingly utilise neurology, cardiology and aged care imaging services. The PET increases including PET/CT and PET/MRI are based on clinician advice.

Please note that the projections include POWH, Prince of Wales Private Hospital, RHW, Sydney/Sydney Eye Hospital, SCH, War Memorial Hospital Waverley and Justice Health data as it assumed that this shared service will continue into the future.

4.4.3 Capital implications

Quantifying the impact of scenarios on future bed and space requirements is detailed in the table below

Table 49: Current and future space requirements

Clinical Description	2015 Physical Beds	2015 Average Available Beds (funded beds)	Projected (2022)	Projected (2027)	Projected (2032)
Prince of Wales Hospital					
Inpatient					
Medical	*196*	*171*	*206*	*226*	*250*
Surgical	*163*	*133*	*163*	*178*	*195*
Acute Sub Total	359	304	369	404	445
EDSSU	10	10	16	20	23
ICU (including CTICU)	22	17	22	24	26
HDU (including Neuro ICU*)	10	8	8	8	9
Coronary Care Beds	10	9	12	12	13
Acute Spinal	10	10	16	17	18
Acute Grand Total	***421***	***358***	***443***	***485***	***534***
Subacute	43	37	81	92	105
Spinal Rehab	20	20	24	28	31
Subacute Grand Total	***63***	***57***	***105***	***120***	***136***
Renal Dialysis Chairs (incentre,satellite & home training)	31	25	29	35	42
Hyperbaric	1	1	1	1	1
Outpatient					
Clinic rooms	~	~	92	103	115
Hydrotherapy pool	1	1	1	1	1
Royal Hospital for Women					
Inpatient					
Acute	24	24	26	27	28
Obstetrics	66	55	72	75	78
HDU	5	5	5	5	5
Delivery Suite/Birthing Room	13	13	14	15	16
Neonatal Intensive Care Unit	16	16	23	25	26
Special Care Nursey	28	28	39	41	42
Medical Imaging and Interventional					
Ultrasound	5	5	7	7	7
Maternal Foetal Medicine (procedures)	2	2	2	2	2
Outpatient					
Clinic rooms	37	37	40	43	46
Eastern Suburbs Mental Health Service					
Inpatient					
PECC	4	4	6	6	6
Acute	84	84	84	84	84

Clinical Description	2015 Physical Beds	2015 Average Available Beds (funded beds)	Projected (2022)	Projected (2027)	Projected (2032)
Total	88	88	90	90	90
Outpatient					
Clinic rooms	~	~	47	55	63
Randwick Campus (excluding SCH)					
ED					
ED Treatment Spaces	21	21	37	45	53
ED Resuscitation Bays	3	3	4	5	6
ED Isolation Rooms	1	1	6	8	9
Safe Assessment Room	0	0	2	2	2
Interventional					
Cardiac Cath Labs (Eastern Heart)	4	4	5	6	6
Operating/Procedure Rooms*	30	26.5	29	32	35
Interventional suite/DSA (Medical Imaging)	0	0	2	2	2
Support Services					
*Medical Imaging^*					
CT Scanner	2	2	2	3	3
MRI Scanner	2	2	3	4	4
Fluoroscopy	2	2	1	1	1
X Ray	6	6	6	6	7
Mammography Room	1	1	1	1	1
Ultrasound	4	4	5	5	6
Interventional (diagnostic)	1	1	1	1	1
*Nuclear Medicine^*					
Gamma Camera	4	4	2	2	1
SPECT/CT	2	2	4	4	5
PET Scanner	1	1	3	3	3

~ Clinic rooms current and available: the actual number of rooms is difficult to quantify, while there are some dedicated clinic rooms many clinics are held in shared spaces e.g. office and clinic room, etc.
~~ RHW existing clinic rooms also include 8 gynae-oncology rooms which will be transferring to the Bright Alliance shortly so have been excluded from this table
* Operating theatres/ procedure rooms are shared services with POWH, RHW and SCH. Therefore space requirements identified include services provided in the existing Randwick Campus Operating Suite, cardiothoracic theatres, Murnaghan Urology Centre, Billington Endoscopic Centre
^ Medical imaging and nuclear medicine are shared services. Therefore space requirements identified in these areas relate to POWH, RHW and SCH.
HDU (including Neuro ICU*) is considered an HDU bed in the bed table report and is counted as such in the Health Information Exchange.

Other capital implications identified in the consultation process for developing this Plan include:

Non-asset strategies (including Public Private Partnerships)

The District currently has a number of successful partnership arrangements where independent providers and the District are working together with the private or non-government sectors as a means of improving access, quality and cost of delivery of care.

In terms of capital planning, SESLHD and NSW's Health Infrastructure will review the procurement options available for the delivery of the Randwick Hospitals and Health Services' Campus Redevelopment. Included will be exploring opportunities for public private partnerships, for example:

- "…creating public infrastructure assets through private sector financing and ownership control
- A contribution by Government through land, capital works, risk sharing, revenue diversion or other supporting mechanisms and
- Engaging the private sector for a specified period for the delivery of related services."[325]

Masterplanning

It is noted that masterplanning is occurring concurrently with the clinical services planning process.

Masterplanning and capital planning will identify the location of major components of infrastructure such as ambulatory care, ED, medical imaging and operating theatres.

The proximity of this infrastructure with co-dependent services may vary the inclusion and/or quantum of services adults, women, babies and children, along with the need for satellite services. For example colocation of adult and paediatric emergency services versus proximity of paediatric emergency to paediatric inpatient beds.

The resolution of these matters will be documented in the masterplanning and capital planning phase of this project

Beyond 2027

The time horizon for this Plan extends to 2027 with projections provided to 2032. However, the life of the redevelopment will extend well beyond this timeframe. Therefore it is suggested, in keeping with the Campus master planning, sufficient space is provided around high cost infrastructure to allow for future technological requirements, reconfiguration of services, etc.

Staged commissioning

It is noted that the future space requirements (refer Table 49) will have a phased opening based on the incremental growth in activity and to ensure matching to recurrent funding.

The commissioning timeline will be documented in the capital planning phase of this project.

Appropriate infrastructure for bariatric patients

In 2014/15 there 235 patients coded with a primary or secondary diagnosis of obesity. These patients are more complex than other patients with a very high average NWAU (4.56 compared to 1.57), a significantly longer average length of stay (13.6 days versus 3.9 days) and had a requirement for 10 beds. They are admitted for a variety of reasons (for example diseases and disorders of the circulatory and respiratory systems, endocrine, nutritional and metabolic diseases and disorders, etc) and therefore may be accommodated throughout the hospital.

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[325] NSW Government, 2012, NSW Public Private Partnerships Guidelines, URL:
http://www.treasury.nsw.gov.au/__data/assets/pdf_file/0015/22605/NSW_PPP_Guidelines_2012_Final_Version_14_August_20
12_dnd.pdf

While it is noted coding of obesity may be an unreliable measure, it is likely the data for POWH reflects an underestimate of the number of morbidly obese patients treated in POWH.

Given:
- POWH appears to have an existing requirement for 10 beds for obese patients,
- It is likely these patients are morbidly obese,
- Prevalence of obesity is increasing and this trend is expected to continue
- It is considered prudent for the redevelopment to provide 13 – 15 special rooms (spread throughout various wards, intensive care unit and the ED) to accommodate morbidly obese patients in the POWH.

In addition, these rooms could be used by:
- Other bariatric patients (i.e. very tall patients)
- Noisy or disturbed patients
- Rooming-in of relatives
- High dependency patients
- Patients requiring privacy
- Patients with a lowered resistance to disease or infection.

Infrastructure suited to adolescents and young adults

Care of adolescents and young adults in hospital differs from those for adults. With an increasing number of children transitioning into adult care space required may need to include:
- Family centred care
- Use decor to create a positive environment that is as non-institutional as possible.
- An indoor area (e.g. an adolescents and young adults centre) where adolescents can use to meet with their peers/ friends, watch TV, listen to music or play games which may include:
  - Wireless internet allowing adolescents to use their own devices within this area•
  - TV
  - Docking station for MP3 players
  - Other equipment such as an air hockey table or pool table
  - Lounge chairs, beanbags and sofas.

General principles around greater delineation of paediatric and adult zones:
- Promote the separation of traffic flows between patients and the public (including where possible the separation of adult and paediatric traffic flows)
- Separate and improved patient zoning for paediatric and adult patients. I.e. dedicated paediatric environments specialised to the treatment, care, and management of paediatric patients.

Design fit for older patients

With a high proportion of older patients consideration needs to be given to their needs. Mobility and balance difficulties as well as vision and hearing impairment are common characteristics of older patients that should be catered for in facility design. The unfamiliar hospital environment, with its medical jargon, unfamiliar equipment, and disruption of life-long routines and habits, are significant sources of stress. To lessen the impact of these factors design should consider:
- Providing good visual access so consumers can see everywhere they need to go
- Maximising penetration of natural light and, where possible, views
- Ensuring sufficient storage for mobility aids such as prescribed walking frames, mobile / wheel chairs, and lifters
- Discouraging long corridors as they cause echoes and orientation difficulties that may confuse the elderly
- Creating clear hospital's wayfinding and signage with appropriate contrasting colour, lettering size and font type, and other orientation cues
- Ensuring sufficient space for walking with mobility aids as well as rest areas
- Providing parking and drop-off areas with limited distance to major entrances and seating.

It is suggested dementia specific guidelines[326] be used in designing patient areas including the ED and inpatient areas.

Accommodating people with disabilities

Many people (including patients, clients, visitors and staff) attending the Randwick Hospitals and Health Services' Campus have disabilities. They may face barriers to everyday activities such as hearing what is said, seeing small print, climbing stairs and understanding signage. It is important to note that many environmental barriers can be avoided with informed planning. Therefore it is critical in in capital planning of the redevelopment that their needs are met through consultation in line with NSW Health's Disability Inclusion Plan 2016-2019[327]

While the Australian Health Facility Guidelines contain an extensive list of references to ensure disabled access some requirements are not as apparent. For example consumer feedback has highlighted the need for adult changing places,[328] which will assist people with severe disability and their carers attend a number of appointments on one day, improving delivery of service.

Culturally appropriate care and physical environments

It is suggested that all care and physical environments should be culturally appropriate. Specific actions in the detailed capital planning process could include:
- Ongoing involvement of the Aboriginal community and/or Aboriginal Health Unit in planning committees
- Maintaining the dedicated Aboriginal specific room "Barmbli Place" at POWH
- Improving signage throughout the buildings on the Campus acknowledging the traditional owners of the land
- Investing in a plaque at the Hospital's entrance acknowledging the traditional owners
- Where possible posters and/or art depicting Aboriginal culture or Aboriginal specific information can further assist to ensure the Aboriginal patient feels welcome and can assist to ensure an appropriate length of stay for any treatment received.
- Displaying Aboriginal artwork and cultural artefacts or interactive display
- Providing a centrally located and well-resourced spiritual care centre easily accessible to patients and their families (and staff) would truly position the campus well for holistic care into the 21st Century.

Providing a safe and healthy workplace

"SESLHD is committed to maintaining a safe and healthy working environment for workers and visitors to NSW Health facilities and services, in accordance with Work Health and Safety legislation, Codes of Practice and Australian Standards.

Our workers are anyone who carries out work for SESLHD, including employees, volunteers, contractors (including agency staff and Visiting Practitioners), subcontractors, the employees of contractors and subcontractors, students, trainees and apprentices. SESLHD will consult with workers and their representatives on health, safety and welfare matters to ensure that our work health and safety risk management is a continuous process that is of the highest standard.

We will take all reasonable actions to prevent injury and illness from occurring. SESLHD will also consult, co-operate and co-ordinate activities with other organisations, as far as possible, where there is a shared duty of care concerning the same workplace health and safety matter, for example where other businesses are located on a hospital campus. Incidents will be reported to WorkCover NSW in accordance with the law."[329]

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[326] Alzheimer's Australia 2004, Dementia Care and the Built Environment, Position Paper 3. URL: https://fightdementia.org.au/files/20040600_Nat_NP_3DemCareBuiltEnv.pdf
[327] NSW Health's Disability Inclusion Plan 2016-2019 URL: http://www.health.nsw.gov.au/disability/Publications/disability-action-plan-16-19.PDF
[328] Adult Change Table: URL: http://changingplaces.org.au/
[329] NSW Health 2013 Work Health and Safety: Better Practice Procedures. PD2013_050 URL: http://www0.health.nsw.gov.au/policies/pd/2013/pdf/PD2013_050.pdf

Work, health and safety priorities should be reflected in the facility planning process. Priorities may be, for example: ensuring the precinct provides safe access and egress; adequate storage, including adequate room for manual handling aids and security storage for records and for hazardous chemicals; non-slip surfaces that are easy to clean; lighting that is appropriate for the work to be undertaken and doesn't create unlit areas; and the facility's design meets 'crime prevention through environmental design' standards including no hiding/concealment places, appropriate access control, appropriate barriers between public and private areas, appropriate lines of sight for staff; and ready access to mechanisms for summoning assistance, e.g. duress alarms and rapid access to an appropriate duress response. There is an imperative to address and reduce violence and ensure staff safety across the campus.

Improved balance of single and multi-occupancy rooms

Currently there are a lack of single rooms for patients in POWH.

Increasing the number of single rooms[330] has been found to:
- Reduce the rate of cross infection and transmission of infections between patients. This is particularly the case for long stay patients (e.g. people with spinal cord injury) who tend to have high levels of multi-resistant organisms.
- Decrease the number of patient transfers between beds and wards
- Reduce the length of stay
- Increase patient's privacy
- Decrease noise level and sleep disturbances
- Improve patient satisfaction and sense of control
- Decrease medication errors
- Provide opportunity to commission of carer zones in single rooms across the new facility (e.g. Blacktown & Mount Druitt Hospitals (BMDH) Expansion Project (Stage 1)).

Conversely there are sound reasons for having multi-occupancy rooms including:
- Reduce falls for patients requiring supervision,
- Decrease sense of loneliness and isolation
- Lower capital costs.

Therefore it is recommended the redevelopment includes an improved balance of single and multi-occupancy rooms throughout all inpatient areas, including provision of negative pressure rooms in line with the Australasian Health Facility Guidelines.

In addition carer zones in single rooms to allow carers to stay overnight has also been shown to have benefits for patients, carers and staff[331].

Increased storage

In terms of capital planning a key theme raised consistently throughout consultation from many staff working in a variety of areas was the lack of storage.

Any new development must ensure there is sufficient storage for equipment, goods and supply for the efficient hospital operation.

Included in this is the need for an appropriately sized delivery area with adequate parking for a range of vehicles.

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[330] Chaudhury H et al, 2004. The Use of Single Patient Rooms versus Multiple Occupancy Rooms in Acute Care Environments

[331] As part of the Blacktown & Mount Druitt Hospitals Expansion Project (Stage 1) almost 60 unique carer zones were commissioned in single rooms across the new facility. The carer zones were created directly in response to consumer feedback during design and provide dedicated facilities for a patient's carers or relative to stay overnight. See URL: http://www.bmdhproject.health.nsw.gov.au/WWW_Blacktown/media/Media/Files/Fact%20Sheets/Blacktown-Hospital-Carer-Zone-Information-Sheet.pdf

Develop an Ambulatory Care Precinct

With improved technology and advances in anaesthetics and pain control, many less invasive procedures are now being performed on an outpatient or ambulatory, basis. Internationally there is a changing emphasis from inpatients to ambulatory care. For POWH this move is also underway focussing on wellness, helping people to live well with long term conditions, emphasising pre-habilitation, etc. (see Section 4: Re-imagining the health, education, teaching and research campus).

Developing an ambulatory care precinct can create a 'front door' for ambulatory care services and may include outpatient clinics, same day medical services (e.g. minor procedures, and/or infusions), renal dialysis, same day surgery /procedural services, medical imaging services, pathology collection, etc. It could also create the opportunity for:

- Greater collaboration between clinical disciplines
- A centralised information management and technology system to promote information sharing between clinicians and GPs.

Combined these will result in improving the patient journey and reduced health resource utilisation.

However, this precinct does not necessarily exclude a hybrid model where some services are located in an ambulatory care precinct and others may be in clinical speciality pods (e.g. cardiac services, surgical services, etc.). Alternatively this may be resolved through master-planning and design.

The services provided on the Randwick Hospitals and Health Services' Campus would need to be balanced against those that could potentially be consolidated into Integrated Health and Social Care Hub (see below).

Establish an Integrated Health and Social Care Hub

The Randwick Hospitals and Health Services' Campus is a crowded site with many services providing patient care off site.

Given the lack of space it may be an ideal time to consider relocating some services closer to their clients.

For example Community Health has significant office space on the campus, limited parking and does not see any patients on site. Instead staff drive to client's homes (predominantly in southern Randwick or Botany) to provide care.

Therefore there may be potential to locate some services such as community health, community mental health, satellite dialysis, primary health services, other government agencies and/or non-government organisations in a local area of identified need to reduce demand on acute services and improve integrated care for the community. (See 4.2 Integrating across the health and social care system for further description of this model).

Medihotel

There is potential for the private development of a Medihotel on or near the Randwick Hospitals and Health Services' Campus.

Depending on the physical layout, location and cost of the rooms there may be potential to provide accommodation for people who do not require acute nursing care or an inpatient bed before, during or after their treatment. This may include self-caring, medically stable consumers, e.g. rural clients or carers and family, and people making the transition between acute or sub-acute sectors into the community.

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Appendix 1: Aboriginal Health Impact Statement

Introduction

An Aboriginal Health Impact Statement Declaration (and a completed Checklist where necessary) will accompany new policies and proposals for major health strategies and programs submitted for Executive or Ministerial approval. This will ensure that the health needs and interests of Aboriginal people have been considered, and where relevant, appropriately incorporated into health policies.

The Aboriginal Health Impact Statement Declaration

Title of the policy/initiative: **Randwick Integrated Health Services Plan**

Please complete the Declaration below and the Checklist on the following pages if required.

Please tick relevant boxes:

☑ The health* needs and interests of Aboriginal people have been considered, and appropriately addressed in the development of this initiative.

☑ Appropriate engagement and collaboration with Aboriginal people has occurred in the development and implementation of this initiative.

☑ Completed Checklist attached.

OR

☐ The health* needs and interests of Aboriginal people have been considered, in the development of this initiative.

☐ The Aboriginal Health Impact Statement Checklist does not require completion because there is no direct or indirect impact on Aboriginal people. (Please provide explanation.)

Head of Unit Name and Title: Tim Croft, District Manager

Unit Name: Aboriginal Health Unit

Local Health District: South Eastern Sydney Local Health District

Signature: **Date:** 5/9/16

Contact phone no: (02) 99479819

0414 520842

Email address: timothy.croft@health.nsw.gov.au

*For Aboriginal people, health is defined as not just the physical well-being of the individual but the social, emotional and cultural well-being of the whole community.

Checklist

DEVELOPMENT OF THE POLICY, PROGRAM OR STRATEGY

Has there been appropriate representation of Aboriginal stakeholders in the development of the policy, program or strategy?	***Yes***

Have Aboriginal stakeholders been involved from the early stages of policy, program or strategy development? Please provide a brief description	***Yes***

At the commencement of the clinical service planning process for the Randwick Integrated Health Services Plan discussions were held with SESLHD's Acting Manager, Aboriginal Health to notify of the planning process and an invitation was extended to be a member of the Planning Advisory Committee.

Following the release of Technical Papers the Strategy and Plannining Unit met with the Acting Manager to identify key issues for Aboriginal and/or Torres Strait Islander people in relation to service planning for the capital project. These matters were addressed in the draft Clinical Services Plan v 1.6 dated 6 July 2016.

Since this time the draft Plan has been further refined to emphasis issues for Aboriginal and/or Torres Strait Islander people.

It is intended that ongoing advice will be sought through the capital planning process from the Manager as required and as part of the consultation process draft documents will be provided to the Manager for broad distribution (including the Aboriginal Medical Service) and comment.

Have consultation/negotiation processes occurred with Aboriginal stakeholders?	***Yes***

Have these processes been effective? Explain	***Yes***

There is a well established and positive relationship between the Aboriginal Health Unit, Prince of Wales Hospital and Health Services and the Strategy and Planing Unit. This has meant the consultation process for this Plan could commence early, ensured the health needs and interests of Aboriginal people have been considered and provided an opportunity to continue advocating for the need to improve the health of its resident Aboriginal communities.

During the capital planning phase of the project there will be more opportunity for broader consultation.

Have links been made with relevant existing mainstream and/or Aboriginal-specific policies, programs and/or strategies? Explain	***Yes***

The *"NSW Aboriginal Health Plan 2013 – 2023"* (PD 2012_066) sets the framework to support closing the gap in Aboriginal health outcomes by spreading responsibility for achieving health equity for Aboriginal people in NSW across all NSW Health organisations and health services. It outlines six strategic directions including ensuring integrated planning and service delivery and providing culturally safe work environments and health services.

CONTENTS OF THE POLICY, PROGRAM OR STRATEGY

Does the policy, program or strategy clearly identify the effects it will have on Aboriginal health outcomes and health services? Comments	***Yes***

The Plan provides background information on the Aboriginal population, differences in health determinants and outcomes, access to services, and some "good practice examples" and includes a range of recommendations that relate to Aboriginal people and their health.

Have these effects been adequately addressed in the policy, program or strategy? Explain	**Yes**

Specific actions detailed in the Plan include:

- a focus on reducing health inequities,
- continuing need for improved recording of Aboriginality,
- continuation of Aboriginal health programs, ongoing interaction with Aboriginal Health Workers and the local Aboriginal community for culturally acceptable services to promote early diagnosis, improved self-management, and fewer hospitalisations,
- care and physical environments should be culturally appropriate.
- ongoing involvement of the Aboriginal community and/or Aboriginal Health Unit in planning committees
- maintaining the dedicated Aboriginal specific room "Barmbli Place" at Prince of Wales Hospital
- improving signage throughout the buildings on the Campus acknowledging the traditional owners of the land
- investing in a plaque at the Hospital's entrance acknowledging the traditional owners
- displaying Aboriginal artwork and cultural artefacts or interactive display

Are the identified effects on Aboriginal health outcomes and health services sufficiently different for Aboriginal people (compared to the general population) to warrant the development of a separate policy, program or strategy? Explain	**No**

With the development of the Plan it appears there may continue to underreporting of Aboriginality making it difficult to measure the effectiveness of health services and achieve equitable outcomes for Aboriginal people. This matter is not unique to Prince of Wales Hospital and has been raised with the District's ABF Implementation Committee who have:

- acknowledged improved recording remains a significant factor for improving equitable clinical outcomes for Aboriginal people
- suggested the recording of Aboriginality be monitored
- recommended medical record audits be extended to include recording of Aboriginality.

IMPLEMENTATION AND EVALUATION OF THE POLICY, PROGRAM OR STRATEGY

Will implementation of the policy, program or strategy be supported by an adequate allocation of resources specifically for its Aboriginal health aspects? Describe	*Yes*

The capital and recurrent implications of the Plan will be developed as part of the capital planning for this project.

Will the initiative build the capacity of Aboriginal people/organisations through participation? In what way will capacity be built?	**Yes**

Involvement of Aboriginal people in the capital planning will enhance their capacity for delivering quality healthcare to Aboriginal people and assist Randwick Hospital's staff breakdown cultural barriers.

Will the policy, program or strategy be implemented in partnership with Aboriginal stakeholders? Briefly describe the intended implementation process	**Yes**

It is envisaged the capital planning would broad consultation including the Aboriginal Health Unit, Aboriginal organisations and Aboriginal people. Combined this will provide a voice for Aboriginal stakeholders and assist meeting the needs of the Aboriginal community, enhance capacity for delivering quality healthcare to Aboriginal people and assist breaking down cultural barriers.

Does an evaluation plan exist for this policy, program or strategy?	*Yes*

Has it been developed in conjunction with Aboriginal stakeholders? Briefly describe Aboriginal stakeholder involvement in the evaluation plan

Routinely a Post Occupancy Evaluation is conducted one year after commissioning a major capital development. It is envisaged this process would include Aboriginal stakeholder involvement including Aboriginal organisations: La Perouse Local Aboriginal Land Council; Metropolitan Local Aboriginal Land Council; Aboriginal Medical Service, Redfern.

Appendix 2: Abbreviations

Abbreviation	Full Name
AAGR	Average annual growth rate
ABM Portal	Activity Based Management Portal
ABS	Australian Bureau of Statistics
ABF	Activity Based Funding
ACE	Aged Care Emergency
ACEM	Australasian College of Emergency Medicine
ACI	NSW Agency for Clinical Innovation
ACP	Advanced Care Planning
AUSCR	Australian Stroke Clinical Registry
AHSP	Academic Health Science Partnership
AIHW	Australian Institute of Health and Welfare
aIM	Acute Inpatient Modelling Tool
ASET	Aged care Services Emergency Team
AUSCR	Australian Stroke Clinical Registry
BMD	Bone Mineral Density
BMI	Body Mass Index
CALD	Culturally and Linguistically Diverse
CaSPA	Clinical Services Planning Analytics
CESPHN	Central and Eastern Sydney Primary Health Network
Cmty Hlth	Community Health
CHS	Community Health Services
CNC	Clinical Nurse Consultant
CNS	Clinical Nurse Specialist
COAG	Council of Australian Governments
CT	Computed tomography
DCS	Deep Continuous Sedation
DRG	Diagnosis Related Group
DSA	Digital Subtraction Angiography
DVA	Department of Veterans Affairs
ECI	Emergency Care Institute NSW
ECP	Extended Care Paramedic
ED	Emergency Department
EDSSU	Emergency Department Short Stay Unit
EEG	Electroencephalogram
eMR	Electronic Medical Record
EquIP	Evaluation and Quality Improvement Program
eRIC	Electronic record for Intensive care
ESRG	Enhanced Service Related Group
ETP	Emergency Target Performance
FACS	Department of Family and Community Services
GP	General Practitioner
GRAFS	Geriatric Residential Aged Care Service
HCV	Hepatitis C Virus

HDR	High Degree Research
HDU	High Dependency Unit
HETI	Health Education and Training Institute
HIE	Health Information Exchange
HITH	Hospital in the Home
HSA	Health Science Alliance
HVSSS	High Volume Short Stay Surgery
HBOT	Hyperbaric Oxygen Therapy
HREC	Human Research Ethics Committee
ICNARC	Intensive Care National Audit and Research Centre
ICU	Intensive Care Unit
IHC	Intermountain Health Care
INR	Interventional Neuroradiology
IPS	Individual Placement and Support
LGA	Local Government Area
LHD	Local Health District
MAPS	Management and Planning System
MAU	Medical Assessment Unit
MH-CCP	Mental Health Clinical Care and Prevention
MHS	Mental Health Service
MoH	Ministry of Health
MRI	Medical Resonance Imaging
NCCC	Nelune Comprehensive Cancer Centre
NEPT	Non-emergency patient transport
NESB	Non-English speaking background
NESC	Non-English speaking country
NeuRA	Neuroscience Research Australia
NGO	Non-Government Organisation
NHMRC	National Health and Medical Research Council
NHS	National Health System (UK)
NICU	Neonatal Intensive Care Unit
NIV	Non-invasive Ventilation
NSLHD	Northern Sydney Local Health District
NSWHP	New South Wales Health Pathology
NWAU	National Weighted Activity Unit
OOS	Occasion of Service
OoHC	Out of Home Care
OPD	Outpatients Department
OrBIT	Organisational Reporting and Business Intelligence for Transformation
PACS	Post-Acute Care Service
PECC	Psychiatric Emergency Care Centre
PEM	Public Equivalent Model
PET	Positron Emission Tomography
PG	Post Graduate
PHIDU	Public Health Information Development Unit
PHN	Primary Health Network
POWH&CHS	Prince of Wales Hospital and Community Health Services

POWH	Prince of Wales Hospital
RACF	Residential Aged Care Facility
RCCP	Respiratory Coordinated Care Program
RHW	Royal Hospital for Women
SCH	Sydney Children's Hospital, Randwick
SCHN	Sydney Children's Hospitals Network
SCR	Scientia Clinical Research
SEALS	South Eastern Area Laboratory Service
SEIFA	Socio-Economic Indexes for Areas
SESLHD	South Eastern Sydney Local Health District
SGH	St George Hospital
SHH	Sacred Heart Health Hospice
SiAM	Sub-acute Inpatient Modelling Tool
SLA	Statistical Local Area
SLHD	Sydney Local Health District
SNAP	Australian National Sub-Acute and Non-Acute Patient Data Collection
SOS	Southcare Outreach Services
SPECT-CT	Single-photon emission computed tomography
SSEH	Sydney/Sydney Eye Hospital
SSD	Solid State Detectors
SSU	Short Stay Unit
SRG	Service Related Group
SVHN	St Vincent's Health Network
SWSLHD	South Western Sydney Local Health district
TACP	Transitional Aged Care Program
TCRN	Translational Cancer Research Network
UNSW	University of New South Wales
UTS	University of Technology Sydney
WHO	World Health Organisation
WMH	War Memorial Hospital Waverley

Appendix 3: Plan contributors

The development of this Plan was due to the contributions from many people. SESLHD acknowledges their valuable input to this Plan

Integrated Health Services Planning Steering Committee for Randwick Health Campus Redevelopment	
Gerry Marr	Chief Executive Officer, SESLHD (Chair)
Julie Dixon	Director, Planning, Population Health and Equity, SESLHD
Greg Stewart	Director, of Primary, Integrated and Community Health, SESLHD
Jim Mackie	Medical Executive Director, SESLHD
Emma McCahon	A/Director, Clinical Operations, SCHN
Tim Hoffman	Clinical Planning & Redesign Manager, SCHN
Roger Allen	Co-Chair, Clinical Council POWH/SSEH
Vanessa Madunic	General Manager, Royal Hospital for Women
Gerard Hyde	General Manager, War Memorial Hospital Waverley
Rodney Phillips	Dean (medicine), University of New South Wales
Nick Brooker	Project Director, Health Infrastructure
Michael Moore	Chief Executive Officer, Central and Eastern Sydney PHN
Jacinta George	Health System Planning and Investment Branch, MoH
Anthony Brown	Executive Director, Health Consumers NSW
David Pearce	A/General Manager, POWH/SSEH
Michael Moore	Chief Executive Officer, Central and Eastern Sydney PHN
Michael Brydon	Chief Executive Officer, SCHN
Cath Whitehurst	Director, Capital Redesign, SESLHD
Alison Sneddon	Senior Health Services Planner, SESLHD (Secretariat)

Integrated Health Services Planning Advisory Committee for Randwick Health Campus Redevelopment	
David Pearce	A/General Manager, POWH & Sydney / Sydney Eye Hospital (Co-Chair)
Alison Sneddon	Senior Health Service Planner, SESLHD (Co-Chair)
Margaret Broadbent	Acting Manager, Aboriginal Health Unit
George Constantin	Chair, Consumer Advisory Committee
Roger Allan	Co-Chair Northern Clinical Council, POWH
Heather Walker	Director, Nursing & Clinical Services, POWH
Greg Cranney	Director of Cardiology, POWH
Ned Katrib	Clinical Group Manager, ACCC, POWH
Hugh Wolfenden	Senior Cardiothoracic Surgeon, POWH
Andrew Maxwell	Acting Nursing Co-Director, Program of Surgery, POWH
Patrick Bolton	Director, Clinical Services Medical, POWH
Tish Bruce	Deputy Director, Primary & Integrated Health, SESLHD
Kristin Mbothu	Associate Director, Community Health & Integrated Care, POWH
David McKenzie	Director of Integrated Care, POWH
Chris White	Director of Endocrinology, POWH
Margaret Holyday	Head of Department of Nutrition, POWH
Jenny Wilson	Acting Director, Nursing & Clinical Services, POWH
John Malouf	Consumer Advisory Committee
Firas Al-Timimi	Facility Planner, Randwick Redevelopment, SESLHD
James Colebatch	Medical Staff Association, POWH
Steven Wood	Operations Manager, Clinical Services, POWH
Kerry Barnett	Health Service Planner, SESLHD (Secretariat)

Stakeholder Consultation Meetings

Prince of Wales Hospital Consultation	
Aged Care	Intensive Care
Allied Health	Medical Imaging
Anaesthetics, including pain Management	Medical Records
Cancer and Haematology Services	Nephrology
Cardiac Services	Neurology
Clinical Support Services	Nuclear Medicine
Community Health	Operating Theatres/Procedure Rooms
Dermatology	Performance Management Information Unit
Diving and Hyperbaric Medicine	Pharmacy
Drug and Alcohol Service	Research
Education	Rehabilitation
Emergency Department	Respiratory and Sleep Medicine
Endocrinology	Rheumatology
Engineering Services	Spinal Medicine and Rehabilitation
Finance and Corporate Services	Sterilising Services
Gastrointestinal and Liver Unit	Surgical Services
Infectious Diseases	Supportive and Palliative care
Information Technology	Technologists and Scientific Support Services
Integrated Care	

Other SESLHD Entities consultation
Royal Hospital for Women
Eastern Suburbs Mental Health Service
War Memorial Hospital Waverley
Directorate of Primary, Integrated and Community Health
Directorate of Planning, Population Health and Equity

External Consultation
Ambulance Service of NSW
Carramar Consulting
Community Members
Department of Family and Community Services
Eastern Heart Clinic
Greater Randwick Urban Masterplan Working Group
Health Consumers NSW
Health Infrastructure
Local Council representatives
Local GP group
Ministry of Health
NGOs
Primary Health Network
Prince of Wales Private Hospital
Royal Prince Alfred Hospital
St Vincent's Health Network
Sydney Children's Hospital, Randwick, including Trapeze and Clinical Genetics
University of NSW
Visioning Workshop for Campus
Western Sydney LHD

Greater Randwick Integrated Health Services Plan

Throughout the Planning process, individual comments have also been received from:

Abdhul Khan	David Pearce	Julieanne Hilbers
Adam Macri	David Wong	Karen Lee
Adam Seifman	Dean Williams	Karen VanCuylenburg
Alessandro Zagame	Deirdre Power	Kate Sikora
Alex Craft	Di Williams	Kate Thomas
Alison Grundy	Dominic Bushell	Katey Jones
Alison Sneddon	Eithne Cannon	Katherine Hilton
Amanda Justice	Elizabeth Browne	Kathryne Hoban
Ana Jelencic	Elizabeth Schlossberger	Kathy Turner
André Snoxall	Erlinda Balong-E	Keira Tranter
Andrew Maxwell	Eugene Jung	KE Khor
Andrew Murray	Firas Al-Timimi	Kerry Barnett
Andrewina Piazza-Davies	Frances O'Brien	Kim McClymont
Anita Meshram	Frank Hume	Kimberley Booth
Ann Poynten	Frank Zivkovic	Kirsty Orinuela
Anne Steffenson	Gai Smith	Kristin Mbothu
Annmarie Bosco	Galina Belt	Laura Candy
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Barbara Depczynski	George Constantis	Liesel Straka
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Benjamin Birrell	Gideon Caplan	Louise Rutter
Benjamin Newlyn	Glenda Wood	Louise Thomson
Bernard Law	Gordana Marinkovic	Luke Coombes
Bob Farnsworth	Gordon Flynn	Lyn Perry
Bonne Lee	Grazyna Jastrab	Lyndal Newton
Bree Smithson	Helen Tassell	Madeleine Bridgett
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Catherine Sky	Janice Oliver	Mark Ainsworth
Cathryn Cox	Jasmine Hancock	Mark Rollason
Charlotte Lemech	Jason Wenderoth	Mary Santor
Chathupa	Jayne Campbell	Mary Santos
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Chi Tran	Jen Hartley	Maureen O'Brien
Chris Ellery	Jenny Denford	Maureen Reid
Chris Hastie	Jenny Wilson	Max Tuffano
Chris White	Jessica Liew	Meg Sands
Christopher Matthey	Joanne Corcoran	Megan Madden
Clare Quinn	Joanne Parris	Melanie Lai
Daniel Challis	John Dent	Melinda Sukhla
Daniel Moses	John Malouf	Melissa Cooper
Danielle Collins	Jon Roberts	Michael Bennett
Danni Birchall	Jonathon Milligan	Michael Golding
David Collins	Julia Batty	Michael Jackson
David Goldstein	Julia Capper	Michael Still
David McKenzie	Julie Dixon	Michelle Booth
David Mowatt	Julie Gale	Miriam Kolker

Mitchell Hunt	Richard Collins	Sue Goh
Monica Rossleigh	Richard Yarlett	Sue Woolfendon
Mystie Ford	Rob Turner	Su-Jen Yap
Natalie Murphy	Robert Lindeman	Suji Jagadeesan
Nick Murray	Rodney Phillips	Susan Adams
Nicky Timmiss	Roger Allen	Suzanne Murray
Nicola DiMichiel	Ross Black	Suzanne Schacht
Obaydullah Marial	Ross Toll	Sylvia Hobbs
Owen Patterson	Roy Gutierrez	Tessa Irwin
Padraic Hoban	Sachin Shetty	Theresa Jacques
Patrick Bolton	Salle-Ann Ehms	Terry Campbell
Paul Hamor	Sally McCarthy	Tim Croft
Pesi Katrak	Sally Mewton	Tim Hoffman
Peter Freeman	Sandra Jeffrey	Tish Bruce
Peter Gonski	Sanjit Tisseverasinghe	Tracey Clay
Peter R Schofield	Sarah Crompton	Trudy Hopkins
Phil Crowe	Sarah Jane Messum	Vanessa Madunic
Phillipa May	Scott Howard	Victoria Westley Wise
Phyllis Davis	Simon Cheng	Vinessa Lo
Rachael Cooper	Sophie Denis	Wendy Chang
Rachel Smith	Stephanie North	Wendy Uptin
Ralph Stanford	Stephen Riordan	Zoltan Endre
Renae McNamara	Steve Wood	
Richard Chye	Stuart Adamson	

Appendix 4: Projection Methodologies

The inpatient projections are based on separation data that is coded to an Enhanced Service Related Group (ESRG) or Service Related Group (SRG). ESRG's and SRG's provide more reliable data than measuring demand and utilisation based on treating clinician and/or patient ward which have been found to overestimate these factors (e.g. Counting based on clinician or by ward can result in counting the same patient twice or more within the same admission, when care is provided across several different clinicians and/or wards)

It is important to note when examining projections that the accuracy of the projections is impacted by a range of factors including the accuracy of the NSW Department Planning and Environment of population projections and clinical coding.

Acute Inpatient Projection Methodology

The Acute Inpatient Modelling Tool (*aIM*2012 V2.2) is a MoH mandatory service and capital planning tool.

aIM uses historical trends of hospitalisation and projected population growth and structure to project future hospital admission rates and length of stay by age group, sex, Local Government Area of residence and clinical specialty. It uses the state-wide admission rates and applies various assumptions (e.g. public/private mix, proportion of urgent versus non urgent activity, hospital of treatment) to develop the base case projections.

aIM is a medium to long term projection tool. That is, it is concerned with changes that are likely to occur within five to 20 years, although the accuracy of the projections diminishes the further out the horizon. However, it is not the purpose of *aIM* to be definitive about the future, it is a tool that helps guide planning decisions.

The Ministry of Health projections tools are based on the Australian Refined Diagnosis Related Group version 6 and version 4.0 of Enhanced Service Related Groups and Service Related Groups.

Prince of Wales Hospital

1. Intensive Care Projection Methodology

The projections are calculated by using the aIM activity projections and the application of average ICU hours to each ESRG and by urgency of admission. The average ICU hours is based on the previous 3 years of averages (2010/11 – 2013/14). A 70% occupancy rate has been applied as POWH provides a statewide spinal injury service which requires greater flexibility in being able to respond to unexpected surges in demand from within and outside the District.

Source: Flowinfo V14.0, aIM2012 V2.2 (HITH Medium + Partial Length of Stay reduction scenario)

Exclusions: ED only, Psychiatry(Acute), Psychiatry(Non Acute), Chemotherapy, renal dialysis, unqualified neonates, Subacute SRGs

2. High Dependency Unit Projection Methodology

The projections are calculated by using the aIM activity projections and the application of average HDU hours to each ESRG and by urgency of admission. The average HDU hours is based on the previous 3 years of averages (2010/11 – 2013/14). A 70% occupancy rate has been applied as POWH provides a statewide spinal injury service which requires greater flexibility in being able to respond to unexpected surges in demand from within and outside the District.

Source: Flowinfo V14.0, aIM2012 V2.2 (HITH Medium + Partial Length of Stay reduction scenario)

Exclusions: ED only, Psychiatry(Acute), Psychiatry(Non Acute), Chemotherapy, renal dialysis, unqualified neonates, Subacute SRGs

3. Coronary Care Unit Projection Methodology

The Projections are calculated using linear regression (2009/10 - 2014/15) on CCU ward level activity by age group and urgency of admission and then applying the average CCU hours (previous 3 years were used) to the projected CCU separation by age group and urgency of admission. Based on 75% occupancy.

Source: HIE, SESLHD Strategy and Planning Unit (methodology), Australian Bureau of Statistics (Estimated Resident Population), NSW Department of Planning and Environment, 2014 Edition (Population Projections)

Exclusions: ED only

4. Acute Spinal Cord Injury Projection Methodology

The Acute Spinal Projections are based the previous three years (averaged) ESRG proportions on the Acute Spinal Ward and then applying the proportions to the aIM projected bed days. The waiting list was also considered in the projections, at any given time, the acute spinal ward has a waiting list of 2-4 patients. Applied the population growth rate to the number of waiting list patients and current average length of stay to obtain the projected bed days.

Source: Flowinfo V14.0, aIM2012 V2.2 (HITH Medium + Partial Length of Stay reduction scenario)

Exclusions: ED only, Psychiatry(Acute), Psychiatry(Non Acute), Chemotherapy, renal dialysis, unqualified neonates, Subacute SRGs

5. Hospital in the Home Projection Methodology

The projections are calculated by applying the annual growth rate (2008/09 - 2013/14). The separations are calculated based on HITH hours. This approach is appropriate as it aligns with the current management structure of HITH. The hospital in the home hours are used to calculate the bed days.

Note: the final projections for HITH include the base case increase and the scenario increase (see scenario modelling – acute inpatients for description)

Source: Flowinfo V14.0

Exclusions: Psychiatry (Acute), Psychiatry (Non Acute), Chemotherapy, Renal Dialysis, Unqualified Neonates, Subacute SRGs, ED only

6. Renal Dialysis Projection Methodology

The projections are based on the NSW Health Service Planning Series - Revised Projections of Demand for Renal dialysis Services in NSW 2021. The projections are based on ANZ data registry which captures data on patients requiring maintenance dialysis. The data is used to estimate the annual incidence and prevalence.

Source: NSW Health Service Planning Series - Revised Projections

7. Chemotherapy Projection Methodology

The projections are based on the NSW Health Service Planning Guidelines for Intravenous Chemotherapy Services. This guideline provides a basis for projecting requirements for chemotherapy chairs and services. The approach is based on applying specific ratios to the actual or

projected number of incident cases of cancer for a region, based on the projections produced by the Cancer Institute.

Source: NSW Health Service Planning Guidelines for Intravenous Chemotherapy Services

8. Subacute Projection Methodology

SiAM V2.2 base case projections do not reflect the recent growth in subacute activity. Subacute activity has increased significantly recently, which is most likely due to the increased funding of subacute care (from the COAG National Partnership Agreement on Hospital and Health Workforce). This resulted in better recording/type changing of subacute activity. The SiAM 2027 projections have already been superseded as the increased activity was not reflected in the historical utilisation data for the SiAM projections. As such, the Strategy and Planning Unit developed their own projections.

It should be noted that data quality is still a challenge for the subacute sector, it has however improved substantially in recent years.

SESLHDs projections are based on admitted patient data from 2009/10 to 2014/15 but in some instances a longer time period is used (this mostly affects Maintenance Care SRG). This was done because there is more random variation in the data for this SRG, and a longer time period produced a better trend. Palliative Care was also problematic as the data improved significantly from 2012/13 onwards, therefore shorter time period was used as it produced a more robust trend.

The projected separation rate per 1,000 was calculated by age group (16-69, 70-84, 85 plus) and by clinical group (SRG: Rehabilitation, Palliative Care and Maintenance). It was decided not to further disaggregate the projections by day only/overnight status as the numbers are small to project on. The rates were plotted and forwards linear projection was calculated. The projected rate was then applied to the projected population for the year of interest to obtain the number of projected separations. The same method was used in projecting the bed days.

Subacute spinal projections are excluded (ESRG 846 rehabilitation spinal cord injury) in the subacute projections as this service is highly specialised and have longer lengths of stay. Separate projections were developed for ESRG 846 Rehabilitation spinal cord injury which used the same methodology except a longer time period was utilised (2007/08 to 2014/15). The subacute spinal projections do not include the acute SCI patients. The waiting list was also considered in the projections, at any given time, the subacute spinal ward as a waiting list of 1-3 patients. Applied the population growth rate to the number of waiting list patients and current average length of stay to obtain the projected bed days

Beds required is based on an 90% occupancy

The Residents from the Northern Sector LGAs: Botany Bay, Randwick, Sydney East & Inner, Waverley and Woollahra are the defined catchment for calculating the rates. Paediatric population is excluded

Source: Flowinfo (caspa) V14, HIE (14/15), Strategy and Planning Unit, SESLHD (methodology), Australian Bureau of Statistics (Estimated Resident Population), NSW Department of Planning and Environment, 2014 Edition (Population Projections)

Inclusions: POWH including Collaborative Care, patient type flag=subacute and non acute, Version 4.0 SRG/ESRG

Exclusions: Psychogeriatrics, ED only

Royal Hospital for Women

9. Neonatal Intensive Care Unit Methodology

The projections are calculated by using the aIM activity projections and the application of average NICU hours to Qualified Neonates and Perinatology ESRGs by urgency of admission. The average NICU hours is based on the previous 4 years of averages (2011/12 – 2014/15). A 75% occupancy rate has been applied.

Source: Flowinfo V15.0, aIM2012 V2.2

Exclusions: ED only

10. Special Care Nursery Methodology

The projections are calculated by using the aIM activity projections and the application of average SCN hours to Qualified Neonates and Perinatology ESRGs by urgency of admission. The average SCN hours is based on the previous 4 years of averages (2011/12 – 2014/15). A 75% occupancy rate has been applied.

Source: Flowinfo V15.0, aIM2012 V2.2

Exclusions: ED only

Please note the above NICU and SCN projections do not match exactly to the aIM activity projections for qualified neonates and Perinatology (66 SESLHD vs. 69 aIM). This is because the method above is based on NICU and SCN hours which is more exact than calculating the beds required which are based on the bed days in aIM.

11. High Dependency Unit Methodology

The projections are calculated by using the aIM activity projections and the application of average HDU hours to each ESRG and by urgency of admission. The average HDU hours is based on the previous 4 years of averages (2011/12 – 2014/15). The projections show a slight reduction in the current base from 5 to 4 beds by 2027, however clinician advice indicates that the bed base should remain at 5 HDU beds.

Source: Flowinfo V15.0, aIM2012 V2.2

Exclusions: ED only, Psychiatry(Acute), Psychiatry(Non Acute), Chemotherapy, Renal Dialysis, Unqualified Neonates, Qualified Neonates, Perinatology, Subacute SRGs

12. Delivery Suite/Birthing Room

A rate was calculated per 1,000 population for females aged between 16-44 years for the previous 6 years using ward level activity (via the HIE) and the Estimated Resident Population. Rates were plotted and a forwards linear projection calculated. The resulting gradient was then used to calculate the incremental growth for the projected years. The projected rate was then applied to the projected population for the year of interest to obtain the number of stays per 1,000 population. The Residents from the Northern Sector LGAs: Botany Bay, Randwick, Sydney East & Inner, Waverley and Woollahra are the defined catchment for calculating the rates.

The average length of stay was calculated to understand the throughput of the room. The average length of stay is based on the previous two year averages (2014/15 – 2015/16).The average throughput is calculated by dividing the session length (i.e. hours available) by the average time spent in a birthing room. The projected activity is then divided by the throughput and days available in a year and then applying an occupancy rate. The planning assumptions utilised are that birthing rooms are available 18 hours a day 365 days a year. An 80% occupancy rate has been applied.

Source: HIE, SESLHD Strategy and Planning Unit (methodology), Australian Bureau of Statistics (Estimated Resident Population), NSW Department of Planning and Environment, 2014 Edition (Population Projections)

Exclusions: ED only

13. Medical Imaging – Ultrasound

Projections are calculated using a linear regression on five years of ultrasound activity. Projections are calculated using a linear regression by mode of service delivery (inpatient, outpatients etc) and is based on 5 years of historical data. A shorter time period was used for outpatients as it produced a more appropriate trend. The projections were developed this way as the average procedure times varied between inpatients and outpatients.

The projections are calculated by firstly calculating the average daily throughput (dividing the hours available by the average procedure time) and then overall projections are calculated by the projected activity divided by the throughput and days available in a year. An occupancy rate of 85% is also applied. Outpatients and inpatients used different assumptions in terms of their days available and operating hours. An average procedure time of 30 min is applied.

Source: RHW Medical Imaging Department, 2016, Strategy and Planning Unit (methodology)

Eastern Suburbs Mental Health Service

The inpatient mental health projections are calculated using the MH-CCP planning tool. The MH-CCP is a population-based mental health planning model that provides the clinical and epidemiological evidence base to estimate the need for mental health services in NSW, including mental health promotion, illness prevention and early intervention.

Source: MH-CCP (version 2010). NSW Department of Planning and Environment, 2014 Edition (Population Projections)

Non Admitted Patient Projection Methodology

The methodology for non admitted activity was the same for POWH, RHW and Eastern Suburbs Mental Health Service.

Current non admitted patient activity (EDWARD or HIE) was analysed and mapped Series 2 Clinics to inpatient SRGs (aIM2012). Applied the SRGs growth rate to current occasions of service by setting type and modality (face-to face Individual, face-to-face group, all other occasions of service).

Room requirements were calculated using average room duration for each Series 2 Face-to Face Individual Clinics (based on clinician advice and cross checked against Victorian Health space requirement benchmarks) and applied to projected Face-to Face Individual occasions of service.

Room availability assumed 7 hours per day for 240 days per year at 80% occupancy to provide sufficient time for any room set-up, cleaning between patients, etc

Sources: EDWARD, HIE, aIM/SiAM2012 v2.2, clinician's advice, Victorian Health space requirement benchmarks

Randwick Hospitals and Health Services' Campus (excluding SCH)

14. Emergency Department Projection Methodology

The rate of presentation was calculated per 1,000 population for each combination of age group (16-44, 44-69, 70-84, 85+), Triage Category (Triage 1, Triage 2 & 3, Triage 4 & 5) and mode of separation (admitted and non admitted) for the previous 6 years using the ED *Activity Analysis Tool v1.1 (caspa)* for ED trend data and the Estimated Resident Population. Rates were plotted and a forwards linear projection calculated. The resulting gradient was then used to calculate the incremental growth for each combination of the projected years. The projected rate was then applied to the projected population for the year of interest to obtain the number of presentations per 1,000 population. The Residents from the Northern Sector LGAs: Botany Bay, Randwick, Sydney East & Inner, Waverley and Woollahra are the defined catchment for calculating the rates. Paediatric population is excluded

Source: ED Activity Analysis Tool v1.1 (caspa), SESLHD Strategy and Planning Unit (methodology), Australian Bureau of Statistics (Estimated Resident Population), NSW Department of Planning and Environment, 2014 Edition (Population Projections)

15. Resuscitation Bay

The projections are based on the Australasian College of Emergency Medicine ratio of 1 resuscitation bay per 15,000 presentations. The denominator of the ratio removes the scenario assumptions activity. See the ED Scenario Modelling for more information.

Source: Australasian College of Emergency Medicine

16. Isolation Rooms

The projections are based in the Australasian College of Emergency Medicine ratio of 1 isolation bay per 10,000 presentations. The denominator of the ratio removes the scenario assumptions activity. See the ED Scenario Modelling for more information

Source: Australasian College of Emergency Medicine

17. ED Short Stay Unit

The projections are based on the Australasian College of Emergency Medicine ratio of 1 short stay unit per 4,000 presentations. The denominator of the ratio removes the scenario assumptions activity. See the ED Scenario Modelling for more information. Note the ED Short Stay Unit is a subset of inpatient beds.

Source: Australasian College of Emergency Medicine

18. Safe Assessment Room

The rate of presentation was calculated per 1,000 population for Mental Health presentations (included F00 – F99 ICD codes) by age group (16-44, 44-69, 70-84, 85+) for the previous 5 years using the using the ED *Activity Analysis Tool v1.1 (caspa)* for ED trend data and the Estimated Resident Population for the previous 5 years. Rates were plotted and a forwards linear projection calculated. The projected rate was adjusted in some instances as the recording of data has improved since 2012/13 period (specifically the coding of presentations to ICD-10-AM code) and shorter time period produced a more appropriate growth rate. The resulting gradient was then used to calculate the incremental growth for each combination of the projected years. The projected rate was then applied to the projected population for the year of interest to obtain the number of presentations per 1,000 population. The projected hours was calculated by applying a 4 hour length of stay to the projected presentations (dividing by 365 days to ascertain the average projected hours per day). This result was compared to the current daily average of mental health presentations.

The Residents from the Northern Sector LGAs: Botany Bay, Randwick, Sydney East & Inner, Waverley and Woollahra are the defined catchment for calculating the rates. Paediatric population is excluded The projection assumes the flows remain broadly the same into the future.

Source: ED Activity Analysis Tool v1.1 (CaSPA), SESLHD Strategy and Planning Unit (methodology), Australian Bureau of Statistics (Estimated Resident Population), NSW Department of Planning and Environment, 2014 Edition (Population Projections)

19. Operating Theatre Projection Methodology

Current theatre case activity (Surginet) was analysed to determine average Room Duration for emergency and elective operations by ESRG. Then the current operating theatre activity was mapped to inpatient data (FlowInfo) by ESRG by elective / emergency cases to calculate procedure rate. This procedure rate was applied to inpatient projections by ESRG and elective / emergency (aIM/SiAM) to determine projected cases. Room requirements were calculated room using average room duration by ESRG and elective / emergency cases (Surginet) applied to operating theatre case projections.

Theatre requirements assumed elective theatres were available 480 minutes per day, 230 days per year at 80% occupancy while emergency theatres were available 720 minutes per day, 336 days per year at 65% occupancy.

Source: Surginet, FlowInfo, aIM2012 V2.2

20. Medical Imaging Projection Methodology

The projections are provided by each medical imaging room type, as specified below.
- General X-ray
- MRI
- CT
- Mammography
- Ultrasound
- Angiography/Interventional
- Fluoroscopy

Projections are calculated using a linear regression on each of the medical imaging rooms by mode of service delivery (inpatient, outpatients etc) and by adults and paediatrics, based on 6 years of historical data (2009/10 to 2014/15). The projections were developed this way as the average procedure times varied between adults and paediatrics and inpatients and outpatients.

To calculate medical imaging requirements, the average procedure time was calculated for each variable (inpatient/outpatient, adults/paediatrics etc) for each room type. The projections are calculated by firstly calculating the average daily throughput (dividing the hours available by the average procedure time) and then overall projections are calculated by the projected activity divided by the throughput and days available in a year. An occupancy rate of 85% is also applied. Outpatients and inpatients used different assumptions in terms of their days available and operating hours. The average procedure times were obtained by the Chief Radiographer, POWH

The medical imaging data includes data from POWH, SCH and RHW.

Source: Radiology Information System, December 2015, POWH, Strategy and Planning Unit (methodology)

Exclusions: mobile exams

21. Nuclear Medicine

Nuclear Medicine projection methodology is located in the scenario modelling section.

Scenario Modelling

Prince of Wales Hospital

Acute Inpatient

Scenario 1: HITH Medium (10%) + Partial Length of Stay Reduction scenarios
A scenario was developed where 10% of all projected medical overnight separations are diverted to the HITH model. HITH was applied SESLHD residents only as it is assumed that HITH would not be suitable for inflows. Technically, these scenario was created within the aIM tool. The first step involved creating a 'HITH hospital' facility, then, applying the relevant proportion of overnight medical separations from POWH to the 'HITH hospital' facility (supply modelling screen). To ensure no double counting occurred when interpreting the results, the HITH variable in the output pivot table was set to 'other'.

The output of the HITH scenario was then used to develop the partial length of stay reduction scenario. The current length of stay was applied to select ESRGs where there were notable differences between the current and projected length of stay. This part of the scenario was developed to ensure consistency between the acute and subacute projections. Technically, this was done in response to the differing base years used for the acute and subacute projections. The acute (aIM) projections have base year of 2011/12 and the subacute projections (which were developed internally) are based on more recent data (2014/15). The improvement in type changing between acute and subacute sectors is particularly evident in the data 2012/13 to 2013/14 period which is not picked up in the acute projections and results in longer average length of stays.

This scenario equates to moving 1,234 separations or 7,166 bed days through the HITH model of care by 2027

Scenario 2: Spinal Expansion
Expansion of spinal inpatient services to accommodate increasing numbers of non-traumatic spinal cord injury patients from across NSW. Evidence shows improved patient outcomes for non-traumatic spinal cord injury being managed in a dedicated spinal unit.

To calculate the impact of this model of care applied non-traumatic spinal cord injury incidence (26 patients / million adults / year) to NSW population projections, added half of these patients to POWH activity (assuming other half go to Royal North Shore Hospital / Royal Ryde Rehabilitation) and assumed average length of stay 15 days.

The spinal expansion equates to an additional 4 acute beds by 2027 for the acute spinal unit.

Source: aIM2012 V2.2, Flowinfo V14. ACI SSI database

Exclusions: ED only, HITH (the flag within aIM), Chemotherapy, Renal Dialysis, Unqualified Neonates and Psychiatry

Note the acute inpatient scenarios are combined in the final output.

Subacute Inpatient

Scenario 1: Palliative Care Bed Increase
There are no dedicated palliative care beds at POWH and currently patients are transferred to Sacred Heart Health Hospice (SHHH) for symptom management or end of life care requiring complex or multidisciplinary management

There is a reported significant access issue for patients requiring palliative care beds at SHH which has been exacerbated by a recent (palliative care) ward closure at SHHH and additionally patients from St Vincent's Hospital are also given preferential treatment in terms of access. There has also been discussion amongst the palliative care clinicians that SHHH may discontinue taking our resident palliative care patients.

The data for Sacred Heart Health Hospice, was extracted for the last 5 years for palliative care for the residents from Randwick and Botany Bay. The data shows a steady trend with a slight decline in separations and modest increase in bed days. A linear regression model indicates that the bed days are projected to increase slightly, an additional 4,600 bed days or 14 beds at 90% occupancy by 2027.

The final projections include the subacute base case increase and the additional palliative care projected activity.

Scenario 2: Expansion of Spinal Rehabilitation
Expansion of inpatient services to accommodate increasing numbers of non-traumatic spinal cord injury patients from across NSW. The evidence shows improved patient outcomes for non-traumatic spinal cord injury being managed in a dedicated spinal unit.

Similar to the methodology used for these patients acute separation, applied non-traumatic spinal cord injury incidence (26 patients / million adults / year) to NSW population projections, added half of these patients to POWH activity (assume other half go to Royal North Shore Hospital / Royal Ryde Rehabilitation), assumed average length of stay 22 days

The spinal expansion equates to an additional 5 beds by 2027 for the rehabilitation spinal unit.

Source: Flowinfo V14.0, HIE (14/15), SESLHD Strategy and Planning Unit (base case and additional scenario palliative care projections), ACI SSI database

The two subacute inpatient scenarios are combined in the final output.

Non admitted ambulatory care

Scenario Projections
Several scenarios were developed including for non-admitted ambulatory care.

Prince of Wales Hospital
The initial scenario based on equity of access matched Botany rate of OOS/1,000 population to that of Randwick's.

For hospital based services, other scenarios took account of additional activity and added these to the base year data including:
- Inpatients treated in an outpatient setting (e.g. spinal rehabilitation patients treated in the gymnasium)
  - *Source: Cerner allied health patient report 2014/15*
  - *Inclusions: Encounter Type: Inpatient. Clinical area: Aged Care Rehab, Rehab, Spinal Rehab. Contact type: Face-to-face only. Ward location: CS1 Spinal Reh POWH, P1W Rehab POWH, P1W Spinal Rehab POWH, P5 Aged Rehab POWH.*
- Anticipatory care and chronic disease assessment and review with a rate at 10% of 2014/15 activity
- Overdue patients from wait list to 2014/15 data
- Known unmet demand
- New clinics identified in the Proposed Recommendations of this Plan

Community health scenarios included additional activity for expansion of:
- Anticipatory care and chronic disease management, based on robust discussion at the Planning Advisory Committee the clinicians agreed the rate should be at 20% of 2014/15 activity.
- Palliative care activity. For the population of northern SESLHD LGAs there appears to indicate a lack of specialist palliative care services. Assuming there were approximately 750 cancer deaths and a similar number of predictable deaths of people with other conditions a rough estimate (using the NSW Health assumptions[332]) appears to indicate a requirement for more than 1,000 specialist palliative care services.

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[332] NSW Health, 2012, *The NSW Government plan to increase access to palliative care 2012-2016*

Royal Hospital for Women
Consultation with RHW identified the need to include data for some unmet demand e.g. Fertility Research Centre.

There was also a need to account for some missing data. While there has been significant improvement in data recording in recent years, not all occasions of service are being recorded. Based on review of booking schedules and clinician advice the extent of missing data has been estimated at 7.5% of current activity, this data has been included into projections.

Eastern Suburbs Mental Health Service
Two scenarios were developed for Eastern Suburbs Mental Health Service ambulatory care.
- Anticipatory care, based on discussion with Eastern Suburbs Mental Health Service it was agreed the rate should be at 20% of 2015/16 activity.
- Missing data: while there has been significant improvement in data recording in recent years, not all occasions of service are being recorded. Based on review of booking schedules and Eastern Suburbs Mental Health Service advice the extent of missing data has been estimated at 10% of current activity, this data has been included into projections

Source: EDWARD, HIE, aIM2012, SiAM2012

Exclusions: Establishment type based on data captured in
- *Operating theatre section: 10.02 Interventional imaging, 10.03 Minor surgical (POWH), 10.06 Endoscopy – Gastrointestinal*
- *Dialysis section: 10.10 Renal Dialysis*
- *Clinics moving into The Bright Alliance including: 10.11Chemotherapy treatment; 10.12 Radiation therapy treatment; 10.13 Minor Medical Procedures (POWH Cancer Services - Haematology Treatment); 10.20 Radiation Oncology - Simulation and Planning; 20.10 Haematology, 20.42 Medical Oncology (Consultation), 20.43 Radiation therapy – consultation, 40.48 Haematology and immunology, 40.52 Oncology*
- *Stand-alone single purpose structures: 40.05 Hydrotherapy; POWH Hyperbaric Treatment Clinic (i.e. hyperbaric chamber patients only)*
- *Medical imaging: 30.01 Radiology / General Imaging Diagnostic Unit, 30.02 Magnetic Resonance Imaging (MRI) Diagnostic Unit, 30.03 Computerised Tomography (CT) Diagnostic Unit*
- *30.05 Pathology (Microbiology, Haematology, Biochemistry) – data relates to home collection clinic so not requiring clinic space*
- *Mental health: Community liaison for inpatients, services provided in the client's home, services provided in emergency*

The Royal Hospital for Women

Obstetrics

The base case projections were adjusted for ESRG 721 - Ante-natal Admission and 723 - Caesarean Delivery. This is because the 2027 aIM projection supersedes the current data for Ante-natal Admission by nearly 1,000 separations. The historical data (2008/09 to 2015/16) shows a strong and consistent trend; separations are increasing steadily by around 200 separations per year and bed days and increasing around 300 to 400 per year. For Caesarean Deliveries, the historical trends show a steady flat line trend that overall is slightly declining, separations in the previous 8 years have ranged between 1,299 to 1,172 separations while aIM projects an increase of 1.5% per year.

For ESRG 721 - Ante-natal Admission projection, the separation rate was calculated per 1,000 population for females aged between 16-44 years for the previous 6 years using ward level activity (via the HIE) and the Estimated Resident Population for the previous 6 years. Rates were plotted and a forwards linear projection calculated. The resulting gradient was then used to calculate the incremental growth for each combination of the projected years. The projected rate was then applied to the projected population for the year of interest to obtain the number of presentations per 1,000 population. The Residents from the Northern Sector LGAs: Botany Bay, Randwick, Sydney East & Inner, Waverley and Woollahra are the defined catchment for calculating the rates.

For Ante-natal Admission, the bed days was calculated by multiplying the separations by the current length of stay of 1.3 days (aIM base case projects a length of stay of 1.4 days). The length of stay for this ESRG has been fairly consistent over the previous 6 years with small declines in the length of stay achieved. This equates to an additional 9 beds by 2027

For Caesarean Delivery, the bed days was calculated by multiplying the separations by the aIM projected length of stay for each projected year. It was decided to apply the aIM length of stay as it projects a slight decline in the average length of stay. This removes 10 beds by 2027

An 80% occupancy rate has been applied

The other ESRGs within Obstetrics SRG have remained unchanged (722 - Vaginal Delivery, 724 - Post-natal Admission) from the base case projections.

Source: *Flowinfo V15.0, aIM2012 V2.2, SESLHD Strategy and Planning Unit (methodology), Australian Bureau of Statistics (Estimated Resident Population), NSW Department of Planning and Environment, 2014 Edition (Population Projections)*

Inclusions: SRG 72 Obstetrics (Version 4.0 SRG/ESRG)

Exclusions: ED only

Eastern Suburbs Mental Health Service

The base case projections were adjusted for acute beds with no increased projected for mental health beds, excluding PECC. There are slight increase in PECC bed numbers to improve the flow and management of mental health ED presentations. The mental health system continues to move away from an historical model of institutional-based mental health care towards the primacy in the care continuum of community and ambulatory-based models with a psychosocial and recovery-oriented approach. As a result, the inpatient bed base is not projected to grow beyond current levels over the next 10-15 years. Growth is anticipated to be experienced primarily in the demand for ambulatory and community Mental Health services.

Source: SESLHD Mental Health Clinical Services Plan 2013 -2018. Revised August 2016

Randwick Hospitals and Health Services' Campus (excluding SCH)

Emergency Department

The recommended Australasian College of Emergency Medicine Recommendation of 1,460 presentations per treatment space has not been adopted for the redevelopment. This ratio is based on the planning assumption of 4 presentations per treatment space per day with an average length of stay of 6 hours at 100% occupancy. It is inappropriate to model on a 6 hour average length of stay and at a 100% occupancy.

The projections are based on a planning ratio of 1,750 presentations per treatment space. This ratio is based on 6 presentations per treatment space per day with an average length of stay of 4 hours at 80% occupancy. The current length of stay at POWH ED ranges from 3.7 hours to 4.2 hours depending on the timeframe selected. This planning ratio broadly represents their current length of stay and is also aligned with the National Emergency Access Target.

The scenario's below remove the following presentations from the base case ED projections.

Scenario 1: Removing the planned returns from Projections
The ED has a review clinic (which is coded as a planned return) that accounts for a substantial proportion of lower acuity presentations. The review clinic was implemented in 2012/13 and the activity has been increasing with stable trend data to review from 2014/15 onwards. Currently, these patients in an ED cubicle. It is proposed that these patients will be seen in a consult/clinic room in ED in the redevelopment. As such, the projected review clinic patients are not included in the treatment space calculation.

It should be noted that a number of different projection methodologies was developed (and tested) to project future requirements. It was found that, applying the current average proportion, averaged over the previous 3 years to the projected ED presentations produced the most appropriate projected result.

This equates to removing nearly 5,500 projected ED presentations by 2027

Scenario 2: Removing Direct Referrals from the Projections (ED to outpatient crisis clinics)
Establishing direct referral pathways to outpatient clinics for Infectious Diseases, Endocrinology and the Early Pregnancy Service at RHW

The following algorithm was developed to identify potential ED presentations that may be suitable for Direct Referrals:
- Presenting between the hours of 0800 and 1700
- Presenting between Monday to Friday
- Classified as Triage Category 4 & 5
- Discharged from ED
- Excludes Planned Returns
- Excludes those arrived via Ambulance
- ICD Codes: Obstetrics (early miscarriage) O03 – O06.9, Infectious Diseases: Infectious and parasitic diseases A00-B99, Influenza and pneumonia J10–J18, Diseases of the skin and subcutaneous tissue L00–L08, Other disorders of the genitourinary system N10-N11,N30,N39, Fever R50, Complications not elsewhere classified T81, Endocrinology E00 - E90, Respiratory J00-J06, J20-J22, J40-J47,J60-J99

The Direct Referrals projections were calculated by applying the current average proportion, averaged over the previous 3 years to the projected ED presentations.

This equates to removing nearly 1,700 projected ED presentations by 2027

Scenario 3: Removing a Proportion of Avoidable ED Admissions from the Projections
The following high volume avoidable presentations were analysed. It is proposed that the increasing role of primary care may reduce potentially avoidable ED presentations
- Cellulitis
- COPD
- Angina
- CCF
- UTI
- Dental
- Pneumonia & Influenza

The current presentations were extracted. Planned returns and direct referrals (where appropriate i.e. cellulitis and UTI low acuity presentations would be see in the infectious Diseases outpatient crisis clinic) are removed. It is proposed that the increasing role of primary care may reduce potentially avoidable ED presentations by 20%. The current proportions (averaged over the previous 3 years) were applied to the projected presentations and 20% reduction was then applied to the projected base case avoidable presentations.

This equates to removing just over 850 projected ED presentations by 2027.

Scenario 4: Removing Direct Admits from the Projections (GP to Ward)

Establishing direct referral pathways from GP and other health providers to an inpatient ward. The following algorithm was developed to identify potential ED presentations that may be suitable for direct admits:

- Source of Referral (GP, Community Health, Residential Aged Care)
- Classified as admitted

The current presentations were extracted. The current proportions (averaged over the previous 3 years) were applied to the projected presentations.

This equates to removing nearly 3,000 projected ED presentations by 2027.

Scenario 5: Extended Care Paramedic

Establishing the Extended Care Paramedic (ECP) model of care for assessment and management of patients with minor illnesses and injuries to treat patients in their usual place of residence, with referral to other health professionals if appropriate.

The following algorithm was developed to identify potential ED presentations that may be suitable for ECP:
- Mode of Arrival classified as Ambulance
- Under 65 years old
- Discharged from ED
- Classified as Triage Category 4 & 5
- Excludes Psychiatric illness, and Major Injury & Multiple Injury

This equates to removing just over 1,000 projected ED presentations by 2027

Source: HIE, ED Activity Analysis Tool v1.1 (CaSPA), Flowinfo V14.0 Strategy and Planning Unit (methodology).

Nuclear Medicine

The projections are calculated using a linear regression on utilisation data for gamma camera and SPECT CT examinations (these were projected together), and PET examinations by adults and paediatrics, based on 5 years of historical data (2010/11 to 2014/15). The projections were developed this way as the average procedure times varied between adults and paediatrics.

The projections are calculated by firstly calculating the average daily throughput (dividing the hours available by the average procedure time) and then overall projections are calculated by the projected activity divided by the throughput and days available in a year. An occupancy rate of 85% is also applied. Outpatients and inpatients used different assumptions in terms of their days available and operating hours.

The PET base case resulted in no increase in projected required. The projection was adjusted (and increased) based on clinician advice. The clinicians argued PET imaging and targeted radionuclide therapy are the most rapidly growing areas of nuclear medicine. A future driver of demand is the increasing use of PET for cancer diagnosis and staging. Oncology is currently a major source of referrals which will increase with the growing and ageing population combined with earlier detection of cancers and widening indications for molecular imaging. The ageing population will also increasingly utilise neurology, cardiology and aged care imaging services.

Appendix 5: Department Consultations

The following process was followed to inform the development of the Departmental consultations summaries:

1. Meetings were held with individual clinical and clinical support departments. The Director of the Department (or representative) and other departmental representatives were present at these meetings, to identify service specific issues, proposed models of care and discuss data and projection methodologies. It is assumed that the view of the Department was represented at these consultations.
2. The Strategy and Planning Unit documented the discussion and created a summary of the departmental consultation (as seen below).
3. The summary document was then sent to the Department for review and if necessary amendments were made to ensure an accurate and complete representation on the discussion was documented.
4. The final approved summary was appended to this Plan

Aged Care

Current services

Multi-disciplinary Geriatric Medicine teams provide support for a wide range of inpatient, outpatient, and post-acute aged care and community services to frail older people, including:

- Aged Care Rehabilitation and a 6 bed Acute Aged Care Extension (AACE) unit for older people with behavioural challenges on Level 5, Parkes Building
- An Acute Geriatric service, including a 6-8 bed Geriatric Medical Assessment Unit (GMAU), located on level 6
- A shared care service for older orthopaedic and vascular patients
- A Geriatric surgical liaison service to the rest of surgery with the hope to expand to a shared care model for other surgical services
- Hospital in the Home (HITH) to provide daily acute care for appropriate adult patients at home and in residential aged care facilities (RACFs) to avoid hospitalisation, and Post-Acute Care Service (PACS) for post-acute rehabilitation
- Geriatric RACF program (GRAFS) providing geriatric assessment and follow up care within RACFs to avoid ED presentations and hospitalisations and ensure capacity building of RACF staff to identify and manage health problems
- Aged Care Services Emergency Team (ASET) offering assessment of the care needs of people over 75 presenting to the ED, with close links to the Geriatric Medical Assessment Unit, other ED staff, HITH and community services
- Geriatric outpatient services, held on level 2 of the Campus centre. This includes 3 Aged Care clinics (a General Geriatrics Clinic, a Falls, Balance and Bone Health Clinic) and a Cognitive Disorders Clinic
- A Geriatrician Liaison service provided as a consult to other specialties
- A variety of community based services are provided for Aged Care Assessment, dementia care, and to frail older people who are unable to access outpatient services, an Aboriginal Geriatric Medicine Connecting Care program, as well as community based exercise programs for older people.

Trends in patient demographics, activity and service delivery
- Demographics
  - The catchment population is growing and ageing, with people living longer and with long term conditions. It is reported that around 80% of people aged 65 years and over have

   - three or more long term health conditions[333].
     - o The fastest growing age group for our catchment population is predicted to be those aged 70 years and over, with a 44% increase in the 'older old" (85+) by 2031[334].
     - o This demographic trend will drive a growing demand for services. Those aged 85 years or older tend to be the main users of both acute care and aged care services, and their numbers will grow substantially in coming years.
   - Activity
     - o Aged Care activity will continue to increase due to the ageing population, however length of stay for inpatients has been trending down, thus improving throughput. This is due to the implementation of home based models of care and hospital avoidance activities that have prevented ED presentations, reduced admissions and allowed earlier discharge of frail older patients. This is likely to continue slowly or plateau over the next 10 years
     - o The demand for dementia care services cannot currently be met, and will continue to grow as the population ages and the number of younger onset dementia patients continues to grow. People with dementia commonly have a longer length of stay for all hospitalisations and are more prone to delirium while in hospital
     - o Delirium affects up to 56% of older people admitted to hospital[335], resulting in longer lengths of stay and a need for higher level care. The need for delirium screening and management will continue to grow due to the ageing of the inpatient population.
   - Service Delivery
     - o Community care is increasingly the preferred mode of care delivery for older people, to avoid the need for, or increase the time before, requiring residential aged care.
     - o The majority of admissions are emergency admissions and this is likely to continue

Issues and challenges
   - Community based models of care, including community based outpatients and home delivered services and an extended GRAFS program, are seen as more appropriate models of care for older people than the hospital. However the need for some inpatient activity will continue in the acute, subacute and chronic setting
   - The current outpatient service needs to be expanded from 3 clinics to a daily clinic, with appropriate resourcing, to allow earlier assessment and follow up for Aged Care patients, assist demand management and potentially avoid hospitalisation. It would ideally be co-located with other Aged Care services
   - The GRAFS program is currently at capacity, however a nurse practitioner has recently been funded to support the management of people in Residential Aged Care Facilities to avoid hospitalisation. Further geriatrician and allied health support is required to create a multi-disciplinary team
   - HITH and Post Acute Care Services have the potential to expand, with adequate resourcing and specialist 7 day cover, to include other specialist services and rehabilitation referrals, there may be a need for satisfactory incentives to increase referrals.
   - Availability of aged care rehabilitation beds in other SESLHD units such as War Memorial Hospital Waverley and Sydney-Sydney Eye Hospital is limited, and unsuitable for higher acuity patients, which increases length of stay at POWH
   - Capacity for care co-ordination/management is limited in the community
   - Currently the orthogeratric model is working well and a new shared care service with vascular surgery is in place. There is a need for shared care arrangements for frail older people with other surgical specialties to avoid unnecessary interventions, reduce the likelihood of complications, reduce length of stay, provide better end of life care, reduce likelihood of delirium, provide better care coordination, improved access to aged care services, and improve the patient experience. A grant proposal is currently underway and has broad support from surgeons and anaesthetists at POWH
   - Currently aged care services are fragmented and navigation for frail older people is difficult. The location of aged care services for ease of access needs to be considered
   - The demand for acute and sub- acute hospital and outpatient services is affected by the number and availability of RACF places in the community. The length of stay of inpatients

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[333] Department of Health (2012), Chronic Disease: Prevalence URL:
www.health.gov.au/internet/main/publishing.nsf/Content/chronic
[334] SESLHD Aged Care Services Plan 2015-2018
[335] Delirium in older people. Commonwealth of Australia 2006

waiting for RACF places may ease with the planned opening of new residential aged care facilities, however increasing RACF places will create further demand for GRAFS intervention.

Proposed strategic initiatives and recommendations

- Continue inpatient Aged Care acute and rehabilitation services, including Acute Behavioural Unit and Geriatric Medical Assessment Unit, with close functional relationships between all
- Continue falls risk and bone health assessment and management in the hospital and outpatient settings, with potential for further liaison with other specialties for community access to prevention clinics e.g. with Endocrinology for bone health
- Continue to develop networks and referral pathways in partnership with the Primary Health Network for integrated primary care services to support older people in their home
- Infrastructure:
  - Ideally Aged Care Services would include a whole floor/precinct with acute geriatrics, aged care rehabilitation, Palliative Care, Acute Behavioural Unit, acute Geriatric MAU and Community Services all in close proximity, and close functional relationships with other related services
  - Ease of access to public transport and the carpark for frail older people needs to be considered.
- Emergency Department:
  - Expand the ASET service to include an advanced trainee geriatrician 5 days/week, a specialist Aged Care Nurse and increased allied health support to improve assessment and admission flow and admission avoidance, including a daily Short Stay Unit (SSU) review for frail older people presenting to the ED
  - Designated short stay ED beds for aged care, with appropriate facilities and provisions for frail older people.
- New or expanded models of care:
  - Expand HITH and PACS service, co-located with ED and closely integrated with ASET, SSU and MAU. There is the potential to increase this service to 10-15% of all inpatients with adequate resourcing and appropriate referral pathways and management
  - Expansion of the existing GRAFS service, including assistance with advanced care planning and implementation of a telephone advice line, to create a multi-disciplinary visiting service to RACFs, linked to HITH and other service providers, to increase hospital avoidance for up to 50% of this patient cohort.[336]
  - Expansion of resources for existing dementia care services to cope with increasing demand, with continued links to Hammondcare for RACF dementia care services
  - Introduction of an evidence based inpatient model for improved screening and management of delirium, appropriately resourced, to prevent or reduce delirium and its complications and reduce length of stay
  - Consider expansion of inpatient therapy services to provide weekend subacute rehabilitation to accelerate patient functional recovery and reduce length of stay
  - Provide additional resources for Geriatricians to improve capacity building with GPs for complex case management, e.g. with assessment and management of dementia, through shared community based clinics
  - Expansion of outreach services such as RCCP and Heartlink to RACFs, with an ongoing education program for RACF nursing staff
  - Expansion of geriatric surgical liaison services to general surgery, with the possibility of pre-operative geriatric assessment clinic for optimisation of older surgical patients and enhanced care planning prior to surgical intervention.[337] This would require geriatrician, nursing and Allied Health resources (for modified enhanced recovery after surgery program). International evidence suggests the anticipated reduction in length of stay will cover cost of the additional resources.
  - Increase resources for aged care outpatient clinics to provide at least 5 clinics per week, to allow more timely assessment and review and prevent hospitalisation

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[336] See ACI Evaluation of GFS model at: http://www.aci.health.nsw.gov.au/__data/assets/pdf_file/0020/262802/Evaluation-of-Geriatric-Flying-Squad.pdf

[337] A successful model is in place at St Guys and St Thomas' Hospitals, London, which "provides preoperative assessment for patients aged over 65 years with multiple complex co-morbidities or functional problems. Patients are optimised for anaesthetic and surgery. The team then follows the patient through the surgical admission, addressing medical, functional and discharge planning concerns." See URL: http://www.guysandstthomas.nhs.uk/our-services/ageing-and-health/specialties/pops/overview.aspx

- o Establishment of a care coordinator role for complex Aged Care patients who are at high risk of re-entering the hospital system to reduce avoidable hospitalisations and improve outcomes
- o Explore the potential for Geriatric service provision at Sydney/Sydney Eye Hospital to support demand for acute/and or sub-acute geriatric care, with provision of a geriatrician or general Physician on site
- o Explore the potential for a multidisciplinary rapid response Outreach service[338] to target community dwelling older patients that present to the ED with complex medical, functional and social issues, to provide short term acute and sub-acute interventions
- o Potential of expanding the LHD geriatric/rehabilitation footprint at the War Memorial Hospital Waverley site, alleviating space issues at the Randwick campus.

Anaesthesia and Pain Management

The Anaesthetics Department and Pain Management Department are complementary and interrelated services within the same management structure.

Current services

Anaesthetics:
- Anaesthesia for elective and emergency surgery in the operating suite and day surgical units
- Preadmission medical evaluation by specialist anaesthetists in preparation for anaesthesia
- Anaesthesia for medical imaging (MRI, CT, interventional radiology, Interventional Neuroradiology (INR), radiology and radiotherapy
- High quality anaesthetic equipment and monitoring for every anaesthetic
- Specialised lung, heart, brain, fluid balance and nerve monitoring, where indicated
- Specialised peri-operative pain relief services, with contribution from both Anaesthetics and Pain Management Departments
- Regular teaching and training activities, active peer review and effective QA processes

Pain:
- Acute and chronic pain services based in both the Outpatient Department and inpatient management as well as a continuum from young to older adults. The approach aligns with the NSW Agency for Clinical Innovation Pain Plan.
- A patient centred approach to pain management through a multidisciplinary and evidenced based management which focus on self-management of chronic pain. State of the art technologies are also utilised when appropriate.
- The Pain Department is a Level 6 service and is, according to the ACI NSW Pain Plan, one of 4 leading adult pain units in NSW tasked with additional roles including provision of complex pain management services, training of future pain physicians and support for less comprehensive Pain Services.
- Daily evaluation conducted by the Acute Pain Service with contribution from both the Pain Management and Anaesthesia personnel to produce the best possible pain relief and outcome after major surgery.
- 24 hour acute pain management service, including daily acute pain rounds and consultation for difficult acute and chronic pain problems
- Clinics are run on 4 days per week.
- At least 500 new patients are seen per year and another 2500 medical follow ups are seen in the Outpatient based Pain Clinic. The team also provides consultation and management to about 500 admitted patients per year with issues related to persistent pain.
- Recently established sub-acute pain clinic where patients with complex acute pain issues are monitored and managed to optimise their pharmacotherapy, prevent medication overuse and reduce the risk of them developing chronic pain.

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[338] Refer to Southcare Outreach Service as an example of a potential model:
http://www.seslhd.health.nsw.gov.au/TSH/services/southcare/documents/Southcare_Outreach_Service.pdf

Hospitals served:
- Wales Anaesthesia serves POWH and Anaesthetists are employed in both POWH and Sydney Children's Hospital Network; and also employed by Royal Women's Hospital.
- However, lists are mixed between the POWH and SCH. To provide a smooth uninterrupted services and ability to make joint decisions, anaesthetists work collaboratively under an agreement overseen by the joint Anaesthetics Executive Council (SCH and POWH representation).
- Anaesthetic services are provided to Eastern Heart Clinic under the contractual arrangement between POWH and Eastern Heart.

Hours of operation: 24/7

Staff
Includes staff specialists, fellows (provisional fellows, senior registrars), VMOs, registrars, specialist registered nurses, administrative/clerical staff

The department is staffed by 100 specialist anaesthetists and 32 senior anaesthetic trainees.

The Pain Department also includes clinical psychologist, physiotherapists, art therapist, research scientific officer, specialists in Rehabilitation Medicine, Internal Medicine, Psychiatry and Addiction Medicine.

Trends in patient demographics, activity and service delivery
- The medical service to the perioperative clinic and post-operative care is provided by the anaesthetists. The proposed expansion of perioperative services over the next 10 years will include need for a comprehensive perioperative medical service covering liaison with GPs and the Pain Managment service, to assist in optimal preparation of high risk patients and pre-operative assessment, along with coordination of post-operative care.
- Linked with this, potential for nurse-led pre-operative assessment clinics in an outpatient environment – pre-operative to ensure patient fitness to undergo a scheduled general anaesthesia and surgery (e.g respiratory function checked, relevant blood tests taken or reviewed; avoid unnecessary assessment of low risk patients and ensure necessary assessments for higher risk patients are completed before theatre scheduling).
- Expansion of services into new cancer care building.

Recommendations taking into account issues and challenges
- Infrastructure
  - Anaesthesia bays in each theatre to be sized to allow common anaesthetic procedures within, ie a patient in operating theatre and a patient in anaesthetic bay at the same time to be carried out, increasing efficiency of operating theatres. (Currently not possible: bays are not currently large enough for this).
  - Anaesthetics and Pain Management co-located, share office, meeting room facilities.
  - Access to storage
  - Space for on-call staff to rest when on cover at night
  - Physical space that would facilitate improved coordination of and communication in Anaesthetic service and Pain service.
  - Dedicated research space – offices for research coordinators and nurses; interview patients and sign up for trials,
  - Use hospital simulation facilities and recommend a centralised model.
- Staffing
  - Review management structure to include anaesthetic nurses with medical staff - anaesthetic nursing currently sit under surgery;
  - Increase in junior staffing required.
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Cancer and Haematology Services

Current services

- Cancer services vision is "to reduce the impact of cancer through research-led excellence in clinical care"[339]
- The Service operates on a cancer tumour stream model of care. Streams include breast, lung, sarcoma, head and neck, genitourinary, neurology, gastrointestinal, gynaecology oncology, Youth Cancer Services and Lymphoma.
- Service provided include:
  - Radiation Oncology
  - Medical Oncology
  - Palliative Care
  - Hereditary Cancer and
  - Haematology (including thalassemia, complex and/or comorbid clotting disorders, etc)
  - including state-wide Youth Cancer Services
- Cancer Service are provided as an inpatient, outpatient or in the community setting. The Bright Alliance (due for completion in 2016) will consolidate these outpatient services including radiotherapy, chemotherapy and clinics. In addition the service provides
  - Outreach clinics to ACT, Wollongong, Tamworth and RHW
  - MDT (stem cell transplant and collections) meetings with Port Macquarie and
  - Inpatient beds include
    - 10W Haematology (10 beds) and
    - 4E - Oncology (16 beds including 4 palliative sub-acute care beds)
- Service Level Agreements are in place for POWH to provide services to the RHW and SCH, with some apheresis provided to Prince of Wales Private Hospital's patients.
- Staff: Specialists, specialist registered nurses, biomedical engineer, technicians, radiation therapists, multi-disciplinary team co-ordinator, genetic counsellor, allied health professionals, and administrative/clerical staff, etc

Trends in patient demographics, activity and service delivery

Major trends in patient demographics include:

- Higher incidence of cancer for Aboriginal and Culturally and Linguistically Diverse (CALD) people and those from lower socioeconomic backgrounds
- More older people leading to higher number of people with cancer (both incidence and prevalence)
- Earlier detection of some cancers (e.g. breast, bowel, prostate) leading to higher incidence of these cancers
- Varied incidence for some cancers (e.g. lung cancer incidence decreasing)
- Increased preventative screening for hereditary cancers (particularly predisposition to bowel and breast)
- Increasing incidence and prevalence of adolescent and young adults cancers[340]
- Impact of lifestyle factors (e.g. obesity, smoking, inactivity, etc.) on cancer rates.

Major trends in service delivery include:

- Completion of The Nelune Comprehensive Cancer Centre in 2016 will:
  - Enable consolidation of outpatient services including radiotherapy, chemotherapy and clinics
  - Improved collaboration between SESLHD and research
  - Clinical trials centre creates opportunity for participation in early Phase 1 and 2 studies
- Increasing apheresis load (e.g. for acute myeloid leukaemia[341]) impacting on inpatient beds
- Increasing number of clinical trials
- Ongoing management of patients predominantly through outpatient services including direct and booked admissions triaged from the Haematology Oncology Day Centre.
- The move to outpatients treatment is increasing demand on community setting, such as the

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[339] Available at: http://seslhnweb/powh/services/cancerservices/default.asp Accessed 19 Feb 2016
[340] Cancer Institute NSW, 2012, Phase 1: Implementation of the Youth Cancer Networks Project in NSW and the ACT, Draft document
[341] Agency for Clinical Innovation - Blood and Marrow Transplant Network, 2013, NSW Model of Care for Acute Myeloid Leukaemia

Cancer Outreach Team

Issues and challenges
- Demand for cancer services will continue to increase due to the ageing population and the associated increase in incidence and prevalence of the disease and improvements in survivability.
- Many existing issues with outpatient services will be resolved with the completion of The Bright Alliance in 2016.
- Unable to move more inpatients to ambulatory care without outpatient service (including all support services i.e. Pharmacy, medical cover) provision 7 days per week.
- Inpatient infrastructure is not fit-for purpose in particular for immune-compromised, MRO isolation, age appropriate and palliative patients. There are no single rooms with ante rooms, bathroom shared by 10 beds, unsealed doors and windows and poor functioning air-conditioning, An estimated 40% reduced risk of severe adverse outcomes was noted when effective infection control practices that included protective isolation were implemented.
- Continue to provide transition services for Cancer and non-malignant from SCH to POWH.

Proposed strategic initiatives and recommendations
- Collaborating with Cancer Institute NSW and NSW Health to improve cancer outcomes for Aboriginal and Culturally and Linguistically Diverse (CALD) people and those from lower socioeconomic backgrounds[342]
- Continued promotion of healthy lifestyles (e.g. smoke-free environments, outdoor gyms, etc)
- Ongoing focus on cancer prevention, early detection and ambulatory services
- Build inpatient accommodation to meet future demand and enable best practice models of care with close proximity to core services (e.g. intensive care, nuclear medicine, Radiology services, The Bright Alliance)
- Promote use of Advance Care Directives
- Further development of research partnerships (e.g. bench-to-bedside and bedside-to-bench translational research), e.g. Translational Cancer Research Network (TCRN)
- Increased participation in clinical trials
- Deliver Adolescent and Young Adult inpatient and outpatient care across sub specialities, with paediatric and adult collaboration and with collaboration with multi-disciplinary teams.

Cardiac Services

Current services
- Cardiac Services incorporates the Departments of Cardiology and Cardiothoracic Surgery and Eastern Heart Clinic (a private cardiac catheterisation clinic which provides a full range of invasive cardiac diagnostic and interventional procedures).
- The services provided by Cardiac Services are unique:
  - Integrated public private service since 1991 with a single on-call team
  - Serving both Prince of Wales and SCH
  - Statewide service for lead extraction
- Inpatient services include the following SRGs and ESRGs:
  - 11 Cardiology
    - 113 Heart failure & shock
    - 119 Other cardiology
    - 115 AMI w/o invasive cardiac inves proc
    - 112 Unstable angina
    - 114 Non-major arrhythmia & conduction disorders
    - 116 Syncope & collapse
    - 118 Valvular disorders
    - 117 Coronary atherosclerosis
    - 111 Chest pain
  - 12 Interventional Cardiology

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[342] Cancer Institute NSW, 2016, NSW Cancer Plan: A statewide plan for lessening the impact of cancers in NSW. Available at: http://www.cancerinstitute.org.au/media/NSW-cancer-plan.pdf. Accessed 11 May 2016

- 129 Other interventional cardiology
- 123 Pacemaker procedures
- 122 Percutaneous coronary angioplasty
- 121 Invasive cardiac inves proc
  - o 42 Cardiothoracic Surgery
    - 421 Coronary bypass
    - 429 Other cardiothoracic surgery
- Outpatient services include
  - o POWH Cardiothoracic Preadmission / Perioperative Clinic
  - o Prince of Wales Cardiac Rehabilitation Service
  - o Prince of Wales Community Health Heartlink Service
  - o POWH Cardiology Clinic
  - o POWH Electrocardiography (ECG) Clinic
- Existing infrastructure provides all cardiac services on Level 3 of the Dickinson Building, adjacent to the co-located Eastern Heart Clinic with the exception of outpatient services located on Level 4.
- Staff: Specialists, junior medical officers, specialist registered nurses, enrolled nurses, perfusionists, technical assistants, and administrative/clerical staff, etc

Trends in patient demographics, activity and service delivery
- Demographics
  - o More than 48% of admissions are for people over 70 years, with people over 85 years making up nearly 12% of admissions
  - o The majority of patients are from the SESLHD (69%), with other patients coming from surrounding metro LHDs or rural areas.
- Public activity and service delivery
  - o Note: activity data related to the private service is not available on the NSW Health's planning tools
  - o Admissions have been variable between 2008/09 and 2013/14
  - o The speciality is mainly a planned service (67% separations) with other patients admitted from emergency.
  - o Most inpatients stay multiple nights (66%) with an average length of stay of 8.4 days and are high cost and complex (average NWAU of 4.52 and average Public Equivalent model of 4.86). Other patients are either day only (17%) or staying a single night (16%).

Issues and challenges
- Population ageing and increasing numbers of older people living with long term conditions will be the major driver for cardiac services e.g. expanding role of expensive cardiac devices in older patients
- Given the ageing population and people living with multiple long term conditions, there will be an ongoing need for interaction between services or shared management.
- Increasing numbers of obese patients, who tend to have a longer length of stay and require more support services for management
- People of non-English speaking background are not always offered and/or provided with health care interpreter service
- The expansion of paediatric cardiothoracic surgery at SCH
- Rural referral patterns may change as rural facilities develop own cardiac services however, it is likely some complex cases will continue to flow to POWH
- Some existing infrastructure is not fit for purpose including insufficient single rooms, shared patient facilities, insufficient storage space and a shortage of offices

Proposed strategic initiatives and recommendations
- Retaining the ideal structure of all aspects of the service in one place (the "Pod concept") including:
  - o Continued integration of cardiology, cardiac surgery and Eastern Heart Clinic
  - o Co-location of theatres, offices, associated laboratories (e.g. cardiac catheter laboratory, transoesophageal echocardiography (TOE), etc), ward (including the coronary care unit) with integration of services and information

- o Maintaining successful mix of public, private, adults and paediatric services
- Essential ingredients for the future of cardiac services:
  - o Co-location and integration of Pod concept of services
  - o Hybrid theatre and cardiac theatres
  - o Ongoing access to intensive care services for cardiac patients with multi-system failures
  - o Establishing a Heart Team to integrate care, treatment, rehabilitation, etc for overseas and/or older patients.
- Strengthen outpatient and community services in relation to heart failure to avoid emergency presentation and hospital admission
- Require improved teaching and learning facilities and access including
  - o point of care teaching facilities,
  - o multi-purpose teaching/meeting room and
  - o labs for staff, trainees and students from all clinical disciplines
- Other issues confronting the service include the need for parking, childcare, gym and retail

Clinical Support Services

Current services
- Clinical Support Services supply a wide range of non-clinical services that support the effective operation of clinical services at POWH, with service level agreements for a number of these services at other campus sites, including Eastern Suburbs Mental Health Service, SESLHD on site facilities, SEALS, SCH, and RHW.
- Services include:
  - o Waste disposal
  - o Goods distribution
  - o Medical gas cylinder management
  - o Mail distribution – internal and external
  - o Security
  - o Grounds cleaning
  - o Grounds landscaping (contracted service)
  - o Switchboard
  - o Telecommunications
  - o Linen distribution/collection
  - o Environmental Cleaning
  - o Porters (Internal transport)
  - o Building Maintenance (Engineering Services)
  - o Fire services (Engineering Services)
  - o Food services (HSS)

Trends in patient demographics, activity and service delivery
- Drivers of support services activity include increasing numbers of patients and increasing size of area to be covered
- Changes in technology and practice changes e.g. in infection control, result in greater storage needs
- The current waste transfer system is at capacity and restricts recycling opportunities
- There is increasing disposable and single use activity, e.g. disposable bedside curtains, resulting in increased waste disposal
- Increasing numbers of bariatric patients have placed increased demands for manual handling, bariatric equipment and its storage, etc.
- Shorter lengths of stay have increased flow, resulting in more cleaning, linen use, waste disposal, etc.
- Increasingly mechanical aides have been introduced to reduce manual handling risks
- There has been a changing workforce demographic, with greater numbers from NESB.

Issues and challenges
- Growth or changes in existing service delivery areas has the potential to impact on resource availability
- There is no central store on site, a small transition store can only hold goods in transit for 1-2

days. This means all operational Units need to hold working stock on site
- Lack of storage space in Units poses potential fire protection and cleaning issues
- Currently there are over 134 distribution points for mail, which requires manual sorting and collection and distribution and is inefficient
- Providing services to numerous facilities needs to be balanced with efficiencies.
- Cleaning requirements are impacted when offices are co-located with clinical areas, i.e. require same level and frequency of cleaning for infection control
- An expanded campus with increased numbers of beds, rooms, bathrooms, treatment spaces, etc. will potentially require increased staffing and may impact manual handling risks due to:
  - Increased cleaning requirements
  - Increased storage needs
  - Increased linen use and disposal
  - Increase distance required to transport goods and services, patients, waste, etc.
- Manual handling equipment requires storage and needs to be able to fit through doors, corridors and lifts, etc.
- Some services are more efficient if shared across the campus e.g. waste disposal, mail distribution, telephone systems
- Storage for cleaning waste and linen is inadequate and currently at capacity
- The loading dock facilities at Euroa and MHICU do not accommodate direct deliveries of linen from HSS, resulting in double handling
- Storage space for cleaning equipment is often limited or insufficient for new equipment
- There is a constant tension regarding level of service provided/cost recovery at non-SESLHD sites
- Security costs are increasing with the introduction of new technologies, e.g. swipe card access control points, cameras, duress alarms, CCTV
- Some security issues, e.g. refrigerator alarms are direct to security and should be directed to owner instead
- Staff and patient car parking at capacity, with 3 year waitlist for staff parking

Proposed strategic initiatives and recommendations
- Review contractual and funding arrangements for the provision of clinical support services to campus partners
- All internal movements need to be level, weather protected and suitable surfaces, with lifts and corridors and doorways able to accommodate large manual handling equipment and loads
- Cleaners rooms need to increase in size to accommodate new technology and equipment
- Provide central location to process cleaning and manual handling equipment, (e.g. washer and dryer, chargers) and for storage of larger equipment
- Explore potential use of antimicrobial surfaces and coatings
- Adequate storage needs to be provided in workplaces
- Expansion of waste/waste transfer facilities, with a common site for all facilities on campus
- Delivery/loading dock requires:
  - Central location
  - Safe access for trucks
  - At grade
  - Separate from public traffic
- All buildings need to be able to receive and dispose of food, linen and waste
- Lifts need to have capacity for large equipment and heavy loads
- Ensure adequate space for holding/repackaging clean linen in an easily accessible, central area that can be accessed from all facilities, with a suitable loading dock
- Consider location of offices in relation to clinical areas so as to avoid extra cleaning requirements
- Investigate new technologies, e.g. microfiber cleaning systems, mobile work stations, antimicrobial surfaces, task management systems for portering and cleaning e.g. central control desk for requests, switchboards and paging systems
- Ensure durable, cleanable surfaces in patient areas
- Explore new security systems that are compatible with existing systems, e.g. portable Wi-Fi duress alarms
- Consider adequate storage of bariatric equipment

- Explore options for paperless office to reduce paper waste
- Review access to patient bedside TVs and telephones with introduction of Wi-Fi and use of portable devices
- Training facilities for clinical support staff on campus with increased access to computers for non-clinical workforce, e.g. computer kiosks
- Consider expanded parking requirements in redevelopment of campus
- Limited capacity for teaching and research due to difficulties associated with data collection and statistical assistance

Colorectal Surgery

Current services
- Colorectal Surgery encompasses a range of conditions including the following ESRGs:
  - 431 - Major S and L Bowel Procs incl Rectal Resection
  - 439 - Other Colorectal Surgery
  - 544 - Digestive System Diagnoses incl GI Obstruction
- The speciality provides:
  - Inpatient services are provided in acute overnight inpatient beds as well as the Perioperative Unit accommodates some day only admissions
  - Outpatient Services include POWH Colorectal Clinic
- Staffing includes senior and junior medical staff, nursing, with multidisciplinary support from other allied health

Trends in patient demographics, activity and service delivery
- Demographics
  - Approximately 28% of admissions are for people over 70 years, with people over 85 years making up 7% of admissions
  - The majority of patients are from the SESLHD (79%), with other patients travelling predominantly from surrounding metropolitan areas.
- Activity and service delivery
  - Admissions have been trending up between 2008/09 and 2013/14 (2.7% annual growth rate)
  - The speciality is evenly split between planned and admissions through the ED.
  - Most inpatients stay multiple nights (50%) with an average length of stay 8.5 days, with a high NWAU (2.73) and high cost and complexity (average PEM 3.07). Other patients are day only (32%), with the remainder staying a single night
  - Strong links for integrated care are required with
    - oncology
    - geriatrics
    - gastroenterology
    - upper gastrointestinal surgery
  - Other important functional relationships exist with:
    - Medical imaging

Issues and challenges
- Population ageing and increasing numbers of older people living with long term conditions will be the major driver for surgical activity
- Given the ageing population and people living with multiple long term conditions, there will be an ongoing need for interaction between services or shared management.
- Increasing numbers of obese patients, who require more support services for management
- People of non-English speaking background are not always offered and/or provided with health care interpreter service
- Operating theatre equipment is ageing, out-of-date and/or needs replacement
- Limited capacity for teaching and research due to difficulties associated with data collection and statistical assistance

Proposed strategic initiatives and recommendations
- Refer to Proposed strategic initiatives and recommendations for Surgery

Dental and Maxillofacial Surgery

Current services
The Department of Dental and Maxillofacial Surgery operates as a shared service between POWH and SCH (SCH), with POWH being the host. It provides tertiary and quaternary dental and maxillofacial services, including:
- A full range of outpatient and inpatient maxillofacial surgical treatments
- Dental treatment for radiation oncology patients
- Orthodontic treatment for cranio-facial and cleft palate patients
- Orthognathic surgery for cranio-facial, cleft palate and sleep apnoea patients
- Fabrication and fitting of facial prostheses (eyes, ears, noses) for patients following major head and neck surgery
- Outpatient Services include POWH Dental Preadmission / Perioperative Clinic
- Outreach maxillofacial services at Sutherland Hospital for patients requiring complex dento-alveolar surgery.

Dental treatment is provided for adult and paediatric patients who are referred by departments in both hospitals, where referring clinicians and dental staff feel that the patients would be best cared for in a hospital environment.

Adult and paediatric patient referrals are made via outpatient clinics, inpatient wards and the ED at POWH and SCH. The service also treats adults and neonates referred from the RHW. Referrals are also received from private dental and medical practitioners, where patients require treatment in a tertiary hospital setting due to the presence of underlying co-morbidities.

The Department maintains an after-hours on-call roster to cover dental and maxillofacial emergencies that present to POWH and SCH.

The service also provides treatment to adult and paediatric patients who are referred from other Sydney hospitals which have no dental or maxillofacial services, and who require treatment under general anaesthesia in emergency situations.

Dental and Maxillofacial Surgery encompasses a range of conditions including the following ESRGs:
- 471 Dental extractions & restorations
- 513 Maxillo-facial surgery
- *Note: Some Dental and Maxillofacial Surgery may be mapped to other Service Related Groups such as Plastic and Reconstructive Surgery depending on the coding of the patient.*

Education and training role includes:
- One registrar.
- Entry to the program requires degrees in both dentistry and medicine.
- Teaching and training is provided to other departments in the hospital on an ad hoc basis; e.g tutorials to ED Staff at POWH and SCH.
- Delivering training at the Sydney Dental Hospital for post-graduate Orthodontic trainees from the University of Sydney.

Staffing includes senior and junior medical staff, nursing, with multidisciplinary support from other allied health.

The Dental and Maxillofacial Clinic is currently situated on level 2, High St Building, with excellent space well-lit with large windows, which is really important for dental and maxillofacial procedures. Within the Clinic, there are four surgeries, x-ray facilities, sterilising room, dental laboratory, waiting room, staff room and a general and senior staff office.

The vast majority of work, both inpatient and outpatient, is carried out in this clinic.

Trends in patient demographics, activity and service delivery
- Demographics
  - Approximately 7% of admissions are for people over 70 years
  - The majority of patients are from the SESLHD (42%), with a further 27% of patients travelling from Illawarra Shoalhaven LHD.
- Activity and service delivery
  - Admissions are relatively low (approximately 100-200 separations) with an overall upward trend between 2009/10 and 2014/15.
  - The speciality is mainly a planned service (86% separations) with the remainder from the ED.
  - Most inpatients stay multiple nights (46%) with an average length of stay 3.8 days, with some staying a single night (35%) and the remainder being day only.

Linkages with other departments:
Staff from the Department participate in a number of multidisciplinary clinics, including
- Head and Neck Clinic
- Craniofacial Clinic
- Cleft Palate Clinic
- Paediatric Oncology Long Term Follow-up Clinic.

The Department receives services from the following POWH Departments:
- Medical Imaging
- Infectious Diseases
- Pharmacy
- Theatres

Strong links for integrated care are required with oncology, ear, nose and throat, head and neck surgery, plastic and reconstructive surgery and SCH.

The Department currently utilises the services of private radiology practices. This is principally for the provision of Cone Beam CTs, which are required for surgical planning. Once a Cone Beam CT has been acquired for the campus (NB: plans are underway with the SCH Foundation), there will be no longer be a need to access this service privately.

Issues and challenges
- Given the ageing population and people living with multiple long term conditions, there will be an ongoing need for interaction between services or shared management.
- Increasing numbers of obese people, who require more support services for management
- People of non-English speaking background are not always offered and/or provided with health care interpreter service
- There will be ongoing demand for high turnover cases, both day only and extended day only
- Operating theatre equipment is ageing, out-of-date and/or needs replacement
- Maxillofacial surgery currently utilises the services of private radiology practices. This is principally for the provision of Cone Beam CTs, which are required for surgical planning. Funds have been earmarked by the SCH Foundation for the purchase of the CT scanner. However, purchase and installation is dependent on the timing/availability of funding.

Proposed strategic initiatives and recommendations
- Refer to Proposed strategic initiatives and recommendations for Surgery
- Continued general reconstructive and maxillofacial surgery service to surgical oncology specialties will require increased access to operating theatre time.
- Continuation of the shared maxillofacial surgical service arrangement with the SCH, seamlessly transitioning young adults with genetic or chronic conditions from the paediatric to the adult service.
- It is essential that any proposed relocation for the clinic is very carefully considered, taking into account the equipment and procedural nature of the work.

Dermatology

Current services
- The Prince of Wales Dermatology Department services in-patients and out-patients from the whole of the South Eastern Area Health Service. The department manages a range of dermatological problems and specialises in the care and treatment of skin cancer, the most prevalent skin problem in Australia.
- Dermatology services include:
  o Inpatient care of Dermatology patients
  o An inpatient consultative service to POWH, including ED, and shared care of certain conditions with other specialties
  o Inpatient consultative services for the Royal Women's Hospital and weekly outpatient clinic services with SCH
  o A specialised HIV Dermatology service to the Albion Street Clinic
  o A consultative and dermatologic surgical care services to Justice Health
  o Transitional care, in consultation with SCH, of adolescent to young adulthood patients with Epidermolysis Bullosa, Psoriasis, Eczema / Chronic atopics, Connective tissue disorders (i.e. Dermatomyositis / Lupus)
  o Diagnostic skin biopsies
  o Specialised technology, including a Photo-Therapy Unit offering both Narrowband UVB – Full Body, and Hand and Foot UVB treatments, and Photodynamic therapy for treatment of superficial skin cancers.
  o Vascular laser services
- Outpatient clinics include:
  o General Dermatology clinics
  o Dermatology Surgery Clinic
  o Patch Testing Clinic
  o Hair and nail specialist consultation clinic
  o Vascular Laser Clinic
  o Combined Radiotherapy / Plastics / Dermatology MDT(monthly)
- The department is actively involved in medical training and in Dermatological research through the teaching of dermatology registrars, interested JMO's and medical students. It also provides training to visiting local medical officers and medical professionals working within the Justice Health system
- Staffing includes 6 Specialist Dermatologists, 2 Dermatology Registrars and 2 accredited Dermatology nurses.

Trends in patient demographics, activity and service delivery
- Patient demographics
  o Australia has the highest incidence of skin cancer in the world per head of population. Two in three Australians will be diagnosed with skin cancer by the time they are 70
  o Melanoma is the third most common cancer in Australian women and the fourth most common cancer in men, and the most common cancer in Australians aged 15-44 years.[343]
  o Increased number of patients with comorbidities e.g. Bariatric Patients have an increased risk of cutaneous infection and ulceration, Renal dialysis patients are noted to have specific dermatologic considerations including increased skin fragility, renal failure induced pruritis, increased risk of cutaneous ulceration / haemorrhage, Kyrle's disease / perforating collagenosis. Increasing numbers of patients on immunosuppressive medications for the management of chronic illnesses e.g. arthritis are exposed to increasing risks of skin cancers and skin infections.
  o A number of new targeted therapies (biologic agents) have cutaneous side effects that will require dermatological care.
- Service delivery trends
  o The majority of dermatology department activity occurs in the ambulatory care environment. This activity is expected to increase with the increasing numbers of patients with dermatological comorbidities and the ageing of the population, with increased incidence of skin cancers and skin fragility requiring wound care in older people. The

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[343] Cancer Council Australia URL: http://www.cancer.org.au/about-cancer/types-of-cancer/skin-cancer.html

       majority of new melanoma cases are diagnosed in people aged 60 years and over[344]
- o Inpatient admitted activity is not predicted to increase significantly over time, however the department provides a large number of consultations to other specialties and this is expected to continue
- o Some emergency presentations and admissions could be avoided with a resourced day stay unit to accept direct referrals to prevent, provide early diagnosis and pro-actively manage dermatological conditions to avoid escalation. An informal Emergency Dermatology clinic is currently in place from mid-December until February when outpatient services are restricted. There is opportunity for this to be extended for emergency presentations with appropriate staffing and facilities in place
- o Integrated care, with multi-disciplinary clinics where care is directly patient-centred, rather than speciality-centred, is seen to be the way of the future, with cost and time savings for the hospital and improved care for patients.

Issues and challenges
- The growing and ageing population will increase dermatological presentations. Aging creates issues with:
  - o Increased risk of cutaneous skin malignancy
  - o Increased skin fragility / wound care
  - o Increased potential for trauma and cutaneous ulceration
- It is expected the incidence of melanoma skin cancer will generally increase with age. The age-standardised incidence rate increased from 27 cases per 100,000 persons in 1982 to 48 per 100,000 persons in 2011,[345] equivalent to over 185 people in the POWH catchment area.
- The number of people living with multiple long term health conditions will potentially increase dermatological presentations
- Improved health literacy has resulted in increased presentations for treatment, e.g. for skin lesions
- Currently outpatient clinics are at capacity due to staffing limitations, however there is a considerable waiting list for outpatient appointments (approx. 6 months for general clinics)
- The current infrastructure is not suitable for integrated care, the best location to provide dermatological consultative services would be in an appropriately private area with good natural light available for examination of the skin.
- Clinic rooms cannot be used as procedure rooms due to infection control issues and availability of equipment, which limits throughput of procedures
- There is a lack of multi-disciplinary clinics run in conjunction with other specialties, creating siloed care and preventing integrated care
- There are currently no publically funded services for cosmetic medicine, however some treatments, such as ablative laser for facial tumour removal, or therapeutic endovenous laser for varicose veins, should be considered for public funding

Proposed strategic initiatives and recommendations
- Most Dermatology patients will continue to be seen in the ambulatory setting
- The establishment of a dedicated Dermatology area is required, with:
  - o good natural light in all consultation rooms
  - o increased dedicated procedure rooms for surgical procedures and interventions, to improve infection control and increase the number of procedures performed by providing equipment on site
  - o Access to a bath within the unit for therapeutic interventions
  - o Purpose built rooms for safe storage and usage of specialised equipment e.g. phototherapy/UV, vascular laser, photodynamic therapy, patch testing
- A dedicated Day Stay Dermatology Unit, co-located within the dermatology area, which will:
  - o Prevent ED presentations
  - o Prevent avoidable admissions
  - o Minimise hospitalisation and reduce length of stay by allowing on site wet dressings, dressing changes, Phototherapy and day procedures
  - o Prevent admission by allowing patients to receive treatment then go home at the end of

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[344] Cancer Institute of NSW. Melanoma in NSW URL: http://www.cancerinstitute.org.au/cancer-in-nsw/cancer-facts/melanoma
[345] Cancer Australia: Melanoma URL: http://melanoma.canceraustralia.gov.au/statistics

each day

- o Further integrate service delivery, preventing delays between and within consultations and procedures
- o Serve as a nucleus for the development of an integrated care model in the future, where multidisciplinary clinics can be run in conjunction with Plastics, Wound Care, Rheumatology, Immunology, Genetics etc.
- o Manage people with chronic conditions to prevent admission
- o Improve health pathways/workflow guidelines
- o Improve length of stay and discharge times
- o Provide for direct admissions
- o Prevent 'siloed care' and enhance integrated care
- o Enable better care for those socially disadvantaged
- o Cater for renal dialysis patients
- The establishment of a dedicated Pigmented Lesions clinic, which would enable patients with potentially life-threatening melanoma to be seen in a dedicated clinic and in a timely and appropriate fashion. Early diagnosis significantly improves prognosis and would prevent avoidable deaths and premature mortality
- Establishment of a Biologics Clinic to provide a dedicated therapeutic treatment clinic for patients with severe dermatologic disease e.g. severe refractory psoriasis, hidradenitis suppurativa and autoimmune bullous dermatoses
- Review of patients in Emergency with a diagnosis of cellulitis to exclude other dermatological complications or sequelae. This would reduce delay in diagnosis and therefore reduce length of stay for patients, and assist and facilitate the transfer of care of patients to other facilities such as Hospital in the Home or other specialties when required. Co-sharing of management with infectious diseases could also be facilitated
- Provision for future changes in treatment techniques and advances in technology, such as vascular laser, ablative laser and endovascular laser
- Review of staffing to increase capacity for outpatients clinics and reduce extensive waiting lists
- Integrated patient / client records to promote seamless care across community, primary and tertiary service components.
- Upskilling of GP's and continued training of medical students and JMOs by Dermatologists.

Diving and Hyperbaric Medicine

Current services
POWH provides the only public Hyperbaric Medicine Service in NSW offering treatment for decompression illness and the provision of Hyperbaric Oxygen Therapy (HBOT). The Service has capacity to treat patients who are critically ill and require Intensive Care (ICU) level support.

There are two other units in the State but neither can provide comprehensive care:
- A private facility in Mascot that can only treat outpatients, has a very limited capacity to treat emergency patients and cannot treat intensive care patients, and
- The Royal Australian Navy(RAN) facility at HMAS Penguin which has limited specialist support except in the area of diving injuries, where security considerations restrict civilians on base, and logistical considerations severely restrict the capability to treat intensive care patients to such an extent that it is not practical to do so. When off-line the RAN facility utilises the POWH facility. In the event of a major submarine accident where submarine crew would require recompression, the POWH facility would be required to treat injured submariners.

The Hyperbaric Chamber and associated facility was upgraded at the end of 2011, with planning taking into account projected increase in activity over 20 years.

Trends in patient demographics, activity and service delivery
- It is estimated the Prince of Wales Hyperbaric Service sees about 70% of the patients treated in the State annually[346]. It provides both inpatient and outpatient services. Over the last 20 years activity has grown steadily. Although the facility is physically able to accommodate an increase in patient treatment numbers, the service is currently running at maximum capacity,

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[346] Bennett, M, 2015, email advice received 11 November 2015

limited by nursing FTE's.
- Emergency conditions treated include:
  - Divers with decompression illness
  - Necrotising soft tissue infections and gangrene
  - Air embolism – as a complication of medical treatment or misadventure in the community.
  - These conditions cannot be treated anywhere else in the state. For these emergencies, the Service operates 24/7 cover.
- Non-emergency conditions treated include:
  - Diabetic wounds including diabetic gangrene and ulcers
  - Non-healing wounds
  - Soft tissue and bony radiation injury.
- Each year, the hyperbaric service treats patients from a wide range of surgical and medical specialties including vascular, ENT, gynaecology, orthopaedics, plastics, endocrinology, immunology and toxicology. Furthermore, each year the unit treats a number of patients from the Intensive Care Unit (mostly from the POWH Adult ICU), all of whom present special challenges. Many of these patients have been transferred to the POWH specifically for HBOT.
- The service has the physical capacity to accommodate bed-bound inpatients suffering problem wounds and infections without removing the patient from the bed, ICU patients and problem wound patients suffering from multi-drug resistant colonisation or infection, requiring segregation, can also be treated.
- Being a state-wide service and the only public chamber and emergency service in the State, dictates uninterrupted service provision.
- The service currently runs 3 sessions per day in the multiplace chamber, with the capacity for 5 sessions per day contingent on provision of additional nursing staff. The facility also has a capacity for eight further patient sessions in the two monoplace chambers each day
- Key clinical interfaces are with vascular surgery, endocrinology (diabetic services) intensive care and emergency. However it is not necessary for the Hyperbaric Unit to co-locate with these departments. All medical specialists in the Hyperbaric Unit are Anaesthetists or Emergency Medicine Specialists. Proximity to anaesthetics functional base would be preferred. The service should also be located in close proximity to the intensive care.

Location Considerations:
- The chamber itself is over 70 tonnes, from a practical point of view this means that the chamber needs to be located on the ground floor. The current chamber has multiple concrete pillars sunk to bedrock in order to support its weight.
- The location of the Hyperbaric Unit at the POWH is in a "hot floor" area. The "hot floor" concept is based on collocating key clinical and diagnostic specialties to promote synergy and optimise the services of key equipment and clinical staff. The Hyperbaric Unit has access to the helipad, key clinical and clinical support services such as operating theatres, intensive care unit, procedural rooms and ED which is advantageous for the service in the provision of continuity of care.
- There are significant plant items associated with the chamber including two large and noisy compressors. These need to be situated near ventilated areas (i.e. outside) in a location where the sound does not interfere with clinical operations. There are dedicated oxygen and power supplies to the unit. Specific fire control regulations, unique to hyperbaric facilities, will dictate where the chamber can be located.
- The current facility has good clinical office space, good clinical space and good space for teaching.

Drug and Alcohol Service

(NOTE: The Drug and Alcohol Service is currently developing an Integrated Health Services Plan (2017-2027), due for completion 2016).

Current services

Outpatient D&A Services have been located at The Langton Centre site in Surry Hills, with limited access to outpatient clinics at POWH (restricted to one 3 hr hospital outpatient clinic, one 3 hour Mental Health-D&A comorbidity Clinic at Euroa, and weekly participation in Pain Department Outpatient Clinic).

Consultation Liaison Services are provided in-reaching to the ED, inpatient wards, and to Acute Mental Health Units.

Trends in patient demographics, activity and service delivery
- Substance use plays a significant contributing factor to hospital presentations – estimated that between 20-40% of all hospital presentations (ED and admissions) are D&A related. These individuals often have a range of complex health and social issues, highlighting the need for an integrated care approach that includes access to D&A services.
- An appropriate clinical model for responding to D&A related hospital presentations is through D&A CL services and subsequent outpatient / ambulatory follow up.
- Location of clinical services on site at Randwick would enable better follow-up and access for patients.

Issues and challenges
- Separation of D&A Services from the main hospital campuses at SSEH, POWH and RWH is detrimental to the optimal care of SESLHD patients.
- Whilst D&A Services has been steadily increasing their staffing profile in hospital settings over the past 5 years through D&A CL staffing (accounting now for over 10% of the D&A staffing profile), almost all outpatient follow up of patients from hospital is directed to the 'off-site' Langton Centre in Surry Hills. This serves as a major barrier to patient follow-up – compared to if outpatient services were co-located at the Randwick campus, through increased stigma (being referred to a 'stand-alone' D&A Service increases the stigma for many patients in accessing these services), poor advertisement of Langton Centre location in SESLHD information (e.g. website, consumer literature), and poor access to public transport for patients attending TLC (this will only partially be rectified through the light rail).
- Infrastructure: Lack of accommodation on Randwick campus for consultation liaison and ambulatory / outpatient clinics.

Proposed strategic initiatives and recommendations

The 'stand-alone' location of The Langton Centre at Surry Hills is suitable for services such as OTP (methadone, buprenorphine) and forensic (MERIT, Adult Drug Court) services, however, D&A Services would prefer to be able to be able to provide some core D&A services (e.g. outpatient withdrawal, counselling, case management, pharmacotherapies, specialist consultation services) for clients, particularly those using alcohol and prescription drugs at the Randwick campus, reducing the stigma and inconvenience for patients attending follow up. This would also enable closer collaborations with relevant specialty services including Mental Health, ED, Pain Medicine, Gastroenterology, Infectious Diseases, Women's and Adolescent Health

Similarly, 'co-morbidity' clinics such as 'mental health – DA', 'prescription drug/pain/D&A', 'gynaecology-D&A', and adolescent health (e.g. links to the Bright Alliance Level 7 Community are proposed) would be better located at Randwick site enabling patients more convenient access to services. At present for example, a mental health comorbidity client must travel between outpatient MH services at Randwick and D&A Services at Surry Hills to access services.

Location of approximately 10-20 clinical staff with access to approximately 6-10 consulting rooms (2-4 rooms suitable for use by medical officers and nursing staff, 4-6 by counsellors) on a full time basis is required to accommodate D&A Services at Randwick campus.

It is recommended that Drug and Alcohol Services is included in the proposed Integrated Health and Social Care hub/s to serve Botany and South Maroubra areas, targeting local populations with identified needs to provide integrated care in the community.

Emergency Department

Current services
- Emergency Department services at POWH are a role delineation level 6 service providing emergency medical and transfer services for adults. The department has 35 beds, including a resuscitation area, acute, sub-acute and a short stay unit. A 4 bed Psychiatric Emergency Care Centre (PECC) is located adjacent to the ED.
- The ED provides emergency support for obstetrics and gynaecology patients for the RHW
- It is also the designated provider of Emergency services to inmates of Long Bay prison.
- Paediatric Emergency services are provided by the SCH, co-located on campus.
- Current models of care include:
  o Fast track area for ambulant, non-complex patients
  o Nurse practitioners for advanced practice nursing
  o Short Stay Unit (SSU) of 10 beds to provide short term (less than 24 hours) assessment, course of therapy or observations for suitable patients who no longer need emergency care
  o ED Review Clinic, an extended practice nurse-led service to provide follow up short-term management of patients with low risk differentiated conditions suitable for rapid discharge
  o Aged Care Assessment team (ASET) 7 day service, to ensure the most appropriate and coordinated care for older patients (>70 years) admitted to the ED, and appropriate referral to other health professionals on discharge
- Staffing includes staff specialists, medical officers, nurse practitioners, registered nurses, allied health and administrative.

Trends in patient demographics, activity and service delivery
- ED activity has shown an upward trend over recent years, and this is likely to continue, largely due to the growing and ageing population. People aged over 70 will account for nearly 25% of projected emergency presentations
- Despite the increasing numbers of presentations, the average length of stay has decreased, reflecting the efficiencies made by the Department and a reduction in access block
- In 2013/14, 27% of patients arrived by ambulance
- Approximately 80% of presentations are from the local catchment area, with almost 50% of all presentations from residents of Randwick LGA in 2013/14
- In 2013/14, over 60% of presentations were admitted to hospital, with the elderly accounting for over 40% of these admissions
- The greatest growth is expected to be in triage levels 2 and 3
- The Short Stay Unit is currently at capacity

Issues and challenges
- A range of factors contribute to the ongoing increase in ED presentations, including:
  o Population growth, in particular the increasing age of the population and consequent increase in the prevalence of age related disease and comorbidities
  o Increasing prevalence of chronic disease across the spectrum of ages and the resultant higher levels of comorbidities and potential for complications
  o The availability of general practice, particularly after hours providers, as an alternative to ED services
  o Shifts in community attitudes to the use of ED as a convenient and affordable 'one stop shop' for treatment of minor injuries and illness, particularly where medical imaging, pathology and/or specialist medical consultation may be required
  o A shortage of publicly funded nursing homes in the area.
- POWH is not a trauma centre. Nearby trauma services are available at St Vincent's Hospital, Royal Prince Alfred Hospital and St George Hospital. As per the Ambulance Service of NSW

Protocol T1[347], POWH is bypassed for major trauma. However, POWH will continue to receive minor to moderate trauma cases via ambulance and occasionally major trauma by private transport. This creates issues for:
- o Meeting training requirements for a variety of specialties e.g. Emergency, ICU, surgery
- o Integrated person centred care, whereby patients are transferred back to POWH for specialty services, e.g. spinal unit.

- Access to inpatient beds for patients requiring admission from ED is out of the control of ED, however access block potentially increases both ED length of stay and waiting times for ED assessment. The use of ED or SSU beds for patients waiting for admission results in a shortage of beds for emergency patients
- A number of the new service models implemented in ED over recent years (such as Fast Track, ASET, Physiotherapy practitioner and review clinic) require experienced and specialised staff
- There is no general Medical MAU at POWH and no general physicians on staff
- Short stay beds are currently at capacity
- Effective management of elderly people requires quarantined short stay beds with specialised facilities, e.g. high-lo beds, easy access to bathrooms, good lighting, close proximity to nursing stations / good visibility for people with cognitive impairment / confusion etc.
- There are large numbers of acute mental health patients presenting to ED, there are only 4 PECC beds available, and access block for inpatient mental health beds is common
- There are a large number of presentation of women with pregnancy and gynaecological related issues, due to the co-location of the RHW on campus.
- There is increasing demand from drug and alcohol toxicology patients, with no safe, designated area to manage them
- There is currently only one isolation room, and this cannot meet demand
- Waiting room congestion occurs as there is no discharge or carers and family waiting area
- The transport for discharged elderly patients is inefficient and causes backlog
- Care of patients from Long Bay prison presents challenges for privacy, safety and access as prisoners are shackled and require a number of guards to accompany them. There is no designated area for prisoners in the waiting or treatment areas

Proposed strategic initiatives and recommendations
- ED services will be maintained at the current role delineation level 6
- POWH will remain designated a 'local hospital' for trauma services
- Adult ED services may be co-located with Paediatric ED services operated by SCH. This would allow efficiencies of service such as a shared drop off zone, ambulance arrival hall, car parking, clerical reception, teaching areas, staff rooms etc. The location of ED will need to consider important functional relationships for both sites, e.g. ICU.
- Investigate a rapid entry pathway to the RHW for emergency obstetric patients, including direct admissions from GP referral
- Explore the potential for a general medical MAU, co-located with ED and potentially staffed by ED medical and nursing staff, to provide an alternative to treatment in the ED for undifferentiated, complex, chronic, non-critical medical conditions[348]
- Investigate opportunities, with appropriate staffing resources, to provide further ED avoidance strategies and improve integrated care, to prevent and decrease the demand for emergency presentations. For example:
  - o Expand existing outreach services to the community such as Heartlink, RCCP and GRACS, to better maintain these patients in the community. Early identification and management of any deterioration in patient condition will reduce their need for ED presentation and hospital admission
  - o Expand HITH and PACS services, and preferably have them co-located with the ED for efficient referral processes
  - o Acute specialty access clinics. There have been two modes of care suggested for this:

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[347] NSW Institute of Trauma and Injury Management. Ambulance Service of NSW Pre- hospital management of major trauma, Protocol T1 URL: http://www.aci.health.nsw.gov.au/get-involved/institute-of-trauma-and-injury-management/clinical/trauma_system/nsw_trauma_system/pre-hospital_and_retrieval/ambulance_service_of_nsw
[348] See NSW Health: Models of Emergency Care July 2012 URL: http://www.health.nsw.gov.au/Performance/Publications/ed-model-of-care-2012.pdf

- One clinic adjacent to ED used by all specialties after ED assessment
        - Individual clinics managed by specialties with direct referral from GPs, other specialists or other health care providers
      o Direct admissions to ward for agreed conditions, bypassing ED
- Improvement in throughput and the effective functioning of the ED by:
  o Streamlining patient processing in ED for both non-admitted and admitted patients through: timely access to investigative services (such as radiology, CT, and pathology); timely results and reporting to facilitate decision making; and improved IT systems that support clinical practice
  o Timely access to inpatient beds, i.e. reduced access block
  o Introduction of additional staffing positions can improve work flows and efficient operation of the ED e.g. expanded use and role of nurse practitioners, specialist ED physiotherapist, increased nursing and allied health support in ASET team, ancillary positions which support a multidisciplinary team.
  o Expanding and improving the functional layout of the infrastructure to meet demand and provide efficiencies of throughput by:
    - Increasing the number of treatment spaces
    - Increasing the number of resuscitation bays
    - Increasing the number of isolation rooms, with dedicated rooms for toxicology patients and obstetric patients
    - Increasing the number of short stay unit beds, with quarantined beds for aged care patients
    - Adequate bariatric beds, bathroom and equipment
    - Safe assessment room for higher risk mental health patients
    - Designated area for access and assessment and management of prisoners
    - A large waiting area, with good connectivity to the rest of the hospital
    - A separate waiting area for carers and families or patients waiting for discharge

Endocrinology

Current services
- The Department of Endocrinology & Metabolism (DEM) provides services to clients across the lifespan with a range of disorders including Diabetes (type 1 and type 2 diabetes, gestational diabetes), Osteoporosis and metabolic bone disorders, Parathyroid & calcium disorders, Hypertension due to adrenal disorders, Infertility, Polycystic ovarian syndrome, Thyroid disorders, Menopause, Lipid disorders, Pituitary disorders, Growth disorders, and Tumours of an endocrine gland.
- Services provided include inpatients, a consultation service and/or conjoint care to other specialties and to the RHW and SCH with strong links to NSW Health Pathology through a conjoint appointment, the Diabetes Centre, which provides a 5 day per week service and on call services out of hours, outpatient services, participation in primary and secondary prevention strategies, and Community outreach via phone consultations and to Yarra Bay Community Centre.
- The majority of services are provided on an outpatient basis, with people managing their conditions in the community with the support of their primary health practitioner and the DEM when required. Outpatient services include:
  o Endocrine clinics
  o Podiatry services, including a monthly multi-disciplinary high risk foot service
  o Diabetes clinics, including a dedicated Type 1 clinic for transition care patients
  o Adult Genetic Metabolic Disorders Clinic
  o Diabetes Educator Services (daily and on call)
  o Aboriginal diabetes clinics in partnership with Aboriginal Health Education Officers
  o The DEM provides undergraduate and postgraduate training to medical, nursing and allied health students and is an adviser and trainer for primary health providers. It is also a participant in translational research activities.
- Sources of referral include the ED, primary health providers for complex patients, and other specialists/ departments on the Randwick campus for consultation or management of an endocrine comorbidity.
- Staffing includes Endocrinologists, Diabetes educators, specialised nursing staff, podiatry and dietetics staff, and administrative staff, with close links to other allied health, Medical Genetics

Services, surgical services (neurosurgery, vascular, orthopaedic, thyroid, bariatric), aged care and diagnostic services.

Trends in patient demographics, activity and service delivery
- Patient demographics
  - Prevalence and incidence of common conditions treated by DEM:
    - Diabetes: In SESLHD in 2014, 8% of residents aged 16 years+ were diagnosed with diabetes or high blood glucose, an increase from 5.2% since 2004.[349] Diabetes prevalence increases with age and socioeconomic disadvantage and is more prevalent among Aboriginal people. Diabetes can lead to acute and chronic complications, including cardiovascular disease, visual loss, renal failure and amputations
    - Obesity: In SESLHD in 2014, 43% of residents aged 16 years+ were overweight or obese, an increase from 40.4% in 2004[350]. People living with obesity are at increased risk of Type 2 diabetes as well as other diseases including cardiovascular disease, respiratory failure, osteoarthritis, lymphoedema with ulcers and reproductive disorders in women. Obesity is more frequent in lower socio-economic populations
    - Osteoporosis: In 2011-12, the prevalence of osteoporosis in Australia among those over 50 years was estimated to be 23% for women and 6% for men,[351] however these figures are expected to increase as the population ages and people survive for longer. The more debilitating and costly osteoporotic fractures requiring admission occur in the hip and spine and more commonly occur in the aged. For the catchment population, this equates to over 23,000 patients with osteoporosis in 2022 rising to over 26,000 in 2027.[352]
    - Endocrinology and Cancer:
      - Thyroid nodules and thyroid cancer prevalence is increasing. There is also an increase in thyroid autoimmune disease. Thyroid cancer is now the seventh most common cancer in Australia
      - Breast Cancer is the commonest cancer in women who do not smoke. Survivors now routinely undertake hormone deprivation therapies that have a number of comorbidities including menopausal symptoms and osteoporosis
      - Similar secular trends are seen in elderly men with prostate cancer undertaking androgen deprivation.
- Service delivery trends:
  - Inpatient activity is not predicted to increase significantly over time and admissions are reserved for short-term interventions for the seriously ill
  - Ambulatory-based activity is expected to increase dramatically for diabetes, obesity, and other endocrine disorders and associated conditions e.g. osteoporosis. Poor data exists for predicting the scope of this activity, however taking into account the ageing of the population and the predicted increases in the chronic conditions which are the foci of the DEM, there is potential for a 30% increase in DEM ambulatory activity by 2020 [353]
  - The incidence of diabetes is expected to continue to increase into the future, potentially at a lesser rate if changing positive population behaviours, the positive impacts of healthy lifestyle programs and other primary health initiatives succeed, however this may be offset by other changes such as the aging of the population and patterns of migration from populations with high prevalence of diabetes
  - Most Type 2 Diabetes is managed in primary care, however increasingly specialised care is required for early detection and optimal management of complications of diabetes when severe events occur (i.e. an acute intercurrent event such as surgery, acute

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[349] Health Stats NSW. Diabetes or high blood glucose by LHD, persons aged 16 years and over, NSW 2014. URL: http://www.healthstats.nsw.gov.au/Indicator/beh_bmi_age/beh_bmi_lhn?&topic=Overweight%20or%20obesity&topic1=topic_bmi&code=beh_bmi
[350] Health Stats NSW. Overweight and Obesity by LHD, persons aged 16 years and over, NSW 2014. URL: http://www.healthstats.nsw.gov.au/Indicator/beh_bmi_age/beh_bmi_lhn?&topic=Overweight%20or%20obesity&topic1=topic_bmi&code=beh_bmi
[351] Australian Institute of Health and Welfare, "A snapshot of osteoporosis in Australia in 2011", May 2011
[352] See detailed response from DEM to Technical Papers 1 and 2.
[353] See detailed response from DEM to Technical Papers 1 and 2.

diabetes exacerbation or acute diabetes complication such as foot infection)
- o The need for surgery and admission for diabetic foot ulcers can be reduced with activity to prevent and provide early management of diabetic foot ulceration
- o Type 1 diabetes accounts for approximately 10% of the total numbers but represents around 20% of caseload for diabetes. Management requires 24 hour access to medical support and multi-disciplinary management. 10% of adult patients and 20% of paediatric type 1 patients are on insulin pump therapy, requiring specialised support and supervision, and this proportion is expected to increase. Management by primary care is not recommended at diagnosis or for ongoing care for Type 1 Diabetes
- o Effective diabetes management can reduce the need for renal dialysis

Issues and challenges
- Increasing rates of endocrine and metabolic disorders:
  - o Currently there are 4 inpatient beds for persons with acute exacerbations of endocrine and metabolic disorders. This demand is anticipated to increase due to the increasing age and complexity of patients who are surviving longer.
  - o The increasing prevalence of overweight and obesity in the SESLHD population means incidence of diabetes and other comorbidities will rise, with implications for outpatient and inpatient services. By 2027 it is estimated there will be over 267,200 adults overweight or obese in our catchment population[354]
  - o There is no model of care for the management of obesity and its complications on the POWH campus, with an inequity of access to bariatric services state-wide. Currently only privately insured or self-funded individuals are able to access bariatric surgery for management of Type 2 diabetes
  - o There will be an increasing need for purpose built bariatric rooms and suitable equipment for morbidly obese patients
  - o Poorly controlled type 2 diabetes can result in greater complications and longer lengths of stay. By 2027 it is estimated there will be over 37,600 persons with diabetes or high blood glucose in our catchment population[355]
  - o There is unmet demand for ambulatory care podiatry for "at risk" patients in the community who do not have diabetes e.g. patients with peripheral vascular disease or mobility restricting foot deformity.
  - o Responsibility for case identification and management of osteoporosis is decentralised and random. Diagnostic services are spread across the campus
  - o There is currently no fracture liaison service at POWH. With the aging population, increasing numbers of people will require identification and management of osteoporosis and osteoporotic fracture prevention and treatment. It is estimated that by 2027, there will be over 42,300 persons over 50 with osteoporosis in our catchment population[356]
  - o At present there is no coordinated management of thyroid disease at POWH
  - o At present there is no coordinated management of older (i.e. non reproductive) women and men with cancer and endocrine disorders induced by hormone deprivation therapies.
  - o People with debilitating mental health problems including schizophrenia and severe depression are at greater risk of obesity and obesity related complications such as diabetes as a result of their medication

Proposed strategic initiatives and recommendations
- The majority of activity will continue to be undertaken in an Ambulatory environment, with DEM consultation and review clinics, Diabetes Centre services and allied health activity, with acute diabetes exacerbation events managed under the care of DEM and DEM personnel providing inpatient consultations to campus hospitals as required
- The model proposed for Endocrinology is as part of an Ambulatory Care Precinct with all components of the DEM co-located, with flexible clinic design, consideration of bariatric needs, adequate storage, technology enabled, and with key functional relationships to other related specialties, ED, support services and allied health
- Implementation of rapid access crisis clinics for diabetes and endocrinology co-located within this precinct, appropriately resourced and with clerical support, where deteriorating patients

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[354] See detailed response from DEM to Technical Papers 1 and 2
[355] ibid
[356] ibid

can be directly referred for review, thus reducing ED presentations and preventing deterioration and complications

- Improved Podiatry support and access within POWH. There is currently no Podiatry department, and a Podiatrist is employed directly by the Department of Endocrinology to provide treatment for diabetic foot complications and avoid hospitalisation
- Priorities include:
    o Diabetes:
        - Development of a collaborative transitioning program for young adults with endocrine and metabolic disorders to the adult health service environment[357,358]
        - Continuation of a specialist multi-disciplinary diabetes team for ongoing management of type 1 diabetes, including endocrinologist, diabetes educator and dietitian, to ensure reduced renal, eye and macrovascular complications and therefore less requirement for dialysis and amputations
        - Increased allied health support, including:
            - Daily podiatry availability, with clerical support, to meet ACI guidelines for high risk foot care.[359] Currently POWH Diabetes Centre has podiatry available 24.5 hours a week. Foot ulceration is a serious diabetic complication
            - On site optometry services with specialist equipment for assessment and screening for diabetic retinopathy
            - A dedicated exercise physiologist: physical activity is an important aspect of type 1 diabetes care and has an impact on blood glucose level stability; and obese patients with type II diabetes often have comorbid musculoskeletal disease and require tailored exercise prescription
        - Ongoing interaction with Aboriginal Health Workers and the local Aboriginal community for culturally acceptable services to promote early diagnosis, improved self-management, and fewer hospitalisations, e.g. joint clinics for comorbidities to streamline services, reduce duplication and improve the convenience to the Aboriginal client and their supporting family
        - Funding for a Diabetes Educator to address the management of mental health patients with diabetes, working in a collaborative model with Endocrinology
    o Obesity:
        - A more proactive approach to treating obesity and its related complications according to established and verified models of care in an ambulatory setting In partnership with other stakeholders primarily Primary Health Networks and GPs.[360]
        - Services for psychological problems/disordered overeating and nutritional advice need to be enhanced in order to meet NHMRC guidelines. This does not include anorexia and bulimia
        - Explore options for equitable access to evidence based bariatric surgery for the management of type 2 diabetes in patients with obesity class 11 with comorbidities and class 111,[361] with multi-disciplinary follow up in the ambulatory setting
        - Provide adequate bariatric infrastructure (bariatric rooms and appropriate equipment) for the increasing number of bariatric patients
    o Osteoporosis:
        - A Fracture Liaison service to focus on secondary fracture prevention, with early identification and intervention for those at risk of further fracture, and ongoing monitoring in the community setting. Fracture prevention programs have shown a reduction in the number of subsequent fractures, usually the more expensive hip, spine or pelvis fractures, with both cost benefits to health services and quality of

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[357] Agency for Clinical Innovation, Key Principles for Transition of Young People from Paediatric to Adult Health Care, 2014
[358] MedPage Today quoting Diabetes Care Journal (1/3, Boyle) , Dec 2015
[359] The NSW Agency for Clinical Innovation Standards for High Risk Foot Services (HRFS) in NSW. URL: http://www.aci.health.nsw.gov.au/__data/assets/pdf_file/0004/248323/ACI_Standards_for_High_Risk_Foot_Services.pdf
[360] Clinical Practice Guidelines for the Management of Overweight and Obesity in Adults, Adolescents and Children in Australia (2013) URL: https://www.nhmrc.gov.au/guidelines-publications/n57
[361] NRMRC, Clinical Practice Guidelines for the Management of Overweight and Obesity in Adults, Adolescents and Children in Australia

life benefits for the patients involved. [362,363,364]

- DEM have developed new software that risk stratifies osteoporosis and fracture risk using radiology reports at the time of their first fracture. A Fracture Liaison nurse is required to coordinate care, with the GP as their point of primary care, and referral to the DEM for specialist review if required.
  - o Endocrinology and cancer
    - Thyroid care:
      - Development of a multi-disciplinary campus-wide Thyroid Care Centre of Excellence, to ensure correct diagnosis and initiate treatment or reverse precipitating factors. Initial management may be as an inpatient, with follow-up in an ambulatory setting in partnership with primary care.
      - DEM will continue to monitor the administration of radioactive iodine for thyroid cancer patients, in an appropriate environment (purpose built isolation-room) for 3-5 days post dose until they are discharged
    - Breast and Prostate cancer
      - Developing a joint care model for symptomatic management of endocrine disorders induced by hormone deprivation therapies for cancer treatment.

Engineering services

Expansion and redevelopment of clinical services has implications for engineering services such as electrical, fire systems, hydraulics, medical gases, etc.

On the Randwick Hospitals and Health Services' Campus there are multiple engineering services and systems of varying age and compatibility. Many of these are shared and interconnected between multiple buildings and organisations – a change in one building can impact the whole campus.

Based on the scale of the changes proposed in this Plan, a preliminary discussion was held with engineering services. In summary:
- All engineering services are maintained through an ongoing process of scheduled servicing, repairs, renovations and replacement,
- Ongoing condition audits enable preparation and prioritisation of site specific issues,
- Parkes Building has significant issues with a range of engineering services (e.g. fire safety, air conditioning, water pressure, medical vacuum, etc.), and
- Generators are at capacity.

Ear, Nose and Throat

Current services
- Ear, nose and throat encompasses a range of conditions including the following ESRGs:
  - o 89 Other procedural ENT
  - o 481 Tonsillectomy & adenoidectomy
  - o 482 Myringotomy w tube insertion
- The speciality provides
  - o Inpatient services in acute overnight inpatient beds as well as the Perioperative Unit accommodates someday only admissions
  - o Outpatient Services at POWH include:
    - Ear Nose and Throat Clinic
    - Ear Nose and Throat Preadmission Clinic
- Staffing includes senior and junior medical staff, nursing, with multidisciplinary support from other allied health

Trends in patient demographics, activity and service delivery
- Demographics

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[362] Hunter Medical Research Institute, Fracture Liaison Service Cost Study, Draft economic analysis, November 2015
[363] ACI:NSW Model of Care for Osteoporotic Refracture Prevention. URL:
http://www.aci.health.nsw.gov.au/__data/assets/pdf_file/0003/153543/aci_osteoporotic_refractu.pdf
[364] Nakayama A., Major G., Holliday E., Attia J., Bogduk N. "Evidence of effectiveness of a fracture liaison service to reduce the re-fracture rate, Osteoporos Int., 09 Dec, 2015 (published online)

- - Just over 16% of admissions are for people over 70 years, with people over 85 years making up less than 4% of admissions
  - The majority of patients are from the SESLHD (68%), with other patients coming predominantly from surrounding metro LHDs.
- Activity and service delivery
  - Admissions have been trending up between 2008/09 and 2013/14 (1.4% annual growth rate)
  - The speciality is largely a planned service (66% separations) with the remainder from the ED.
  - Most inpatients are day only (45%), with a further 42% staying a single night, the remaining patients stay multiple nights with an average length of stay of 4.7 days
  - Wait list for surgery is large with a mix of highly complex surgery and high volume cases
  - Strong links for integrated care are required with
    - Head and neck
    - Plastic surgery
    - Oncology

Issues and challenges
- Population ageing and increasing numbers of older people living with long term conditions will be the major driver for surgical activity
- Given the ageing population and people living with multiple long term conditions, there will be an ongoing need for interaction between services or shared management.
- Increasing numbers of obese patients, who require more support services for management
- People of non-English speaking background are not always offered and/or provided with health care interpreter service
- Inefficiencies of services such as outpatients and theatres
- Management of wait list
- Operating theatre equipment is ageing, out-of-date and/or needs replacement
- Limited capacity for teaching and research due to difficulties associated with data collection and statistical assistance, staff and facilities

Proposed strategic initiatives and recommendations
- Refer to Proposed strategic initiatives and recommendations for Surgery

Gastrointestinal and Liver Unit

Current Services
- The Gastrointestinal and Liver Unit at POWH is a busy clinical department underpinned by a strong research and teaching ethos that provides specialist physician services for all aspects of acute and chronic Gastroenterology and Hepatology, including both inpatient and outpatient care and gastrointestinal endoscopy.
- The Unit functions both to serve its local community and as a tertiary referral centre. Hospitals serviced include POWH and RHW, with consulting and endoscopic support also provided to SCH.
- The stand-alone Endoscopy Suite (which was re-named the Billington Centre in 2004 after the Unit's inaugural Director, Dr Brian Billington) utilises gastroscopy, colonoscopy, endoscopic retrograde cholangiopancreatography, capsule endoscopy technology and endoscopic ultrasound for the diagnosis and treatment of gastroenterological conditions.
- The Gastrointestinal and Liver Unit is actively involved in a range of basic and translational research studies and clinical trials of potential new therapies for various gastroenterological and liver disorders and collaborates with other institutions both nationally and internationally. The Unit contributes to teaching undergraduate medical students of the University of New South Wales at all phases of the medical curriculum, as well as elective medical students from other medical faculties both within Australia and around the world.
- Hours of Operation:
  - Endoscopy:
    - Monday – Friday 8am – 5pm
    - 20 X endoscopy clinics weekly
    - Endoscopic retrograde pancreatocholangiography/pancreatico-biliary

- interventions and endoscopic ultrasound require anaesthetic support and, since this is not available in the Billington Centre, these are performed in the Murnaghan Centre (Urology Operating Theatre) or the Randwick Campus Operating Suite.
      - Other patients requiring anaesthetic support (on account of co-morbidities or intolerance of endoscopy with sedation alone due to visceral hypersensitivity) are also required to have their procedures performed in the Murnaghan Centre or the Randwick Campus Operating Suite.
      - After-hours emergency procedures are performed in the Randwick Campus Operating Suite.
    - o Outpatient clinics
      - 2 x weekly physician paracentesis clinics in Billington Centre
      - 1 x weekly nursing Fibroscan clinic in Billington Centre
      - 2 x weekly physician Gastroenterology and Hepatology clinics in Outpatients Department
      - 1 X weekly physician Gastroenterology and Hepatology clinic in Billington Centre
      - 10 X nursing Hepatology clinics in Billington Centre
      - 2 X weekly nursing Inflammatory Bowel Disease clinics in Billington Centre
      - 1 x weekly PEG (percutaneous endoscopic gastrostomy) management clinic in Billington Centre
- Patients:
    - o Most inpatients are referred from emergency presentations
- Staff:
    - o Gastroenterologists, Hepatologists, specialty registered nurses and enrolled nurses (in endoscopy and outpatient Hepatology and Inflammatory Bowel Disease clinics, but no specialty ward nursing staff) , technical assistants (for disinfection of endoscopes) and administrative/clerical staff

Trends in patient demographics, activity and service delivery
- Patient demographics
    - o Source of referral: patients are predominantly referred from the ED. Therefore, increases in the numbers of emergency presentations (e.g. GIT bleeding, inflammatory bowel disease, obstructive jaundice, portal hypertension, liver failure, hepatocellular carcinoma), including of older and more complex patients with a range of medical co-morbidities, will flow on to greater demand for Gastroenterology and Hepatology with regard to all aspects of current service delivery, namely inpatient and outpatient care and endoscopy.
    - o Older and co-morbid patients: increased numbers of older patients and those with medical co-morbidities will result in an increased requirement for anaesthetic support for endoscopic procedures. Availability of such anaesthetic support is currently limited.
- Service delivery trends:
    - o Increasing numbers of procedures are now being performed endoscopically that would previously have been performed surgically, e.g. mucosal resections, interventions to establish biliary drainage.
    - o The burden of liver disease due to hepatitis C virus infection in Australia is projected to triple by 2030. While the introduction of new treatment regimens for people with hepatitis C virus infection will, over time, reduce the number of patients who will cirrhosis, existing patients with already established cirrhosis, as well as those who choose not to undergo antiviral therapy and the proportion of treated patients for whom such treatment will prove ineffective (up to 15%), will continue to require management of all the potential complications of chronic liver disease, including portal hypertension, hepatocellular carcinoma and liver failure.
    - o Increasing numbers of hepatocellular carcinoma patients requiring local ablative therapies, including thermal treatments and transarterial chemoembolization, which are performed as an inpatient and require inpatient post-procedure monitoring

Issues and Challenges
- While Gastroenterology and Hepatology inpatients are nominally cared for on Parkes 7 East Ward (an ENT and Plastic Surgery Ward), these beds only accommodate 23% of all Gastroenterology and Hepatology inpatients with the remaining patients (outliers) being cared

for in more than 10 wards scattered throughout the POWH. These outliers are at risk of not receiving patient centred care and complications due to the fragmented service and lack of specialist Gastroenterology and Hepatology nursing expertise.

- Outpatient Clinics are also fragmented, leading to lack of patient familiarity and confusion.
- Storage in the Billington Centre is at capacity. In addition, there is an ongoing requirement for good ventilation for storage of chemicals used in procedures, and an airflow cabinet for storing scopes
- Due to a limited number of procedure rooms in the Billington Centre and inefficiencies related to the fact that endoscopic procedures need to be performed at different locations if anaesthetic support is required, there is a waiting list of up to 500 patients at any given time.
- Existing waiting rooms and recovery space in the Billington Centre are combined, this is distressing for patients, does not afford patient privacy and/or an ideal model of care
- Patients requiring anaesthetic support (e.g all endoscopic retrograde cholangiopancreatography (ERCPs), and some patients with co-morbidities) must be transferred to Murnaghan or Randwick Campus Operating Suite for their procedures, with up to 20% of patients initially considered suitable for the Murnaghan centre being rescheduled to the Randwick Campus Operating Suite because of the severity of their illness/complexity of the case/anaesthetic issues. There is no ready access to the Randwick Campus Operating Suite for such cases, resulting in delays that impact on both patient outcomes and costs.

Proposed Strategic Initiatives and Recommendations
- Short stay unit: Billington Centre projected activity should be conducted in a single dedicated short stay unit. This would consolidate all planned high volume endoscopic procedural activity, including that requiring anaesthetic support, and incorporate all Gastroenterology/Hepatology physician and nursing outpatient clinics into a dedicated unit, include appropriate physical layout for delivering best practice care, ensure patients have improved and reliable access to procedures, improved service efficiency in terms of procedure room and bed utilisation, ensure access to anaesthetist support.
- Creation of a joint gastrointestinal services[365] [366] including Gastroenterology/Hepatology Medicine and Gastrointestinal and Hepatobiliary Surgery with a designated combined medical and surgical ward. This combined ward would build nursing expertise and integrated, patient-centred care. Notably, this very system operated highly effectively and

General Surgery

Current services
- General surgery encompasses a range of conditions including the following ESRGs:
  - 549 Other general surgery
  - 547 Thyroid procedures
  - 543 Appendicectomy
  - 545 Inguinal & femoral hernia procedures Age>0
- The speciality provides:
  - Inpatient services with acute overnight inpatient beds plus Perioperative Unit accommodates some day only admissions
  - Outpatient Services include
    - General Surgery Clinic - POWH
    - Perioperative Clinic - POWH
  - There are no community, home or outreach services.
- Staffing includes senior and junior medical staff, nursing, with multidisciplinary support from other allied health, and HITH/PACS services

Trends in patient demographics, activity and service delivery
- Demographics
  - Approximately 25% of admissions are for people over 70 years, with people over 85

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[365] University College of London Available at: https://www.uclh.nhs.uk/OurServices/ServiceA-Z/GI/Pages/Home.aspx. Accessed 10 February 2016
[366] South Western Sydney LHD, 2014, Gastroenterology and Liver Clinical Stream Service Development Priorities 2014 – 2018. Available at: https://www.swslhd.nsw.gov.au/pdfs/servDev_Gastro_Liver.pdf. Accessed 10 February 2016

making up over 4% of admissions
- o The majority of patients are from the SESLHD (76%) and local metro catchment areas, with a small percentage from rural areas
- Activity and service delivery
  - o Admissions have trended upwards between 2008/09 and 2013/14 (3.5%)
  - o The speciality has mostly planned separations (62%) with the remainder from the ED.
  - o Most inpatients are stay multiple nights (52%) with an average length of stay 8.5 days, with some day only (27%) and the remainder staying a single nights
  - o Of the patients staying multiple nights there has been a significant increase in the number of patient episodes being partly provided as Hospital in The Home
  - o Wait list for:
    - Surgery [patient numbers and average wait]?
    - Outpatient clinics [patient numbers and average wait]?
  - o Strong links for integrated care are required with:
    - Aged care
    - ED
    - Perioperative Unit
  - o Other important functional relationships exist with:
    - Medical imaging
    - Oncology
    - Gastroenterology

Issues and challenges
- Population ageing and increasing numbers of older people living with long term conditions will be the major driver for general surgical activity
- Given the ageing population and people living with multiple long term conditions, there will be an ongoing need for interaction between services or shared management.
- There will also be increased demand for teaching and research
- There is ongoing and increasing trend towards high turnover cases, both day only and extended day only
- Increasing number of minimally invasive cancer cases
- Increased need to accommodate abdominal conditions, soft tissue tumours and common surgery such as hernias gallstone disease, etc.
- Need to clarify indicators for robotic surgery
- Need to perform research in relation to robotic surgery
- Increasing numbers of obese patients, who tend to have a longer length of stay and require more support services for management
- People of non-English speaking background are not always offered and/or provided with health care interpreter service
- Operating theatre equipment is ageing, out-of-date and/or needs replacement

Proposed strategic initiatives and recommendations
- Refer to Proposed strategic initiatives and recommendations for Surgery

Genomics/ Clinical Genetics

Current services
Prince of Wales Hospital and Health Services and the RHW do not have Genomics or Clinical Genetics service.

Sydney Children's Hospital Network has a Clinical Genetics Service, with clinicians based at Randwick campus. This is not a shared service with the other hospitals on campus. Refer to SCH plan for further information.

SEALS (NSW Health Pathology) provides molecular genetics and cytogenetic testing services. The service provides genetics screening and exome sequencing services for all clinical services at SCH, oncology services at RHW and for the Familial Cancer service at POWH. There is an agreement between NSWHP and the Garvan Institute of Medical Research (located at Darlinghurst) whereby

SEALS genetic pathologists take responsibility for whole genome sequence interpretation and laboratory supervision for the recently formed Genome.One service at the Garvan Institute for Medical Research.

Trends in patient demographics, activity and service delivery
- Developments over the past 10 years in genetic and genomic technologies are driving changes in international clinical practice.
- There is rapidly emerging understanding of the genetic basis of many health conditions and the increasing ability to predictively identify inherited risk for many complex conditions, combined with the impact of such genetic conditions on individuals and families.
- Until recently, the molecular genetic testing approach to the diagnosis of symptomatic individuals was carried out by testing one or a few genes at a time. The advent of new technologies, termed genomic testing, which includes whole exome sequencing (WES) and whole genome sequencing (WGS), has allowed genetic variation to be detected down to single nucleotide differences across the genome.
- Genomic testing has resulted in an exponential increase in the number of possible laboratory tests available and subsequently the number of diagnoses. In the past 15 years, the cost has drastically reduced, as has the capacity to generate results. Results from genetic testing are available now in days rather than many months.
- Every subspecialty will be wanting to access genomic medicine e.g right test for right group of patients, appropriate pharmacological treatments for conditions
- With increasing provision of population genetic screening, through both public and private sector modalities, the demand for genetic counsellors to support individuals and families faced with decisions emanating from the results of the tests will inevitably increase.

Proposed strategic initiatives and recommendations
- Genomics/Clinical Genetics be considered for potential as a shared service between SCH, POWH and RHW.
- Business case be prepared for the development of Genomics/Genetics services accessible to the POWH and RHW.

Head and Neck Surgery

Current services
- Head and neck surgery includes the following ESRGs:
  - 451 - Thyroid Procedures
  - 459 - Other Head and Neck Surgery
- The speciality provides inpatient and outpatient services including POWH Cancer Services - Head and Neck Multidisciplinary Team.
- Staffing includes senior and junior medical staff, nursing, with multidisciplinary support from other allied health

Trends in patient demographics, activity and service delivery
- Demographics
  - Just over 22% of admissions are for people over 70 years, with people over 85 years making up less than 3% of admissions
  - The majority of patients are from the SESLHD (60%), with other patients coming predominantly from surrounding metro LHDs.
- Activity and service delivery
  - Admissions have been showing a significant upward trend between 2008/09 and 2013/14 (5.2% annual growth rate)
  - The speciality is overwhelming a planned service (99% separations).
  - Most inpatients stay multiple nights (56%) with an average length of stay of 5.6 days and are high cost and complexity (average NWAU 3.11 and average Public Equivalent Model of 3.18), with the remaining patients staying a single night
  - Strong links for integrated care are required with ear, nose and throat, plastic surgery and oncology

Issues and challenges
- Population ageing and increasing numbers of older people living with long term conditions will be the major driver for surgical activity
- Given the ageing population and people living with multiple long term conditions, there will be an ongoing need for interaction between services or shared management.
- Increasing numbers of obese patients, who require more support services for management
- People of non-English speaking background are not always offered and/or provided with health care interpreter service
- Operating theatre equipment is ageing, out-of-date and/or needs replacement
- Limited capacity for teaching and research due to difficulties associated with data collection and statistical assistance, staff and facilities

Proposed strategic initiatives and recommendations
- Refer to Proposed strategic initiatives and recommendations for Surgery
- Continued general reconstructive service to surgical oncology specialties including head and neck surgery.

Infectious Diseases

Current services
- The Department of Infectious Diseases provides inpatient, outpatient and consultative services to patients with a variety of acute and chronic viral and bacterial infections, including a multi-disciplinary HIV service for chronic and complex patients. The HIV Clinical fellow also provides clinical services to Long Bay Correctional Facility and The Albion Centre. In addition, Infectious Diseases manages the Hospital Antimicrobial Stewardship program at POWH and provides consultative advice and support for the Program to the RHW as well as phone advice to the Sydney/Sydney Eye Hospitals, provides substantive support to the Hospital Infection Control Services as well as to Staff Health, and Infectious Diseases staff are on-call to assess high risk occupational exposures and provide follow-up. The Director is also program lead for Standard 3 of the Safety and Quality Health Care Service Standards. The department plays a major role in workforce development in Infectious Diseases as well as teaching and training of a variety of staff and students.
- The inpatient ward is shared with Respiratory on Dickinson 4, with approximately 10% of patients managed as outliers. The majority of inpatients are emergency admissions. A large proportion of Infectious Diseases activity is in the provision of inpatient consultative services to the hospital with more than 700 unique patient consults annually (and many repeat and phone consultations).
- There is one General Outpatient's clinic per week, conducted in Outpatients, which also includes follow-up of patients receiving antibiotics through Hospital in the Home. There are two HIV clinics weekly, conducted in the clinic rooms on DB4. Drop-in clinics for patients or for Staff Health are also conducted in the DB4 Clinic Rooms.

Trends in patient demographics and service delivery
- The number of admitted patients, consults and OPs has been trending upwards and is likely to continue due to the increasing complexity and ageing of patients
- ALOS could increase because of this complexity
- The POWH catchment has a significant burden of HIV and chronic viral hepatitis (HBV and HCV), with many of these patients from marginalised or socially disadvantaged communities. These patients are living longer with chronic disease and greater complexity
- The NSW HIV Strategy 2016-2020 directs that people with complex medical, psychiatric and social care needs are case managed by a multi-disciplinary team and those with less complex needs are managed by primary care
- Presentations for potentially preventable admissions for cellulitis and UTI has shown a significant upward trend between 2001/02 – 2013/14, with pneumonia and influenza remaining stable. Cellulitis is predicted to be the 5th highest ESRG for presentations and bed days by 2027.
- It is predicted that septicaemia will be in the top 5 medical ESRGs by NWAU by 2027. Infectious Diseases management of these patients has been shown to improve outcomes and

reduce costs for these patients

Issues and challenges
- Infectious diseases inpatient beds are at capacity, with a large number of patients managed as outliers and a growing number of consultations required by other services
- There is a current waitlist for urgent referrals of up to one week
- Many presentations to ED for acute viral and bacterial infections, such as influenza, pneumonia, cellulitis and pyelonephritis (potentially 1 in 3) and chronic bacterial infections requiring prolonged IV antibiotic treatment could be avoided with a daily outpatient infection review clinic, including direct admission from clinic to ward or HITH if required, and with strong links to tertiary care
- There is potential for a reduction in inpatient admissions and average length of stay for this cohort of patients with greater access to outpatient review and HITH
- The incidence of new HIV infections has remained stable however the need for complex case management has and will continue to increase
- Changes in the treatment and management of HCV requires a change to a community based model of care for assessment and management[367]

Proposed strategic initiatives and recommendations
- Continuing outreach consultation to Justice Health and The Albion Centre
- Continuing Hospital Antimicrobial Stewardship and support for Hospital Infection Control Services, Staff Health and Occupational exposure
- Improving hospital avoidance and integrated care with a new model of care:
  - Infectious Diseases model of Integrated Care:
    - Restructure of service model to include two multi-staffed teams on an alternating day basis to allow daily inpatient review, inpatient consults, acute outpatient assessment and community support
    - Expansion of Infectious Diseases and HIV review Outpatient clinics from 3 to daily weekday clinics, with possible expansion to weekend and 12 hour service
    - An expanded HITH service with infectious diseases specialist review
    - A telephone advice line for triage of patients suitable for direct GP referral to clinic
    - The provision of a fever clinic in Influenza season
    - Community education of GPs and other providers on conditions relevant to the new model of care
    - Community based Hepatitis Assessment and Treatment (iCHAT): a Department of Infectious Diseases and HARP Unit partnership for the diagnosis and management of hepatitis B and C; using a community based GP and nurse led model of care; and prescription of new direct acting antivirals. This requires the placing of appropriately trained nursing staff in community general practices with links to specialist advice and treatment for patients with HCV.
  - Improvements:
    - improved direct access to specialist assessment and multi-disciplinary management of viral and bacterial infections
    - reduced ED presentations e.g. for cellulitis, influenza, UIT, chronic bacterial infections, HCV, medically and socially complex HIV, fever of unknown source and from returned travellers by direct access to clinics
    - increased capacity for urgent referrals
    - integrate with an expanded HCV service (see model of care description above)
    - have an emphasis on shared care with GPs
    - reduce length of stay by timely follow up in Outpatients
  - Requirements:
    - Priority access to radiology and pathology testing
    - Physical resources of:
      - 3 Outpatient clinic rooms, 2 treatment bays and waiting area, co-located with inpatient ward
      - A Fibroscan for liver scanning in the community (essential for hepatitis

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[367] See NSW Agency for Clinical Innovation Hepatitis C: A guide to current treatment and care. URL: http://www.aci.health.nsw.gov.au/__data/assets/pdf_file/0005/239765/ACHI75455_HepatitisC_Guide-web.pdf

> assessment)
- IT systems that link hospital and community based services
- Education and training resources
- Additional medical, nursing and allied health staff

Information Technology

Current Status
- Information Technology Systems in clinical health settings comprise of hardware, software and networks. Advances in each of these areas in recent years means managing healthcare via electronic methods is increasingly possible. Hand held technology (thin clients) can be used to connect practitioners and service providers to Wi-Fi networks and in turn connect them to the hardware and software they deliver.
- POWH uses Information Technology to manage patient bookings, hold patient information and monitor the patient journey. They are yet to advance to using systems to manage work flow and team functionality.
- POWH Information Technology is managed by the Local Health District. The key clinical information system is the Electronic Medical Record (EMR). The EMR receives patient demographic data from the Patient Administration System (PAS) and clinical data from attached modules. Examples of these modules are the Patient Flow Sheet, FirstNet (ED specific), SurgiNet (operating theatre specific), Outpatient Scheduling, Electronic Medications Management, Community Health and Outpatient Care, Mental Health and Drug and Alcohol. In addition to the EMR, there are a number of localised information systems across the district which hold clinical information which have no linkage to the Electronic Medical Record. Examples are the Electronic Record Intensive Care (ERIC) used in the ICU and the Cancer Patient data system, MosaiQ.
- A number of EMR modules allow direct data entry and therefore are paperless. However, there are still a large number of paper based systems at the POWH such as the Patient Record. Paper will begin to be scanned into the system in late 2016 so it can viewed electronically. In time it is the intention of the Information Technology Directorate to enhance EMR modules to electronically accept all patient data. The District Information Management Services Directorate has a dedicated support team that manages and configures the EMR. There are other teams that provide support for applications in addition to information technology operations who ensure that the ICT infrastructure is in place to support the clinicians in their day to day work.
- The POWH is investing in Integrated Care which requires sophisticated I.T. solutions and support. In the Integrated Care model, the patient's personal health record needs to be 'in the cloud'. This record compiles data from outpatient, inpatient, GP and specialist appointments in addition to holding or providing access to pathology and diagnostic scans and reports from both public and private providers. All health care workers involved in the patient's care will require access to this record from their office desk top computers and from their portable devices.
- Highly vulnerable patients with complex care needs may be linked to a monitoring system taking basic clinical observations and/ or physiological measurements. Data from monitoring will be analysed by software algorithms and transmitted in real time to an 'operations centre' managed by the POWH. This data will be reflected against a series of parameters set for the patient. When the operations centre receives an automated alert of a patient trending away from their norm, an intervention will be initiated. An intervention might involve a tele-consultation with the duty doctor or in home appointment with clinical outreach staff. Further tele-consultations with the patient's own doctors may be arranged. Medication changes may be made following consultation with the GP or specialist. For severe exacerbations a HITH model of care may be appropriate.
- The hospital of the future should use smart technology to monitor every aspect of the patient journey. Patients should have continuous monitoring of basic variables preferably with wireless devices and sophisticated software algorithms to predict clinical decline based on trend information with alerts appearing at the nurses station long before PACE criteria are reached. They will wear monitoring devices as appropriate to their admission with their observational data supplied to the 'operations centre' and reflected against algorithms as above. Declining patients will be managed from the operations centre with staff deployed as required. This will

reduce staff needed to take routine observations, freeing resources up to respond to patients in most need. This technology already exists, is becoming affordable and is currently employed in some ICU and ED settings. The pace of development is such that it should be routine practise within the time-frame of the POWH redevelopment.

- Patient beds should have two touch screens connected to the intranet and local systems (likely built into the bed head). The first screen will manage 'hotel' requirements, diet, patient communication for families, intended discharge date. The second will act as a work flow tool for clinical staff managing EMR, eMeds, diagnostics ordering and reports and more. It provides a real time reflection of a patient's journey, and the team's ability to meet their discharge date. These touch screens will reduce Work Stations on Wheels WOWS and Drug WOWs and reliance on clinical staff using personal devices to monitor and manage patients.
- The POWH operations centre will also act as a 'hotel' manager, managing bed stock and patient flow. They can direct resources to meet emergency and planned admission needs based on historical trend data and what is presenting to the hospital in real time. The operations centre will also act as an informant to theatres regarding admissions, patient flow and resultant theatre activity.
- It is noted, the above systems is available in many parts at this point but not provided as a whole. Extensive work is required to link the acute setting to community systems (G.Ps and Specialists) and indeed to establish an acute hospital 'operations centre'. It is the POWHs intention to begin with monitoring of patients in the community. This will be self or guided monitoring using thin clients, diagnostics and applications. Data collected will be used by the community health teams who will be either with the patient in the community or based at the POWH receiving data. As technology becomes increasingly available as per the 'ideal' scenario above, it will be adopted by the team.

It is noted a District Informatics Strategy is intended to be complete by 2017 which will drive Digital Transformation.

Issues and challenges
- Complete stand alone systems are being purchased by the District and or POWH teams which do not link to EMR. Examples are the Electronic Record Intensive Care (eRIC) used in the ICU and MosaiQ the Cancer Patient data system
- Cloud based or block and chain systems are not being used meaning significant hardware, software and memory is required to be purchased and maintained to run the EMR and associated modules
- There is no space for Information Technology support staff to work in the care setting. This is inefficient when staff are working with the clinical team on designing, implementing or upgrading modules or systems
- On ward Patient Entertainment consists of one T.V. per patient with restricted channels on a pay per view basis. The District has signed a 20year contract with this entertainment provision group to provide this method of entertainment. Should the environment progress to 'thin clients' by the patient bedside (via which patients can view relevant care data, order meals and manage entertainment), this contract will have to be reviewed
- There is limited to no research into information technology on campus

POWH Information Technology Constraints
- Electronic Patient Journey Boards (EPJB) are available at POWH but not widely used. They have been subject to IT and installation issues and Clinician engagement is limited. Additional systems functionality is needed so the EPJB can interface with all clinical information systems required in patient care
- There is limited time for clinicians and staff to undertake information technology related learning which slows their adoption and successful use of new modules and systems. This also impacts on the quality of data entered and in future will limit how 'Big Data' could be used
- There are a limited number of Workstations on Wheels (WOWs) or Drugs WOWs. This disrupts work flow and efficient patient management.
- Theatres require larger fixed screens to view imaging studies stored in PACS. Further, windows on these display machines should not time out
- Externally supplied imaging studies need to be upload for viewing in local PACS systems within 2 hours of patients presenting at hospital
- Elective procedure patients waiting for a bed should be notified via an SMS, automated phone

call or both. Currently the patient rings POWH to ask a staff member when they can present

- A significant number of outpatient clinics are managed via a paper booking system so electronic patient appointment reminders cannot be used (i.e. SMS or email reminders). Of clinics that are managed electronically, SMS and email reminders are not sent
- Technology via video conferencing and three way phone calls is inadequately used to provide interpreter services or services for those from culturally diverse backgrounds
- Technology via video conferencing or telemedicine could be used with regional patients to promote timely discharge and ongoing management
- As EMR advances and more patient data is electronically available, this should be shared with GPs and community care teams to heighten efficiency and patient outcomes. Secure sharing systems will be required as will an assessment of patient data privacy
- As the functionality of the EMR and associated modules advances, I.T. support staff will be needed in the clinical work space acting in a continuous education, development and data retrieval capacity.
- The presence of thin clients will continue to increase with four kinds expected: those that move with staff; those that move with patients (i.e. outpatient enrolment) for staff use; those are fixed to patient amenities (i.e. beds) for staff use; and those that are fixed to patient's amenities for patient use (for entertainment, ordering meals, tracking their own care and progress).
- Wi-Fi will continue to be a critical component of electronic patient care. Ideally in time EMR will advance such that patient data can be updated automatically via Wi-Fi from diagnostic or robotic surgical equipment.

Models of Information Technology from around the world
The importance of sophisticated Information Technology is emphasised in high performing hospitals around the world. Some examples include:

- The Upper River Valley Hospital in New Brunswick, Canada officially opened its doors in November 2007. The futuristic facility was set up in place of New Brunswick hospitals the Carleton Memorial and the Northern Carleton. Impressively, Upper River Valley is Canada's first LEED-approved all-inclusive hospital. Adding to its eco credentials, the hospital is designed to be fully paperless, which means that medical personnel are able to manage patient data electronically. Outlining its advantages, then-health minister Michael Murphy said, "This means instant access to patient information to provide quicker care in an emergency, and an ability to immediately share information and consult with other health care providers outside the hospital." The Upper River Valley Hospital – which cost $85 million to complete – is run by Canadian health authority the Horizon Health Network.
- In the United Kingdom, 'The Kings Fund' helps shape health and social care policy and provides NHS leadership development. The Fund identifies eight key areas of technology that will continue to advance the provision of health care. These are: 1. The Thin client or Smartphone (app's and large scale research); 2. At Home or Portable Diagnostics (Hospital level diagnostics in the home or Smart assistive technology); 3. Smart or Implantable Drug Delivery Mechanisms (Smart Pills and Implants); 4. Digital Therapeutics (Computerised cognitive behavioural therapy and New preventative digital therapies); 5. Genome sequencing (Falling costs and population level studies); 6. Machine Learning (Big data sets); 7. Block Chain (Decentralised health records); and 8. Connected Community (peer support and contributions to research). Technology being used and technology to be used by the POWH in each of these eight areas are noted below under 'Information Technology Opportunities for the Prince of Wales Hospital and Health Services'

Information Technology Opportunities
THE POWH could consider advances in the provision of health care services via adopting additional Information Technology. If viewed via the Kings Fund eight key areas of technology, these include but are not limited to:

- Thin clients, Smartphones and app's
  - These are in use by POWH clinicians and patients. Their increased adoption by both groups is forecast along with applications used by patients to monitor their health and the clinical team for assessments. Data collected by apps and delivered to large scale research projects via an opt in system for the patient, considerably changes the amount and type of data available to researchers. At this time no large scale projects using this data are on the horizon at POWH. Should data collected via these apps be helpful to

interface with EMR for acute patient management, this is feasible. Successful use of 'thin clients', smartphones and apps will be pivotal in the ideal Integrated Care scenario as noted above.

- At Home or Portable hospital level diagnostics
  - o These are decreasing in cost and increasing in availability. An example is AliveCOR ECG which is embedded in a smartphone case and can be used by a clinical care provider or patient. Data from such diagnostics can be stored in apps. At this time, most of these diagnostics and apps are guidance systems and used to alert a patient as to when they need to see their GP or attend an acute hospital. Members of the POWH care team that use these technologies do so locally and in isolation. POWH could consider reviewing diagnostics and apps being used, how these could link to community care programs and or private care providers. As an example, at this time the Ambulance perform an ECG for POWH patients on route to the hospital and send this to an ED Physicians iPhone for assessment and pre planning.

- Smart or Implantable Drug Delivery Mechanisms (Smart Pills and Implants)
  - o 'We know that between a third and a half of all medication prescribed to people with long-term conditions is not taken as recommended (Nunes et al 2009)'[368]. Smart Pills or Implantable drug delivery could enable practitioners to better administer and manage patient medications with patients. These are delivery devices are in developmental infancy in many instances. Should a range of POWH care teams be interested in advancing research in these areas, strong links with Australian developmental agencies and Universities undertaking preliminary work is recommended. POWH has just implemented electronic drugs ordering so is well positioned to consider this activity.

- Digital Therapeutics
  - o Computerised cognitive behavioural therapy and new preventative digital therapies) Digital Therapeutics covers the use of Video and Teleconferencing for remote patients or those that require long term chronic condition management. POWH is well positioned to provide these services. To do this, it requires appropriate computers and teleconference facilities. Digital Therapeutics also describes patients using computer programs which are fully automated or blended with supervision to deliver therapies. They are best used to manage long-term conditions that call for behaviour changes to prevent future disease. Should POWH embark on such activity it should be positioned with a social media health strategy as mentioned below.

- Connected Community (peer support and contributions to research).
  - o The manner in which community support groups form and are managed has altered significantly via social media. There are medicine specific networks such as 'Patients Like Me'. These allow community knowledge share amongst 'patients' in addition to patients being able to contribute their data to research activities. Then there are platforms such as Twitter and Facebook which are used to distribute and discuss healthcare information. POWH is well positioned to provide health related news to specific community groups however currently does not have a social media strategy.

- Genome sequencing (Falling costs and population level studies)
  - o Sequencing costs have reduced significantly in the last twenty years. As increased sequencing data becomes available, large datasets will be used to link genetics to disease risk. This will alter a health services ability to be predictive about its population needs. As yet, Australia has not embarked on any large scale population studies in this area.

- Machine Learning (Big data sets)
  - o Computers finding trends in messy data then adjusting their functionality is a type of artificial intelligence now available. The Kings Fund cite the following example 'IBM Watson is studying whether applying machine learning to large amounts of unstructured data like clinical guidelines, scientific literature and treatment protocols could help optimise cancer treatment'[369]. The POWH is at formative stages of using data to explore predictive care models via LightFoot. This system will review historical data and find patient care trends enabling the organisation to become predictive, integrative and ultimately improve the patient journey.

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[368] Medicines Adherence: involving patients in decisions about prescribed medicines and supporting adherence Full Guideline, January 2009, National Collaborating Centre for Primary Care https://www.nice.org.uk/guidance/cg76/evidence/full-guideline-242062957
[369] Same source as above

- Block Chain (Decentralised health records)
  - These are decentralised databases, secured using encryption that keeps an authoritative record of how data is created and changed over time. They can be trusted as authoritative records even when there is not a single, central, respected authority updating them and guaranteeing their accuracy and security[370]'.
  - Health records in Australia are stored by service groups that use them. Linking them to other service groups usually requires interfaces to be built to share data which then become unique to groups involved. If blockchain technology was used, clinical teams would be given keys to access data as required. Community health outcomes achieved by acute and community care teams can be verified with funding allocated according to effort. This kind of activity would be a District initiative. POWH and its Community Care team are ideally placed to trial such activity.

Intensive Care Services

Current services
- Intensive care services includes Intensive Care Units (ICU) Level 1 and 2 (formerly known as High Dependency Unit) functioning as a Level 6 tertiary referral service providing comprehensive critical care to patients requiring ventilation and/or complex multiple system support. In addition, it provides care and management to patients with:
  - Spinal cord injury (one of two in NSW)
  - Interventional neurological radiology (state-wide service)
  - Hyperbaric support (state-wide service) e.g. for necrotizing fasciitis, carbon dioxide poisoning, etc.
- The unit has physical capacity for 22 beds but with average availability at 17-18 beds with:
  - 13-14 staffed as Level 1 beds and
  - 4 staffed as Level 2 beds.
- It provides services to POWH, RHW (patients requiring ICU Level 1 and some Level 2 care), SCH (for some adolescents and young adults) and Prince of Wales Private Hospital (for some long stay patients)
- Requires close proximity to operating theatres, emergency, diagnostics.
- Hours of Operation are 24 hours, 7 days per week
- Staffing includes: doctors, nurses, allied health (including physiotherapist, dietitian and social worker with access to pharmacy and speech pathology), support staff (e.g. porters, surgical dressers, etc.) and administrative/clerical staff

Trends in patient demographics, activity and service delivery
- Patient demographics
  - Source of admission for most patients is from surgery, with other sources from ED, medical and radiology.
  - Complexity of patients has increased due to multi-morbidities e.g. immunocompromised diabetic patients developing necrotizing fasciitis
  - Expectations of community regarding complex interventions
  - Ageing population with co-morbidities requiring intensive care services
- Service delivery trends:
  - Increasing demand for intensive care services due to more complex procedures undertaken.
  - New models of care has resulted in significant changes to patient journeys e.g. providing interventional neuro-radiology for cerebral aneurysms.
  - Increase in the number of ventilator dependent tetraplegics due to increasing numbers of patients with non-traumatic spinal cord injury (in addition to people with traumatic spinal cord injury people)
  - Increasing participation in clinical trials with multiple partners e.g. pharmaceutical companies, National Health and Medical Research Council, etc.
  - Increasing numbers of nursing student placements
  - Continual development of new technologies e.g. various modes of invasive ventilation, dialysis machines, etc.

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[370] Same source as above

Issues and challenges
- Statewide role for spinal cord injury, interventional neuro-radiology and hyperbaric services results in some patients having very long length of stays resulting in significantly higher costs of care.
- Ventilator dependent tetraplegics being <u>routinely</u> managed in intensive care beds without their team of carers. This is an unnecessary use of intensive care beds and disrupts their team of carers resulting in delayed discharge while a new team is assembled.
- Lack of a step-down unit where less complex patients requiring frequent monitoring can be managed, resulting in clinically inappropriate transfers to intensive care, delayed repatriation to a less acute bed and/or patients discharged home from intensive care.
- Lack of ward bed availability contributes to ICU discharge delay, frequently resulting in after hour discharges which has an association with adverse events
- Comprehensive stroke centre status would have an implication for AICU beds, with the need for an available bed and staffing at short notice
- Loss of the Hospital's trauma status has had a detrimental impact on ability to recruit, train and retain staff.
- The lack of consistent and comprehensive ICU data across NSW.
- Existing infrastructure is not fit for purpose with a lack of privacy for patients and their visitors, no natural light or access to outdoor areas.
- Nursing staff responsible for cleaning equipment, etc., with cleaning staff only responsible for cleaning beds and walls
- Staff time taken to escort patients to and from medical imaging
- Staff shortages (e.g. no dedicated pharmacist, lack of ICU Liaison nurse, etc.) and lack of capacity to meet minimum standards and guidelines[371] [372]

Proposed strategic initiatives and recommendations
- Continued operation of existing as a Level 6 tertiary referral intensive care services including ongoing support to other hospitals and intensive care support to POWH's state-wide services
- Continued management of patients with multi-system failure
- Develop clinical pathways to facilitate patient transfers for patients with single system failure (e.g. respiratory, cardiology ,etc.) and less complex patients requiring frequent monitoring (e.g. hourly neurology observations) through the development of a step-down units with Close Observation Beds on acute wards
- Consider development of overnight Close Observation Beds in Recovery to more appropriately manage post-operative patients requiring frequent observations but without system failure
- Consider developing a model of care for the routine care of ventilator dependent tetraplegics. For example these patients routine care being managed by their established care team in intensive care with potential for a nurse allocated at ratio of one nurse to two patients rather than 1:1 without carers. This model may also be used in spinal.
- Re-establishment of trauma services to POWH
- Implement rollout of Electronic Record in Intensive Care (ERIC) to improve data capture and provide robust and comparable state-wide data
- To provide safe patient care and best outcomes comply with minimum standards for intensive care units including: work practice; caseload; staffing and operational requirements; design; equipment and monitoring; and educational staff and resources[373].
- Introduction of specialised cleaning teams to clean equipment and machinery, restock, etc.[374] [375].

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[371] College of Intensive Care Medicine of Australia and New Zealand. Available at: http://www.cicm.org.au/Resources/Professional-Documents. Accessed on: 25 February 2016
[372] Australian College of Critical Care Nurses. Available at: http://www.acccn.com.au/about-us/position-statements. Accessed on: 25 February 2016
[373] College of Intensive Care Medicine of Australia and New Zealand (CICM), 2011, CICM - Minimum Standards for Intensive Care Units IC-1 (2011). Available at: http://www.cicm.org.au/Resources/Professional-Documents Accessed on: 25 February 2016
[374] Wilson A et al 2011, The impact of enhanced cleaning within the intensive care unit on contamination of the near-patient environment with hospital pathogens: A randomized crossover study in critical care units in two hospitals, Critical care medicine, 2011, Vol 39, Issue 4, pp 651-658.
[375] Anecdotally this approach is used at the Alfred Hospital (Melbourne), St Vincent's Hospital and some Canadian Hospitals

- Opportunity to provide international best practice intensive care services through ideal design[376] [377] including:
  - Single patient rooms with ceiling mounted booms for technology and life support systems,
  - Patient and family access to outdoor areas
  - Family zone including waiting areas, quiet rooms, family / counselling rooms, facilities for families, etc.
  - Accommodation for rural and interstate families (e.g. a Medihotel)
  - Close proximity to medical imaging, emergency, and theatres
  - Appropriate information, communication and technology including a dedicated computer for each bed plus a mobile computer for staff rounds, etc. with adequate technical support, space for storage / charging and repair, etc.
  - Sufficient storage space, offices, meeting rooms, etc.
  - Appropriate study and training rooms for ICU medical staff, trainees and student placements[378] including:
    - a simulation monitoring room (shared with emergency and/or anaesthetics) and
    - a space task trainer room for simulation with potential for partnering with UNSW.

Medical Imaging

Current services
- Medical imaging provides a comprehensive range of diagnostic, consultative and interventional services to POWH, RHW and SCH 24 hours per day
- The imaging technologies include general x-rays, fluoroscopy, computerised tomography, ultrasound, angiography / interventional, magnetic resonance imaging and mammography exams (this includes mobile x-ray and ultrasound). Images and reports are stored on a RIS/PAC
- The department is staffed with radiologists, junior medical staff (registrars), radiographers, nursing, technical assistants, and administrative/clerical staff.

Trends in patient demographics, activity and service delivery
- Source of referral: 58% of examinations are for inpatients (averaging 1 examination for every inpatient (including POWH, RHW and SCH) with many emergency presentations have imaging during their hospital stay. The department also provides 42% of examinations to outpatients for all modalities. Therefore any increases in hospital activity and/or the complexity of patients will flow on to greater demand for medical imaging
- Trends in activity: Increasing number of minimally invasive procedures (ie diverting both planned and emergency activity from operating theatres to interventional radiology), increasing use of magnetic resonance imaging and computerised tomography with declining use of fluoroscopy.
- Preferred configuration of services includes:
  - Splitting interventional radiology and diagnostic imaging
  - Convergence of technologies e.g combined computerised tomography and digital subtraction angiography
  - Sub-specialisation by clinical discipline rather than modality
- Service delivery: Requirement for an ongoing and close relationship with surgical departments, operating theatres, anaesthetics, intensive care, emergency, POWH, RHW and SCH.

Issues and challenges
- Lack of patient centred coordination. Aspects of this include:
  - The physical location of the department
  - Delays in transporting patients to and from the department due to a current lack of

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[376] http://www.worldhealthdesign.com/critical-care-design-trends-in-award-winning-designs.aspx. Accessed on 25 February 2016

[377] College of Intensive Care Medicine of Australia and New Zealand (CICM), 2011, CICM - Minimum Standards for Intensive Care Units IC-1 (2011). Available at: http://www.cicm.org.au/Resources/Professional-Documents Accessed on: 25 February 2016

[378] College of Intensive Care Medicine of Australia and New Zealand (CICM), 2011, CICM - Minimum Standards for Intensive Care Units IC-1 (2011). Available at: http://www.cicm.org.au/Resources/Professional-Documents Accessed on: 25 February 2016

        portering staff AND the location of the department in relation to the hospitals
- o Lack of other patient resources to facilitate coordination such as online booking portals, inadequacy of current administration process and phone access.
- Ensuring timely access to medical imaging for outpatients and patients requiring elective procedures
- Fragmentation of various Radiological services throughout the hospital. For example, Medical Imaging, Nuclear Medicine and Radiation Oncology are all separate departments. The Hybrid Lab is also coordinated through a different department (Operating theatres)
- Lack of coordination and communication between physicians, radiology and operating theatres
- The current Medical Imaging footprint is over 20 years old and the department has outgrown many aspects. These include:
  - o Lack of adequate space in many scanning rooms
  - o Lack of consulting rooms
  - o Lack of meeting/education space and technology (such as videoconferencing capability)
  - o A second digital subtraction angiography (DSA) suite is required
  - o Reception/waiting areas need to be consolidated and updated
- Ensuring the correct staffing and skill mix for optimal patient outcome and efficiency. The staffing of multiple departments by medical imaging is problematic. For example, current staffing available for operating theatres is often inadequate, disorganised and thinly spread with an adhoc method of service provision requiring review, if operating theatre procedures are to run smoothly and without delay.
- Retaining staff in certain modalities. This is especially the case with Sonographers.
- Current demand for outpatient services in magnetic resonance imaging and Ultrasound means waiting lists for certain scans can be up to 6 months
- Existing information, communication and technology could be considered inadequate. For example, the current ability for medical staff to report off site is limited, and infrastructure for this would create significant efficiencies and cost savings in certain circumstances (such as on call reporting).

Proposed strategic initiatives and recommendations
- Current services to be reviewed in terms of priorities for the hospital in any new model. For example, consideration should be given to those modalities which are able to generate considerable revenue and the ability to cover their own costs, whilst also looking at the bigger picture of what services a tertiary hospital is expected to provide.
- In the meantime, continuation of current service with improved capacity (space, equipment and staffing) to meet projected demand in services and best practice models of care (e.g. consulting rooms)
- Physical separation of interventional / procedural services from diagnostic services
- Ensuring the physical location of the department in a new complex is optimised for patient flow and synergies with other departments that view Medical Imaging as a critical component (such as emergency, operating theatres, intensive care, outpatients)
- Fostering clinician convergence through shared infrastructure e.g. intervention radiology co-located with operating theatres, recovery and the short stay unit
- Engage with Universities to investigate research opportunities and invest in infrastructure to support such opportunities e.g. an integrated research and clinical space for hardware funded by research or academic institutions (such as an magnetic resonance imaging funded externally)
- Improved information, communication and technology e.g. requirements for a server room and/or access to a cloud server, online booking system, shared storage of images e.g. ultrasound, medical imaging, ultrasound, etc.

Medical Records

Current services
- The Randwick Campus Medical Records Department, situated on Level 0 of the Dickinson Building, POWH, provides a comprehensive medical record service across the Randwick Campus (POWH, SCH, RHW) and Sydney/Sydney Eye Hospital. Its prime objective is the provision of patient Medical Records in a timely manner to the ED, Outpatients Department

and wards in order to assist clinicians, allied health professionals and other hospital staff in the provision of quality care to patients.

- Other functions and services provided include:
  - Creation, storage and maintenance of patient's medical record
  - Reporting of statistical data to the Ministry of Health and hospital executives
  - Provision of reports and records for research
  - Medico-legal requests
  - Monitoring the quality of the hybrid medical record content
  - Maintaining a patient's right to confidentiality and privacy by adhering to information release guidelines and ensuring records are kept in a secure environment
  - Transcription of outpatient letters
  - Management of policies on health privacy, patient registration, records management and archiving and medical record documentation
  - Provide ongoing training to hospital staff for applications such as eMR, iPM and MRTS (Medical Record Tracking System)
  - Maintaining a computerised Patient Master Index (PMI) for all patients

Proposed strategic initiatives and recommendations
- Paper based medical record keeping and storage will eventually be phased out with the continued release of the EMR2 Clinical Documentation Program across NSW, which will include the electronic documentation of progress notes, completion of mandatory assessments and entering of observations, the creation of a patient summary page, and the ability to automatically create tasks, referrals and orders from observations entered and assessment scores generated.
- The CHOC electronic medical record already in place in SESLHD delivers an Integrated Clinical System (ICS) into the following community health clinical services: Aboriginal Health; Aged and Chronic Care; Allied Health; Child, Youth and Family; Community Home Nursing; Drug and Alcohol; Mental Health; and Sexual Health. The Cerner (eMR) solution supports tight information integration across care settings for: Clinical documentation (progress notes, clinical assessments, risk assessments); clinic scheduling; workflow; task management and handover; and reporting (mandatory and management).

Nephrology

Current services
- The Department of Nephrology is a multidisciplinary service providing care to adults with kidney disease, hypertension, and fluid and electrolyte disorders. The service caters for patients during all phases of their illness including acute renal failure (AKI), progressive diseases involving the kidney (including diabetes mellitus, autoimmune vasculitis such as systemic lupus erythematosus and other forms of glomerulonephritis, myeloma) and providing renal replacement therapy with haemodialysis, (a shared service with SCH), peritoneal dialysis and transplantation.
- Together with the Department of Transplant Surgery, the Department hosts the East Coast Transplant Service which takes responsibility for the 20 to 40 kidney transplants performed each year on patients from the St George, Wollongong and St Vincent's Hospital units as well as 15-30 from POWH, including the intense post-discharge monitoring required. It also hosts and participates in the national paired kidney exchange program.
- The unit includes:
  - 16 inpatient beds on Parkes 9W, which includes shared care beds with Mental Health for the acute management of patients with Anorexia Nervosa
  - The well-equipped Australian Kidney Biomarker Reference Laboratory in the Clinical Services Building
  - An outpatient service with 5 consultation rooms and 1 treatment room on 3 West, providing over 13,000 occasions of service a year, thus reducing the need for acute and chronic hospital admission. Outpatient services include:
    - A 4 chair home dialysis education and training programme for both peritoneal and haemo-dialysis on Parkes 2W, to allow 35-40% of dialyses to occur at home
    - A 24 hour on call system for patients on home dialysis therapy
    - An outpatient and incentre dialysis service on 3W with 13 beds and 2 rooms configurable for children or adults

- A satellite dialysis unit at the War Memorial Hospital Waverley with 13 chairs
- 6 General Nephrology and 3 Specialist outpatient clinics held Monday to Thursday including Vascular Access, Transplant Waiting List Assessment, and Renal Supportive Care
- Day only admissions on Fridays for Renal Biopsy, Iron Infusion, Drop-In Clinic for Transplant Patients
- Consultation is provided to:
  - Other specialties for patients with renal disorders (especially AKI) admitted under other units
  - Inpatient dialysis
  - Wollongong and St George hospitals with monthly transplant recipient assessment clinics
  - SCH for haemodialysis and transplantation services under a formal Service Level Agreement
  - RHW patients with immune disease or acute kidney injury
  - Prince of Wales Private Hospital and CTICU patients who are currently on dialysis therapy, for advice and transfer for dialysis if required
- Close liaison is required with:
  - Haematology for 7 day access for plasma exchange
  - Palliative Care to provide conservative pathway management in lieu of dialysis and also for assistance with end-of-life management as required
  - Vascular Surgery to provide vascular access
  - General Surgery to provide peritoneal catheter insertion
  - Radiology to provide cuffed central line insertion and general radiology
  - Surgery to provide dialysis patients assessment of suitability for activation on renal transplant waiting list
  - Urology Services for transplant patient and donor assessment, donor nephrectomy and stent removal, and for assessment of haematuria investigation
  - Theatres
- Staffing includes Specialist medical physicians, junior medical staff, specialist nurses, clinical trials, laboratory, data management, pharmacy, allied health and clerical support.
- The department actively participates in a large number of research projects, clinical trials and clinical practice improvement activities. Patients are always included in clinical trials, and translational research is developed and validated.

Trends in patient demographics, activity and service delivery
- Patient demographics
  - Source of referral: approximately 50% of inpatients are emergency presentations
  - Approximately 30% of inpatient separations, including Transplant, are for people resident outside of SESLHD, reflecting the specialised services provided at POWH
  - Dialysis activity is growing and is expected to continue to grow with increasing rates of renal disease due to diabetes, obesity and the ageing population
  - Approximately 90% of presentations for renal dialysis are for residents of the local catchment area.
- Activity and service delivery
  - The majority of patients are seen in an ambulatory setting for the assessment and management of their kidney disease, renal dialysis and pre- and post-transplant management. This proportion is trending upwards as patients are increasingly managed as outpatients or at home with an integrated model of care. The service is currently at capacity
  - Most ward consultation is for acute kidney injury and this is likely to increase
  - Dialysis patients are increasingly being managed at home, currently equating to approximately 35% of patients. The Department anticipates an increase to 40% for home dialysis (with Hospital in the Home type assistance provided for the elderly if required). Patients on home dialysis have longer survival, greater independence and cost less to dialyse than in-centre patients. Targets will be influenced by the growth in demand from the elderly, who have greater complexity, the number of higher acuity patients, and the growth in peritoneal dialysis.
  - Development of Hyponatraemia Management Guidelines and Protocols will facilitate ETP target achievement and enhance safe management of acute and chronic hyponatraemia

and improve uncomplicated patient survival. This will provide enhanced ward (9W) and ED management of the commonest electrolyte disorder.
- o Improved care of pre-dialysis patients by increased monitoring of CKD progression (maintenance of the pre-dialysis database), pre-dialysis education pathways including peritoneal dialysis, and by early facilitation of vascular access using the now established vascular access clinic. Increased fistula surveillance has already reduced emergency admissions and patient LOS for urgent fistula revision. This helps meet (actually exceeds) the national KPI for all new patients having AV fistulae pre dialysis. In addition, this will improve access of CKD patients to the transplant waiting list and reduce unplanned admissions for ESRD
- o Ongoing conservative and palliative management of CKD patients with end-stage renal disease not suitable or not desiring dialysis, in partnership with the palliative care team.
- o Growth in transplant activity is expected, with increasing numbers of live donations. The current infrastructure limits expansion.

Issues and challenges
- Current infrastructure is poorly planned and inadequate for patient centred care:
  - o Provision of transplantation services on a 24 hour, 7 day basis results in a continuous requirement for very high standards of infection prevention and control since kidney transplant recipients (and many patients with kidney disease) are heavily immunosuppressed. Current facilities on the transplant ward are substandard, with no single rooms and shared toilet facilities, increasing the risk of infection for transplantation and other immunosuppressed patients
  - o After hours, if a patient on P9W needs to be haemodialysed there are currently only four bed spaces in which this can be done, as a booster pump is required to maintain adequate water pressure for the haemodialysis procedure. This often means multiple bed moves in the middle of the night to allow for the haemodialysis procedure to proceed
  - o The water pressure in the Parkes block above the 6th floor is inadequate to allow haemodialysis to proceed. Patients requiring haemodialysis after hours in these areas (except 9W) need to be moved to an area in which haemodialysis can take place, usually ICU or CTICU
  - o There is no availability of ECG monitoring or Telemetry. This is inadequate for TPs, impairs some invasive techniques (e.g. cuffed central line insertion), administration of needed solutions (e.g. hypertonic saline,) and drugs (e.g. tolvaptan, metaraminol)
  - o There are no appropriate beds on the ward for higher acuity patients requiring intensive monitoring, (e.g. severe hypertension, hyponatraemia, hyperkalaemia, ketoacidosis) which results in patient transfer to HDU or ICU for management
  - o Because the first few weeks after renal transplantation are the period of highest risk for rejection, patients need daily supervision at POWH for at least the first two weeks. (This is likely to increase to 6 weeks). In addition, patients with surgical complications may be recalled in the first 30 days. Local lodge accommodation is provided if patients are fit for discharge prior to this. This accommodation cannot meet demand into the future
  - o There are no designated treatment rooms for outpatient review, e.g. transplant recipients on weekends, or peritonitis in patients on peritoneal dialysis
  - o Outpatient amenities are crowded, with poor access for wheelchair or stretcher patients and poor design for patient flow, traffic to dialysis compounds congestion at admission and discharge from outpatients
  - o There are no designated paediatric haemodialysis beds
  - o There is no suitable day only area for direct referrals or walk in patients for procedures, dialysis or consultation
  - o Offices and technician rooms are remote to service, creating inefficiencies
  - o Satellite dialysis at War Memorial Hospital Waverley is not fit for purpose and inefficient, with difficulties with staff rostering and patient allocation. There are serious infrastructure issues such as no emergency power back up available (emergency backup power is currently being installed at War Memorial Hospital Waverley) and issues with equipment servicing. The current preference is to move services back to a consolidated site at POWH short term, with potential for expansion to a new purpose built satellite site in an area of need elsewhere in the Eastern Suburbs
  - o Current storage areas are inadequate for safe storage of the large amounts of equipment and fluids required for renal medicine.

- Mental Health patients on 9W require specialised nursing skills and tend to have longer lengths of stay
- Appropriate medical, nursing and clerical staffing is required for new models of care to effectively be implemented
- Patient transport for haemodialysis is an issue that needs to be addressed at both centres.

Proposed strategic initiatives and recommendations
- Continued operation of the existing level 6 service, including ongoing support to other campus hospitals, with a mixed model of care including inpatient care for higher acuity patients, outpatient clinics and dialysis, and home based independent and assisted dialysis
- Expansion of the transplant service with the improved availability of donor organs, to meet increasing demand and patient acuity and complexity
- Support transplant growth with a reviewed model of care to create separate transplant and nephrology teams
- The development of an integrated care pathway for patients on home dialysis to increase the number receiving home delivered haemodialysis and peritoneal dialysis. This requires more dialysis nurses educated in benefits and application of home treatment, consideration of alternative dialysis machines and new technologies being developed
- Continue and expand renal supportive care pathway protocols and support. Nephrology Advanced Trainee to attend two clinics per month with palliative care physician
- Removal of satellite dialysis unit from War Memorial Hospital Waverley to POWH for improved service delivery, efficiency and cost savings and increased clerical resources for dialysis at POWH
- Consider the building of a new purpose built satellite dialysis service in a designated area of need, e.g. in the Botany area. The location would need to consider ready access to transport or have provision for patient transport. A Health One location would be suitable for both dialysis and clinic review and improved care coordination
- Investigate the potential for a shared dialysis service with St Vincent's Hospital to meet demand in the East Sydney area
- Staffing resources (medical, nursing, allied health and clerical) to support new outpatient clinics, higher acuity ward patients and transplant growth
- 7 day access to interventional radiologist (currently not 7 days) if bleeding occurs
- Secure academic appointment for a Nephrologist with Immunology Training to establish POWH based translational transplantation research to ensure POWH kidney transplant recipients receive state-of-the-art evidence-based care
- Clinical pharmacy services to ensure safe, appropriate and cost effective use of medications and effective clinical review; and resourcing of pharmacy technicians for the dispensing of highly specialised medications
- Improve accommodation for patients requiring long term outpatient care, (e.g. 6 weeks for post-transplant patients), i.e. with the provision of Medihotel style accommodation and also Lodge accommodation
- Best practice infrastructure design would include:
  - Acute ward beds, including:
    - 20 single rooms with ensuites, including 2 high pressure rooms (for transplants) and 2 low pressure rooms (for infective patients)
    - 10 of these rooms designated Cardiac Protected Intensive Monitoring Areas, appropriately equipped and staffed, to avoid transfer of renal patients to HDU or ICU for monitoring, e.g. when starting dialysis. These can also be used as general beds when required
    - All Rooms require high water pressure and floor drainage in all areas to allow dialysis without transfer, ECG monitoring, Telemetry, and Suction
    - Point of care teaching area with flexible space that could also be used for family conferences, etc. Must be set up for videoconferencing
    - Dialysis equipment, dialysis fluid storage areas, in addition to normal ward storage
    - Some single rooms need to be suitable for bariatric beds
  - An ambulatory (day only) renal precinct, with close functional relationships to respiratory and cardiac services, and purpose built facilities that will enable greater flexibility, allow direct GP, emergency and walk in referrals, and avoid admissions for procedures. The

precinct would include:

- Waiting area, central area (space for >30 people and some trolleys and wheelchairs and requires electronic check in/appointment registration) but also space for infected patients
- Reception desks/admin officers…
- 10 x Outpatient clinic rooms
- Procedure/treatment room (equivalent to 4 bed cardio protected room, suitable for renal biopsy, vascular access, etc.)
- Dialysis service, including beds and chairs, and 4 rooms (2 with low pressure and 2 with high pressure) for children and adults to allow for infectious patients to be managed safely
- Separate Dialysis training areas for haemodialysis (4 chairs) and peritoneal dialysis (4chairs)
- Adequate storage for dialysis fluids (pallet access etc.)
- Storage for dialysis machines and other equipment
- Office space for Senior nursing staff, Data Manager, Allied Health including dietitians, social work, pharmacist
- Point of care teaching area with flexible space that could also be used for family conferences, etc.
- Biomedical Workshop for dialysis technicians/engineers and equipment
- Equipped space for clinical trials
- Staff facilities area
- Lanson systems for biological specimens
  - o Appropriately designed laboratory space and clinical trials staffing for ongoing translational research, either co-located with ambulatory precinct or located nearby.

Neurology

Current services

- The Department of Neurology is one of the core departments of the Institute of Neurosciences at POWH and works collaboratively with a variety of diagnostic, interventional and rehabilitation services across the campus
- Neurology is a multi-disciplinary service providing care to adults with a wide range of neurological conditions, including stroke, epilepsy and headache. The unit comprises:
  - o Inpatient services for the Neurosciences Department, delivered through the Parkes 8 Neurosciences Ward (shared with Neurosurgery), including the Acute Stroke Unit (occupying an average of 8 of 9 beds available), and Neurology beds (average of 13 beds in addition to Stroke patients), with all patients admitted under a consultant neurologist.
  - o Outpatient clinics, located on level 2 of the High St building. These include:
    - General Neurology, (2) (weekly)
    - Epilepsy, (weekly)
    - Multiple Sclerosis, (weekly)
    - Muscle and Nerve, (fortnightly)
    - Dizziness and Balance (weekly)
    - Epilepsy Neurosurgery joint clinic (monthly).
  - o A number of private clinics (whose activity is not captured in iPM), are also held in the Neurology offices and the Professorial Suite. , including:
    - 'Colebatch' (including Botulinum toxin clinic 1/month): 11 patients per week
    - 'Zagami': 20 patients per week
    - Vagus Nerve Stimulation (VNS) clinic
    - Clinical trials (Epilepsy, headache)
    - Ambulatory EEG (2 systems)
    - Transition Clinics (Epilepsy and Nerve and Muscle).
  - o Transitional care clinics are held for Epilepsy and nerve and muscle conditions at SCH to facilitate transitional care to adult services.
  - o The unit also provides specialised diagnostic services in Epilepsy and Clinical Neurophysiology for both inpatients and outpatients. Clinical Neurophysiology is a shared service with and jointly funded by the SCH and also provides services to the RHW and the Prince of Wales Private Hospital (limited). Procedures include EEG (including Intra-operative Electrocorticography), EMG, Evoked Potentials (including theatre monitoring)

and Vestibular. EEGs are also performed on the ward for epilepsy patients. We are one of a limited number of units which offer a paediatric EEG service. Outpatient services are supplied to neurology patients from St George Hospital (vestibular testing) and Sutherland Hospital (EMG, EP and vestibular assessments). Diagnostic EMG studies are performed on some Sutherland hospital inpatients.

- o The Acute Stroke Unit in the BHI report *Healthcare in Focus*[379] in 2012 was found to have a significantly lower 30 day mortality outcome than the average of the State.
- o The Department's Complex Epilepsy Service provides comprehensive assessment and management of complex epilepsy patients, including vagal nerve stimulation and other epilepsy surgery. This is a statewide service, providing highly specialised services accessed by residents from across NSW.
- The Neurology department has close links with:
  - o Medical Imaging
  - o Neurosurgery and INR
  - o Psychiatry and Liaison Psychiatry
  - o Rehabilitation
  - o Infusion Centre (mainly for IVIG)
  - o Cardiology (for holter monitors and assessment of stroke patients)
  - o Ophthalmology (for Neuro-ophthalmology).
  - o PACS for intravenous methylprenisolone infusions.
- The Institute of Neurosciences contributes to a large number of research areas, including basic, translational, clinical research and service development in a variety of neurological conditions including stroke, epilepsy and headache. Two clinical research areas are integrated into the clinical department and provide advanced investigations of nerve excitability, tremor and vestibular function for selected patients. Hosting of undergraduate (ILP) and postgraduate (PhD) students is also provided.
- Staffing consists of Senior Medical Officers, Junior Medical Officers, Clinical Academics, nursing, technicians and clerical staff. Multi-disciplinary support is provided by allied health and research assistants.

Trends in patient demographics, activity and service delivery
- Patient demographics
  - o The majority of inpatients are admitted via the ED and most of these are new patients
  - o Neurology services are provided to all age groups, however the greatest number of presentations are for those aged over 70 years
  - o Consultation is also provided to the RHW and the SCH. Stroke patients from the RHW and Prince of Wales Private Hospital are transferred to POWH Stroke Unit for management.
- Activity and service delivery
  - o The majority of Neurology activity is provided on an outpatient basis (approximately 4 times as many occasions of service than inpatient separations)
  - o Urgent GP referrals are accepted to prevent presentation to the ED
  - o Interventional Neuroradiology has had a large impact on service delivery and service levels in Neuroscience with improved management of stroke, cerebral aneurysms, tumours, etc. If access to this service remains limited across the state, demand will continue to rise at POWH
  - o New and emerging technologies will have an impact on demand and service delivery into the future
  - o The ALOS for inpatients has decreased over the last 3 years but average inpatient numbers have remained stable
  - o 75% of inpatients separations over the last 3 years were for SESLHD residents
  - o Specialist neurology clinics have inflows of more than 50%, reflecting their specialised nature.
  - o MRI waiting times have been reduced due to extended hours of scanning into the evenings and is no longer likely to be 6 weeks. This increased MRI availability has had an impact of Neurology inpatients, allowing faster discharge.

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[379] http://www.bhi.nsw.gov.au/publications/annual_performance_report_series/healthcare_in_focus_2012

Issues and challenges
- Neurodegenerative diseases such as Alzheimer's disease and Parkinson's Disease are increasing due to the increasing age of the population and are the leading reason for admission to a nursing home
- Inpatients are expected to have an upward trend due to the aging population and increasing numbers of complex patients who cannot be managed in the ambulatory setting
- The number of bariatric patients is increasing, with limited capacity for their management
- Links to integrated services are crucial for timely discharge and ongoing management:
  - There are a significant number of patients waiting for placement which increases length of stay and reduces patient flow
  - There is a waiting list for Rehabilitation beds of approximately 1 week, and ART services are at capacity
  - Patients with a tracheostomy are not accepted by Rehabilitation
- Outpatients is currently at capacity due to changing models of care designed to avoid hospitalisation, and increasing demand due to population growth and the aging of the population. There is currently up to a 12 month wait list for public patients for follow up and up to 7 months to see a new patient (over 100 people) and 6 months for private patients for general neurology clinics, and there are significant delays for access to the Infusion Centre. MRI scans have more than a 6 week waiting list for outpatients. These factors result in some patients being admitted for investigations and treatment who could otherwise have been managed in the outpatient setting
- There is a growing demand for new outpatient clinics to address waiting list reduction and reduce ED presentations, however this is currently restricted by staffing capacity
- Genetic services is an expanding field. Limited availability of genetic counselling at POWH impacts:
  - The need for procedures, e.g. can prevent the need for muscle and nerve biopsies
  - The availability of a more accurate diagnosis and prognosis for certain genetic conditions
  - Access to genetic counselling, an important component of safe clinical management for patients and their families with genetic conditions/ markers
  - Exposure to medico-legal issues with the increasing numbers of prenatal tests available, which require ongoing review.
- Interventional Neuroradiology: Due to the specialised nature of this service and limited availability across the state at this time, demand will increase. Currently there is not an adequate specialised workforce to cover increased demand, e.g. for on call roster, and the service is only available during slightly more than normal working hours
- Out of hours/weekend reporting of medical imaging is limited
- The maintenance of high quality Neuro-Ophthalmology at POWH is crucial for patient care. This specialty is not available through Sydney Eye Hospital
- Access to Mental Health and Psychogeriatric services is limited, e.g. for psychologist support or neuropsychometric testing
- Infrastructure
  - Neurology relies on quality teaching and translational research, and thus labs and teaching spaces need to be located in close proximity to the service
  - Improved ICT links to GPs are required to improve communication for GPs beyond discharge summaries currently sent electronically through ARGUS
  - Replacement of equipment such as EEGs and Monitors is required
  - It is critical for stroke patients to have rehabilitation on site to allow early intervention for improved outcomes

Proposed strategic initiatives and recommendations
- Neurology will continue to deliver Level 6 role delineated services for inpatients and outpatients, the statewide Complex Epilepsy service, and support to other departments and hospitals
- Position POWH as a leading candidate for Comprehensive Stroke Centre status in Sydney, with key clinical partners such as Neurosurgery, Rehabilitation and Radiology (in collaboration with ACI to understand timeframes, expectations, and opportunities)
- Establish clear patient clinical criteria for INR access
- Investigate options to establish a multidisciplinary early discharge model with immediate/ intensive outpatient follow up in collaboration with allied health and nursing to improve timely

discharge and patient flow
- Explore the role of private Neurologists for management of general neurology patients, to reduce demand and wait list for public outpatient services
- Create new specialised neurology outpatient clinics to avoid ED presentation, prevent admission and reduce waiting lists for assessment and management, including:
  - a dedicated Headache clinic with CNC coordinator
  - a Parkinson's multi-disciplinary clinic with CNC coordinator
  - a muscle/nerve disease multi-disciplinary clinic for adults and paediatrics
  - Nurse led clinic for TIA management and for Stroke follow up (under way)
- Ensure capital planning for replacement of equipment such as EEGs and Monitors
- Investigate new service models and technologies:
  - Work with Nuclear Medicine team to identify future service development opportunities e.g. radiopharmaceutical manufacture and application
  - Build coalitions (e.g. with UNSW, Nuclear Medicine, Medical Imaging) to advocate for investment in new technologies and capabilities, i.e. onsite radiopharmaceutical manufacture, Cyclotron on-site, e.g. for Dopamine transporter for Parkinson's Disease, PET for amyloid imaging of Alzheimer's Disease
  - Partnering with Cardiology with DRAGAR wireless patient monitoring systems - multiple applications across campus
  - Use of SPG stimulators for peripheral nerve modulation in collaboration with other potential partners, e.g. SCH
  - Deep brain stimulation, e.g. for childhood dystonia, Parkinson's Disease, tremor, epilepsy
  - Laser guided ablation under MRI for epilepsy and ultrasound guided for tremor (day only procedures)
  - Stereo EEG to record seizures
  - SMS reminder system for patient appointment (currently in use) and planned admissions
- Establish formal and informal communication with Mental Health Services e.g. meetings, service level, multi-disciplinary teams, etc. to improve patient transfer and patient experience
- Increase communication with and engagement of PHN/ primary care and Community services to ensure greater integration and continuity of services and care, e.g. with electronic referrals, medications, results, etc.
- Adequate, experienced staffing, with access to professional development is required to meet demand and provide integrated patient centred care, and to ensure the specialised services can be provided, e.g.
  - CNC in headache and in Parkinson's disease to reduce length of stay of such patients, including admission for other medical problems, improve care coordination and reduce ED presentations.
  - Dedicated nurses in the management of patients with Alzheimer's and Parkinson's disease. These patients have longer lengths of stay and are subject to increased morbidity and mortality on hospital admission
  - Investigate the potential for the provision of weekend rehabilitation to improve patient outcomes and enhance patient flow
- Collaborate with POWH Clinical School to ensure training excellence and increase collaboration with academic research institutes e.g. NeuRA and Health Science Alliance
- Infrastructure:
  - 10 bed acute Stroke Unit, with:
    - provision for bariatric patients
    - inclusion of step down beds (for better continuity of care)
    - Small Gymnasium adjacent
    - Rehabilitation co-located
  - Neurology bed needs include:
    - Provision for bariatric patients
    - Some single rooms with en suites
    - Epilepsy monitoring patients require 2 bedded rooms due to need for carer
  - Adequate storage for equipment
  - Outpatients clinics with offices nearby and research and clinical trials facilities in close proximity for research to be encouraged and translated
  - Multipurpose teaching space with AV facilities for point of care teaching, conferences and in-house meetings
  - Staffroom

> - o Space for undergraduate (ILP) students
> - o Improved IT systems that allow compatibility of existing systems e.g. EEG monitoring, for GP referrals and procedural results.

Neurosurgery

Current services

The department's focus is Neuro Oncology, Neuro Vascular, Spinal and Epilepsy.
The department delivers significant support for spinal injuries and spinal trauma units in addition to support for oncology via Radio Surgery (assisting radiation oncologists)

Neurosurgery includes the following ESRGs:
- 462 Craniotomy
- 469 Other neurosurgery
- 463 Neurosurgery - non-procedural

The speciality provides inpatient and outpatient services at POWH including:
- Neurosurgery Clinic
- Neurovascular Clinic
- Neuro Oncology Multidisciplinary Team
- Neurosurgery Preadmission Clinic

Staffing includes senior and junior medical staff, nursing, with multidisciplinary support from other allied health

Trends in patient demographics, activity and service delivery
Demographics
- Just over 20% of admissions are for people over 70 years, with people over 85 years making up less than 2% of admissions
- The majority of patients are from the SESLHD (45%), with other patients coming from surrounding metro LHDs or rural areas.

Activity and service delivery
- Admissions have been trending up between 2008/09 and 2013/14 (6.1% annual growth rate)
- The speciality is largely a planned service (79% separations) with the remainder from the ED.
- Most inpatients stay multiple nights (82%) with an average length of stay 9.3 days and very high cost and complexity (average NWAU of 5.64 and an average Public Equivalent Model of 6.21).
- Outpatients clinics provided include:
  - o Follow up: 3 clinics per month (25 patients per morning)
  - o New patients: Once per month (10 patients per morning)
  - o Preadmission clinic: once a week to ensure efficient acute admission and operating theatre time

- Strong links for integrated care are required with
  - o spinal cord injury unit
  - o oncology (including radiosurgery)
  - o medical imaging (interventional neuroradiology)
  - o neurology (epilepsy)

Issues and challenges
- Outpatient Clinics are not meeting community demand, wait list for new patients is up to 2.5 years
- Population ageing and increasing numbers of older people living with long term conditions will be the major driver for surgical activity
- Given the ageing population and people living with multiple long term conditions, there will be an ongoing need for interaction between services or shared management.
- Increasing numbers of obese patients, who require more support services for management
- People of non-English speaking background are not always offered and/or provided with

health care interpreter service
- Increasing demand for degenerative spinal conditions
- Areas of growth in the future include
  - intraoperative image guidance and navigation
  - oncology – biological agents may have an impact
  - traumatic injuries (cranial and spinal) referred and needing support
  - development of teams (ward, theatre)
- Operating theatre equipment is ageing, out-of-date and/or needs replacement
- Limited capacity for teaching and research due to difficulties associated with data collection and statistical assistance

Proposed strategic initiatives and recommendations
- Refer to Proposed strategic initiatives and recommendations for Surgery
- Continuation of interventional neuroradiology
- Increased outpatient clinics (and surgical time) with increased staff. Obtain one registrar immediately and within 5 years one more staff specialist (with a focus on clinical and research activity) and within 10 years an additional VMO.
- Continue to provide Radiosurgery to support oncology cases. It requires use of Linear accelerator, procedure done in conjunction with radiation oncology team
- Academic and Research capacity needs team development via registrars (and foster future academic neurosurgeons) and a data manager to prioritise and use research data in conjunction with UNSW. Use this data to lead model of care changes which will enhance patient outcomes i.e. Reducing outpatient wait list times via a triaging referrals and implementing pre clinic questionnaires.
- Remain abreast of technological advancement and gain access to intraoperative CT, MRI and new technologies involving an intraoperative microscope
- Acquire an onsite intraoperative neurophysiologist offering neuro monitoring for epilepsy, oncology and complex spine cases. This would enhance patient outcomes, improve working relationships between surgeons and the neurology team. This service is currently outsourced.
- Increase theatre time to meet community demands (and reduce the need to place urgent patients on theatre Emergency lists). Additional access to theatre time and operating efficiency would further increase the number of private patients managed in the public setting, allow sufficient management of out of area spinal trauma and paediatric patients. The department manages roughly 50% of both spinal and paediatric patient activity.

Nuclear Medicine

Current services
- The Department of Nuclear Medicine and PET uses radioactive material administered internally for diagnostic molecular imaging and treatment of diseases in all aspects of clinical medicine particularly in oncology, cardiology, geriatric medicine, gastroenterology, endocrinology, neurology, rheumatology, orthopaedics, pulmonary medicine, renal medicine, urology and others.
- It is a quaternary referral facility which is a shared service for POWH and SCH, which also provides services to the other hospitals on Randwick Campus (RHW and Prince of Wales Private Hospital), as well as for Sydney/Sydney Eye Hospital, War Memorial Hospital Waverley and Justice Health.
- The Department is equipped with
  - six gamma cameras, four of which have single photon emission computed tomography capability (SPECT) and two with SPECT/computed tomography (SPECT/CT) capability
  - a positron emission tomography/computed tomography (PET/CT) which includes a dedicated hot lab, five uptake rooms,
  - one cardiac stress lab
  - two hotlabs, one radiopharmacy, one radioactive waste disposal area
  - three procedure/consultation rooms
  - three reporting rooms equipped with multiple reporting and work stations
  - inpatient bay and adult and paediatric outpatient waiting rooms
  - reception
  - library

- The Department has a multidisciplinary team of specialist medical consultants, registrars and junior medical officer, technologists, medical physicists, a radiopharmaceutical scientist, specialist nurses, porter and administrative staff. It is an accredited training site for technologists, medical officers and physicists in general nuclear medicine and PET.
- The Department provides services to outpatients (approximately 60% of patients), inpatients and those referred from the ED. Of all the patients, approximately 30% are paediatric.
- Services are provided Monday to Friday from 8am – 5pm, with after hours on call service provided for urgent cases in general nuclear medicine.
- The Department requires a central location as it has close functional relationships with Randwick Campus hospitals including outpatient services and works collaboratively with the Medical Imaging Department.

Trends in patient demographics, activity and service delivery
- Patient demographics
  - There will be an increase in demand for many of the services provided by nuclear medicine and PET. For example oncology is currently a major source of referrals which will increase with the growing and ageing population combined with earlier detection of cancers and widening indications for molecular imaging. The ageing population will also increasingly utilise neurology, cardiology and aged care imaging services.
  - There is increasing complexity of patients including people with mobility issues (e.g. very old/frail, very young and spinal patients), obese people and inmates from Long Bay Gaol). Imaging of paediatric patients requiring sedation and general anaesthesia is becoming more resource intensive with the increasingly stringent deep sedation guidelines.
- Activity and service delivery
  - PET imaging and targeted radionuclide therapy are the most rapidly growing areas. General Nuclear Medicine continues to provide imaging services which cannot be substituted by other modalities.
  - Currently there is a short waiting list, with most patients seen within one week of referral
  - Nuclear Medicine is heavily technology driven and there will continue to be rapid technological evolution including further advancement in hybrid imaging (PET/MRI), semi-conductor detector technology, targeted treatments, new radiopharmaceuticals, and heath information systems.

Issues and challenges
- Introduction of Ga-68 PET imaging and implementation of new Ga-68 radiopharmaceuticals
- Introduction of other positron emitting radiopharmaceutical production and imaging
- Rapid technological advances require the acquisition, replacement and upgrading of equipment, which requires appropriate infrastructure (e.g. shielding, Faraday cage for MRI).
- In order to receive Medicare reimbursement, the equipment must be periodically replaced to satisfy the DIAS guidelines. Currently, the funding of this is problematic due to the high expense of Nuclear Medicine equipment.
- Despite significant evidence for the use of PET/MRI in paediatrics, gynaecology, neurology, urology and head and neck cancers, there is no PET/MRI on Randwick campus which is a major referral centre for all of these groups of patients.
- Lack of dedicated adult and paediatric therapy facilities both inpatients and outpatients. Any greenfield therapy facility will require appropriate management of radioactive waste discharge such as delay tanks.
- Future service and equipment implementation requires significant consideration of the siting of this equipment, floor loading, radiation shielding, dedicated supply and discharge of gases, HVAC, and power.
- There is currently no room for expansion e.g. for new equipment to service increased demand for imaging and therapy, expansion of the radiochemistry facility (e.g. hot cells) and a cyclotron. There is currently no designated paediatric post-general anaesthetic recovery area.
- There are increasing number of obese and immobile patients who are difficult to image due to weight, inability to transfer onto the equipment or space limitations. A dedicated hoist is required to improve this situation.
- Recruiting of staff to highly specialised positions in nuclear medicine can be difficult and succession planning is required

- MBS funding lagging behind clinical indications and other funding sources should be explored.

Proposed strategic initiatives and recommendations
- Short term
  - Upgrading obsolete gamma cameras to state of the art SPECT/CT
  - Implementation of Ga-68 facility
  - Cardiac monitoring equipment is required for the cardiac patients accessing nuclear medicine services
  - Replacement of the Stress Laboratory for cardiac stress testing
  - Inclusion of a dedicated area for paediatric sedation, monitoring and recovery
- Long term
  - Continuation of current service with improved capacity (including appropriately designed and sited space, modern equipment and suitable staffing levels) to meet projected demand in services and best practice models of care
  - Continued close functional relationships with other clinical services and the hospitals and institutes on campus
  - Ongoing collaboration with other diagnostic services, including medical imaging
  - Research collaboration with clinical trials facilities, the UNSW, research institutes and other departments.
  - Development of a radiopharmaceutical synthesis facility for production and utilisation of novel radiopharmaceuticals for imaging and therapy
  - Introduction of Solid State Detectors (SSD) and digital imaging technology
  - Acquisition and implementation of a PET/MRI imaging facility
  - Acquisition and implementation of a cyclotron facility. Consideration of site capacity, security and access issues required.

Operating Theatres / Procedure Rooms

Current services
- The Operating Theatres / Procedure Rooms services include the
  - Intraoperative phase - surgery or procedure, and
  - Postoperative phase - from point of transfer to recovery followed by transfer to an inpatient unit or 2nd stage recovery and discharge.
- It includes the management of day only, day of surgery admission (DOSA) patients, inpatients and emergency patients as well as 2nd stage recovery and discharge facilities for day only patients.
- The Randwick Hospitals Campus currently has 27 public operating theatres/procedure rooms located in four locations, across three levels and in two separate buildings. These are:
  - 19 in the Randwick Campus Operating Suite (RCOS), Campus Centre Building Level 1 – with theatre capacity available 24 hours per day 7 days per week
  - Three in the Murnaghan Urology Centre, Clinical Sciences Building Level 3
  - Three in the Billington Endoscopic Centre, Campus Centre Building Level 2
  - Two Cardiothoracic Theatres, Campus Centre Building Level 3.
- SESLHD manages both the POWH and RHW theatres and maintains a close relationship with the SCH and the Prince of Wales Private Hospital who currently share usage of the Cardiothoracic Operating Suite but who also have a theatre floor on Level 5 of the Campus Centre building (nine theatres and two procedure rooms)
- Staffing includes: anaesthetists, specialist registered nurses, enrolled nurses, technical assistants, porters, and administrative/clerical staff, etc

Trends in patient demographics, activity and service delivery
- Demographics:
  - Older patients with or without co-morbidities having more complex procedures
  - Increased number of obese patients
  - Increased demand for surgical services
- Service delivery:
  - Increasing use of day only and extended day only surgery
  - Improved streaming of planned and unplanned procedures

o Increasing demand for intraoperative imaging technologies

Issues and challenges
- Lack of capacity to meet future demand in theatre services
- Infrastructure limits capacity to implement innovative models that improve flow, decrease waiting times and improve patient outcomes (e.g. undersized operating rooms / procedure rooms, lack of patient holding space (particularly for paediatrics), patient transfer through public corridors, no waiting area / quiet area for families including post-operative discussions, separate recovery areas, anaesthetists offices, staff change rooms for each of the hospitals, inefficient packing system for orthopaedic prostheses due to lack of room in sterilising
- Urgent need for hybrid operating theatres / procedure rooms (i.e. equipped with advanced medical imaging for intraoperative use), capacity to perform robotic surgery, etc
- Severe lack of appropriate storage for theatre stores, which will be exacerbated with increasing demand and new technologies (e.g increased use of fluids during operations,)
- Multiple operating theatres / procedure rooms without a single theatre management structure model
- Poor access and flow between theatres and sterilising services (e.g. transporting dirty equipment through public corridors to lift)

Proposed strategic initiatives and recommendations
- Stream planned and unplanned surgery[380]:
  o Improve planned surgery pathway: "whether a patient is having an elective or emergency procedure, ideally their journey will follow a pathway that has been mapped out from the time of entering the hospital until their discharge summary is generated"[381]. The ideal scenario, in which elective patients have:
    - Multidisciplinary preoperative assessment
    - An "enhanced recovery after surgery" (ERAS) pathway and
    - A "preflight" checklist in the operating theatre.
  o Establish a High Volume Short Stay Unit[382], ideally a dedicated standalone HVSS facility for appropriate streaming of planned short stay surgical and procedural patients away from more complex and/or unplanned activity[383]. Underpinning this model would also require investment in appropriate information, communication and technological to support the efficient operation of the HVSS unit e.g. ensure all patients are notified 10 days in advance of procedure, confirmation call 3 days prior and SMS 2 days prior.
  o Physically integrating the peri-operative unit with the operating theatres to improve patient flow, work-flow for staff and efficiency of elective surgery while reducing waiting lists. This would be supported by clear communication between the pre-op clinic and the operating team, follow-up of blood results, bookings for HDU/ICU, etc.
  o Continue the management of emergency surgery through the designated Surgical Assessment Unit (SAU), streaming patients from the ED, fast-track surgical assessment and patient treatment, including designated theatre sessions. The SAU is a seven day per week, 24 hour service consisting of designated beds located in Dickinson 2 South. The unit provides care for stable surgical patients requiring assessment and potential admission under the care of a surgeon or as direct admissions from the Outpatients Department, Visiting Medical Officers Rooms, Inter-hospital transfers and weekend and public holiday representations for review and or admission. The service enables all surgical specialties (excluding obstetrics and gynaecology, neurosurgery and cardiothoracic) to be admitted and assessed. This model is proposed to continue and be further enhanced by future planning (size/location of the unit).
- Construction of a "hot floor" clustering critical services such as operating theatres, intensive care, etc together enabling co-location and concentration of high tech services
- Provision of sufficient storage in a single space to enable efficient use of H track (inventory management / storage system)

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[380] NSW Health, 2009, GL2009_009 Emergency Surgery Guidelines. Available at http://www0.health.nsw.gov.au/policies/gl/2009/pdf/GL2009_009.pdf
[381] Waxman, B., 2013, Smoothing out the ride for surgical patients, MJA 198 (8), 6 May 2013, p 407
[382] NSW Ministry of Health, 2012, High Volume Short Stay Surgical Model Toolkit
[383] For example The Alfred Centre, Melbourne. Available at: http://www.alfredhealth.org.au/Department.aspx?ID=284 Accessed: 7 April 2016

- Maintain a capital replacement program for equipment to provide excellent care specifically operating theatre equipment including:
  - navigation system (including a linked intraoperative CT) relevant for a number of specialities,
  - image guidance (e.g. for base of skull work),
  - robotics (e.g. for trans-oral surgery),
  - Hybrid theatre(s) (e.g. for vascular surgery),
  - intraoperative CT/MRI,
  - stack with image capture,
  - Mini-C arm, etc.
- Consider establishing operating team consisting of surgeon, anaesthetist, surgical and anaesthetic nursing staff who regularly work together on the same operating list each week. This would develop expertise in the execution of the operating list through familiarity with the procedures performed and equipment required and ensures equipment and expertise required would always be available so that cancellations and delays would be avoided.

Ophthalmology

Current services
- Ophthalmology includes the following ESRGs:
  - 509 Other eye procedures
  - 503 Glaucoma & lens procedures
- The speciality provides inpatient and outpatient services including
  - POWH Eye Cataract and Cornea Clinic
  - POWH Eye Electrophysiology Clinic
  - POWH Eye Preadmission Clinic
  - POWH Eye Orthoptist Clinic
  - POWH Eye Retinal Laser Clinic
- POWH Eye Optometry Clinic
- Staffing includes senior and junior medical staff, nursing, with multidisciplinary support from other allied health.

Trends in patient demographics, activity and service delivery
- Demographics
  - More than 65% of admissions are for people over 70 years, with people over 85 years making up more than 12% of admissions
  - The majority of patients are from the SESLHD (60%), with other patients coming from surrounding metro LHDs or rural areas.
- Activity and service delivery
  - Admissions have been trending down between 2008/09 and 2013/14 (-11.1% annual rate)
  - The speciality is overwhelmingly a planned service (95% separations) with other patients admitted from emergency.
  - Most inpatients are day only (78%), with a further 13% staying a single night and the remaining patients staying multiple nights with an average length of stay of 7.3 days.

Issues and challenges
- Population ageing and increasing numbers of older people living with long term conditions will be the major driver for surgical activity
- Given the ageing population and people living with multiple long term conditions, there will be an ongoing need for interaction between services or shared management.
- SESLHD residents who identify as Aboriginal account for 0.2% of all ophthalmic surgery separations yet, Aboriginal residents account for 0.6% SESLHD population and cataracts are 12 times more common to Aboriginal adults compared to the general population.
- People of non-English speaking background are not always offered and/or provided with health care interpreter service
- Other issues confronting the service include:
  - Myopia boom

- o New technologies
- o Significant effect on eyes by increased use of systemic medicines resulting increased work
- o Huge increase in cataracts
- o Increase in laser surgery applications
- o Biologicals changing practice e.g. vascular endothelial growth factor (VEGF) injections into the eye
- New developments include:
  - o Biologicals
  - o Micro-invasive glaucoma treatments
  - o High turnover cases
  - o Significant outpatient service
- Operating theatre equipment is ageing, out-of-date and/or needs replacement
- Limited capacity for teaching and research due to difficulties associated with data collection and statistical assistance, staff and facilities

Proposed strategic initiatives and recommendations
- Refer to Proposed strategic initiatives and recommendations for Surgery
- Continued collaboration with optometry will remain essential into the future.

Orthopaedics

Current services
- Orthopaedic surgery encompasses a range of conditions including:
  - o Wrist and Hand Procedures including Carpal Tunnel
  - o Hip Replacement/Revision
  - o Knee Replacement/Revision
  - o Knee Procedures
  - o Other Orthopaedics - Surgical
- The speciality provides:
  - o inpatient services are provided in acute overnight inpatient beds as well as the Perioperative Unit accommodates some day only admissions
  - o Outpatient Services at POWH include:
    - Orthopaedic Clinic
    - Fracture Clinic
    - Physiotherapy Musculoskeletal Clinic
    - Physiotherapy Hand Clinic
    - Orthopaedic Preadmission Outpatient Clinic
  - o There are no community, home or outreach services.
- Staffing includes senior and junior medical staff, nursing, with multidisciplinary support from other allied health, community based services and HITH/PACS services

Trends in patient demographics, activity and service delivery
- Demographics
  - o More than 30% of admissions are for people over 70 years, with people over 85 making up over 20% of total admissions
  - o The majority of patients are from the SESLHD (76%) with other patients flowing from surrounding metropolitan areas and a small percentage from rural areas
- Activity and service delivery
  - o Admissions have trended upwards between 2008/09 and 2013/14 (2.4%) while the patient complexity has been variable.
  - o The speciality has mostly planned separations (56%) with the remainder from the ED.
  - o Most inpatients are day only (37%), with some staying overnight (21%) and the remainder staying multiple nights with an average length of stay 8.9 days.
  - o Of the patients staying multiple nights there has been a significant increase in the number of patient episodes being partly provided as Hospital in The Home

- o The orthogeriatric model of care[384] has been successfully adopted at POWH
- o Strong links for integrated care are required with:
    - Aged care
    - ED
    - Perioperative Unit
- o Other important functional relationships exist with:
    - HITH/PACS services
    - Medical imaging
    - Acute Spinal

Issues and challenges
- Population ageing and increasing numbers of older people living with long term conditions will be the major driver for orthopaedic activity in particular hip and knee replacements and spinal surgery
- Given the ageing population and people living with multiple long term conditions, there will be an ongoing need for interaction between services or shared management such as the hospital's successful orthogeriatic model.
- There will also be increased demand for teaching and research
- There is ongoing and increasing trend towards day only and extended day only orthopaedics
- Despite most activity being planned, there remains a large trauma load (more than 1,000 cases in 2013/14)
- To respond to the trauma load requires a flexible theatre list
- Increasing numbers of obese patients, who tend to have a longer length of stay and require more support services for management
- Aboriginal residents of SESLHD have lower procedure rates for joint replacement surgery than other SESLHD residents. This has implications in terms of accessibility of SESLHD's Aboriginal people to orthopaedic surgery, non-identification of Aboriginal patients and Activity Based Funding.
- People of non-English speaking background are not always offered and/or provided with health care interpreter service
- Operating theatre equipment is ageing, out-of-date and/or needs replacement.

Proposed strategic initiatives and recommendations
- Refer to Proposed strategic initiatives and recommendations for Surgery

Pathology - NSW Health Pathology (NSWHP)

Current services - Descriptor
'SEALS North – Randwick Campus' Laboratory provides pathology services to the following health and research facilities on the Randwick site:
- POWH
- Prince of Wales Private Hospital
- SCH
- RHW
- Lowy Cancer Research Centre
- Health Science Alliance (HSA) Biobank.
- Scientia Clinical Research.

Randwick Campus pathology laboratory at POWH is part of NSWHP and is a designated referral laboratory for SEALS. The SEALS Network is responsible for the operational management of pathology services provided to South Eastern Sydney and Illawarra Shoalhaven Local Health Districts (LHDs). SEALS management are co-located with the Randwick Campus Laboratory.

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[384] ACI, 2010, The Orthogeriatric model of care. URL: http://www.aci.health.nsw.gov.au/__data/assets/pdf_file/0013/153400/aci_orthogeriatrics_clinical_practice_guide.pdf. Accessed on: 6 April 2016

Over the last three financial years, just under 80% of test orders originated from Health and Research facilities located on the Randwick campus; the majority from public health services (POWH, RHW and SCH). The next highest contribution to overall test orders was the Sydney Sexual Health Clinic (SSHC). It is expected that this referral pattern will continue and increase due to further consolidation of oncology and other SESLHD clinical services on the Randwick campus. Randwick Campus Laboratory also provides networked services for pathology services provided by Sydney Hospital Laboratory, located at Sydney Hospital/ Sydney Eye Hospital in Sydney CBD.

Randwick Campus Laboratory provides pathology services at role delineation level 6 and is a NATA accredited Category GX Laboratory. Randwick Campus Laboratory also provides specialist scientific and clinical supervision for staff at the Laboratory at Sydney Hospital/ Sydney Eye Hospital. Randwick Campus Laboratory also provides pathology services to Sexual Health Clinics within SESLHD.

Randwick Campus Laboratory provides a core laboratory service (consisting of Blood Bank, Haematology and Chemical Pathology services) for 24 hours/7 days per week. Anatomical Pathology, Microbiology and Genetics services are provided 8.00am to 5.30pm Monday to Friday and by arrangement out of hours, weekends and public holidays. Andrology and specialised Endocrinology services are provided from the SEALS Andrology and Reproductive Endocrinology Laboratory located in the Department of Reproductive Medicine, RHW.

The following discipline specific Laboratory Services are provided:
- The Haematology service provides a comprehensive diagnostic testing service as well as a screening and support for adult and paediatric autologous and allogeneic stem cell transplantation services provided at SCH and POWH Hospitals.
- An extensive haemaglobinopathy service is also available to support diagnosis and treatment of thalassemia and related haemoglobinopathies. Specialised Flow Cytometry services support the diagnosis and treatment of leukaemia and other haematological disorders for paediatric and adult cancer services at SCH and POWH respectively.
- The Blood Bank (Immunohaematology) service provides a comprehensive and complex service, including blood group antibody screening, matching and blood product supply and blood irradiation for POWH, Prince of Wales Private Hospital, RHW and SCH.
- The comprehensive Microbiology service includes virology and serology laboratory services that perform high volume testing for hospitals and sexual health clinics in SESLHD.
- The World Health Organisation (WHO) Neisseria Reference Laboratory is also located at Randwick campus. This service coordinates national surveillance of the pathogens that cause meningococcal disease and gonorrhoea. The laboratory provides comprehensive data on strains of gonorrhoea that are resistant to antibiotics, assists with informing clinical treatment guidelines and coordinates monitoring of antimicrobial resistance in gonorrhoea across the Western Pacific and South East Asia.
- A TGA-licensed laboratory that provides statewide diagnostic services for the Organ and Tissue Donor Service, the Bone Marrow Transplant network, the Sydney Cord Blood Bank and Bone and Tissue Banks. This Laboratory is located on Level 3 of the SCH.
- The Anatomical Pathology service provides a comprehensive service to POWH and RHW and a specialist Paediatric service for SCH. Anatomical Pathologists also provide a perinatal post mortem service to RHW and surrounding health facilities as part of the NSWHP Perinatal Postmortem Network.
- The Cytology service supports all public adult and paediatric oncology services on the site; these pathology services will expand in the future to support planned expansion of all oncology services onsite; particularly those to be located in the 'Bright Alliance' building, SCH and proposed benign Gynaecology Surgery services and potential consolidation of Gynaecology Oncology Surgery at RHW.
- The combined Clinical Chemistry and Endocrinology service provides core pathology services and complex endocrinology testing for congenital and acquired disorders of steroid metabolism. This specialist service supports all facilities on the Randwick site, but in particular, paediatric endocrinology services at SCH and antenatal first trimester screening and services to patients of the recently opened .In Vitro Fertilisation (IVF) Clinic in RHW.
- Specialised paediatric pathology services are also provided to the SCH via the Randwick Bone Marrow Laboratory which supports the paediatric allogeneic transplant program and has expertise in processing specialised grafts for reinfusion. The Bone Marrow Laboratory also supports an autologous transplant program at POWH.

- The Genetics laboratory provides molecular genetics and cytogenetic testing services. The service provides genetics screening and exome sequencing services for all clinical services at SCH, oncology services at RHW and for the Familial Cancer service at POWH. There is an agreement between NSWHP and the Garvan Institute of Medical Research (located at Darlinghurst) whereby SEALS genetic pathologists take responsibility for whole genome sequence interpretation and laboratory supervision for the recently formed Genome.One service at the Garvan Institute for Medical Research.

Randwick campus laboratory also supports extensive teaching and research undertaken by health and educational facilities located on the Randwick site.

The NSWHP PoCT program and staff from Randwick Campus Laboratory jointly provide support and maintenance for a number of PoCT devices in facilities located on the Randwick campus. Bench top blood gas analysers are currently used in the following locations on Randwick campus:
- ED at POWH
- Intensive Care Unit at Prince of Wales Private Hospital
- Neonatal Intensive Care Unit (NICU) and Delivery suites at RHW
- Paediatric Intensive Care Unit (PICU) at SCH.

PoCT devices provide on-site analysis for blood gases, lactate, haemoglobin, troponin, chemistries, electrolytes and blood coagulation tests. PoCT devices do not replace routine laboratory services.

The main blood and diagnostic specimen collection service is located in the Parkes Building; consisting of two collection rooms and a waiting area. This service also performs therapeutic venesections. There is a second collection centre with extended weekday hours located within the Prince of Wales Private Hospital on Level Seven. Inpatient blood collection for all hospitals on the Randwick campus and a home collection service are also co-ordinated by the specimen collection service.

Over the past three financial years, the ED, Intensive Care Unit (ICU), Oncology and Renal Services consistently account for around 40% of all test orders. The proportion of test orders from these clinical services is increasing by up to 2.2% annually. Reliable, dedicated infrastructure solutions to support rapid transfer of pathology specimens from these high utilisation clinical services are required to provide a quality pathology service to these areas.

Future Pathology Services at Randwick Hospitals and Health Services Campus
Current and future models of clinical service delivery are placing increased emphasis on high-volume, low-acuity service provision with predominately day-only, short-stay and non-acute models of care. The overall aim is to reduce the demand on acute clinical services. The overall impact on pathology services will be higher volumes of samples for processing and a greater emphasis on turn-around times due to shorter care episodes for patients.

Laboratory space for current and future services needs to take into account additional activity from planned increases in bed numbers and increasing use of predominately day-only, short-stay and non-acute models of care at POWH, RHW and SCH; and increased ED at POWH. There will also be some consolidation of services at Randwick campus that have a high utilisation of pathology services, such as Oncology, Renal Dialysis and Chemotherapy.

The Randwick Campus Laboratory is located on Level 4 of the Campus Centre. Laboratory space is currently at capacity. The following capital initiatives would increase the capability of pathology services to manage the planned consolidation and growth of Clinical Services:
- Expanding the laboratory footprint into the adjacent Level 5, Dickinson Building would allow reconfiguration of current laboratory services and facilitate the efficient expansion of the SEALS footprint to cater for future growth in clinical services. In particular, this would allow increased integration of the core laboratory disciplines of Haematology and Chemical Pathology into a high-throughput laboratory providing rapid diagnostics services across specialties.
- Explore options for increased microbiology automation to facilitate rapid diagnosis for Bacteriology and Virology testing.

- Consolidate Immunology testing at Randwick campus to facilitate an improved pathology service to clinical services; in particular, Rheumatology.
- Pathology 'Stat' Laboratories offer a larger range of pathology tests than Point of Care Testing (PoCT) Devices. Easily available pathology results will assist decision making in areas of high turnover such as ED and the Medical Assessment Unit (MAU) and contribute to improved ED and acute care benchmarking, such as patient length of stay and NEAT requirements. Establishing a small 'Stat Lab' adjacent to POWH ED would provide a rapid and effective service for a broad range of core tests for ED physicians.
- Expanded use of Point of Care Testing (PoCT) Devices in Operating Theatres, Intensive Care and EDs of facilities on the Randwick site.
- Ensuring IT and power infrastructure is in place to support installation of 'smart' Blood bank fridges in Operating Theatre suites.

Planned redevelopment or relocation of pathology intensive clinical services should also consider preserving current (or including new) dedicated pneumatic tube links to Randwick Campus Laboratory.

Any planned redevelopment of the Clinical Science Building, SCH must consider the requirements of the Bone Marrow Laboratory located on Level 3. The laboratory has been recently refurbished and includes access to large liquid nitrogen tanks to support the Sydney Cord Blood Bank. Relocation of the laboratory and the liquid nitrogen tanks would be a significant task.

Access for patients to Pathology Collection Centres at Randwick campus
The current number and location of Collection Centres on the Randwick campus are inadequate for the nature and volume of clinical services located on this site. Reconfiguration and relocation of current Pathology Collection Services would provide improved access for key patient groups.

The Stage Two redevelopment of the Bright Alliance Health and Research Centre is currently underway. It is planned that POWH Hospital Ambulatory care and Oncology services will be consolidated within this Centre. The planned new Collection Centre within this Centre will improve access for users of oncology and outpatient services. .

Patients using Ambulatory care services at SCH and RHW currently do not have ready access to collection centres. There is a particular need for an area where glucose tolerance tests can be performed to support antenatal clinical services at RHW.

Workforce Considerations
Pathology consultations are increasingly being provided within a multi-disciplinary team (MDT) environment. This model of care promotes the delivery of comprehensive patient care. Currently, access to appropriately sized meeting rooms is limited at Randwick Campus Laboratory.

Recommendations:
That future capital planning for the Randwick Campus includes consideration of:
- capital requirements for provision of future pathology laboratory services on site
- co-location of Collection Centres within outpatient services for the RHW and SCH
- Improved facilities for Multi-Disciplinary Team meetings for Pathology Services.

Pharmacy

Current Services
The Pharmacy Department provides a comprehensive service which supports the Quality Use of Medicines (QUM) throughout the campus hospitals: Prince of Wales, RHW, Mental Health Service and SCH.

It is a shared service hosted by Prince of Wales' Hospital which is the main base, with some staff are based in a 'satellite' pharmacy at SCH. The clinical pharmacy service for SCH is run through that pharmacy including and individual dispensing, non- sterile manufacturing and outpatients. All the distribution and manufacturing services and some dispensing for paediatric haematology/oncology is

undertaken through the pharmacy at POWH. The pharmacists supporting the paediatric haematology/oncology service are also based at POWH.

Quality Use of Medicines incorporates:
- Choosing the most appropriate and cost effective treatment
- Ensuring people are equipped with the knowledge and skills to use medicines to their best effect (education and training)
- Contributing to best practice through appropriate information, education and promotional activities (education and research),

with a focus on Medication Safety and Patient Centred Care to ensure that patients receive the right med at the right time in the right dose.
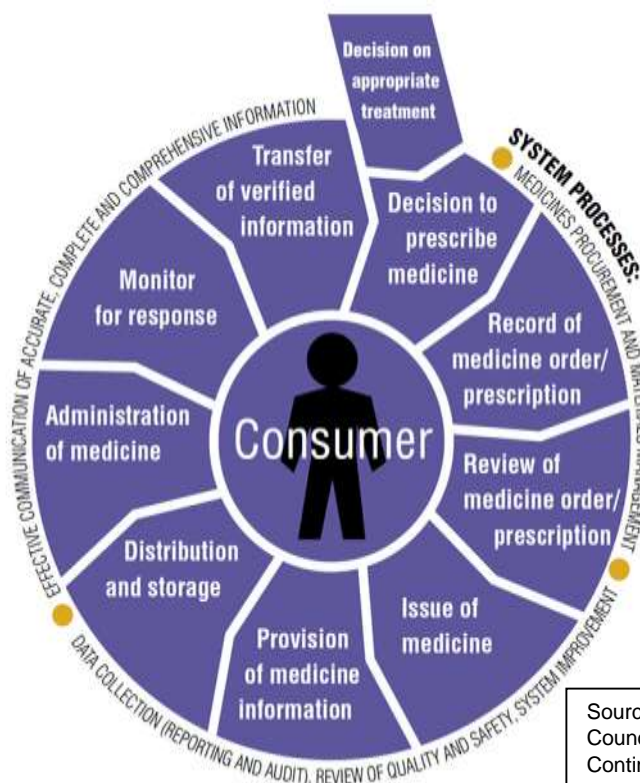
Source: Australian Pharmaceutical Advisory Council. Guiding Principles to Achieve Continuity of Medication Management 2005

Staffing;
The Pharmacy Department is staffed by a team of pharmacists with clinical expertise in a variety of areas working as part of a multi-disciplinary approach to patient care. Some pharmacists have sub-specialties.
A team of pharmacy technicians assists in the dispensary, wards, and aseptic unit to ensure that medication prescribed is available for patients when needed.
Pharmacy store and administrative staff focus on inventory management to ensure that there is timely availability of medication.

Hours of operation:
18 hours over 7 days; ED extended hours working towards 7 day 7:00 – 21:00.

Clinical Trials
The Clinical Trials Pharmacist co-ordinates and supervises clinical drug trial activities within the Pharmacy Department – POWH, SCH and the RHW.
In brief, the responsibilities of the trial pharmacist include:
- Legislative: ensuring the requirements and procedures for clinical trials are in accordance with standards of practice and the Ministry of Health guidelines.
- Education: ensuring each trial has appropriate information to be dispensed and monitored.
- Financial: preparation of financial charges for each trial.
- Quality and Standards: ensuring ongoing quality review of trials; proper storage and monitoring of trial materials; ensuring pharmacy involvement in relevant hospital committees pertaining to clinical trials.
- Liaison and committees: provision of advice to hospital staff on pharmaceutical clinical trials; communication with trial co-ordinators, investigators and sponsors about pharmacy services; participation in the Area Research Ethics Committee and/or the Scientific Review Sub-committee.
- Records: maintenance of Pharmacy-related clinical trial records.

All pharmaceutical trials carried out in the Hospital must have Ethics approval and Governance approval before patient screening and recruitment can commence.

Issues and Challenges
- Storage needs – Trend is prescribing more opiate type Schedule 8 drugs – more requirements around storage and current drug room not adequate.
- Work stations for pharmacists
- Cancer care services move – there will be a satellite pharmacy in the new building.
- Getting pharmacists out in wards, no dedicated space to allow dispensing, patient education, staff interaction as part of multidisciplinary team
- Vendor managed inventories may impact.
- Currently use porters to take pharmaceuticals to ward – would like to see chute. Infrastructure for pathology already in place, just a separate line required.
- Lack of system integration - patient management systems, administration of chemotherapy, documentation – Cancer care, ICU, ERIC - no interface.
- IT – network/bandwidth issues often cause delays (1.5 hour) which impacts on dispensing and patient discharge. Internet access blocks to medical sites a problem.
- Separating inpatients and outpatients. (NSW not a signatory with PBS agreement) could change model of dispensing; more focus on community pharmacy
- Changes – e.g haemo, HITH, outpatients, PACS - realignment has required additional resources – sourcing infusers – fridge requirements increased.
- In line with changing demographic – higher expectations, patient education;
- Ageing population and high incidence of polypharmacy.
- Clinical trials have become exponentially greater. A way of accessing and reducing costs. Storage space/documentation implications (regulation requirements; facilities for drug preparation; biological safety.

Future models of care; proposed strategic initiatives and recommendations
- Pharmacists attached to clinical teams, co-located on the wards with patients and as part of multidisciplinary team; proactive with medication management.
- Pharmacy Technician on ward or assigned to a pharmacist who is working on ward.
- Dedicated space within the wards to allow dispensing (extension of treatment room)
- Need a dedicated cabinet for biological dispensing and clean room for clinical trials
- Electronic medication management – embed into electronic health record; connect with community pharmacy
- Extension of Electronic Medication Management – robotics – bar coding to enable right medication/right patients. Flow of information from beginning to end will be all electronic.
- Potential for automation, robotics. Current evidence shows that Automated dispensing systems (ADS) have the potential to reduce certain types of medication errors such as omitted doses, but are less effective in reducing other types of errors. There is some evidence to suggest that ADS assist with storage capacity and stock control, but the evidence is conflicting

regarding time saved following installation of ADS. http://www.safetyandquality.gov.au/wp-content/uploads/2013/12/Evidence-briefings-on-interventions-to-Improve-medication-safety-Automated-dispensing-systems-PDF-832KB.pdf

- Example of automation is the Pharmacy at the UCSF Medical Centre (US) which is the ultimate robotic dispensing set up in 2011. It is geared to unit dose dispensing (which means doses are individually dispensed for every inpatient plus they also have automated IV additives. https://www.youtube.com/watch?v=Nmoe8S2ojK4
- A number of Australian pharmacies have introduced automation to various levels, eg Royal Adelaide, RNS, Hornsby, John Hunter hospitals.
- Pharmacy location near loading dock, pallets, facilitate efficient delivery of life saving drugs.
- Hospital pharmacist able to initiate home medicine reviews for patients in the community prior to admission (e.g Royal Melbourne Hospital has a pharmacist that goes to the community. Pre-admission clinics to look into reviewing medications prior to operation/admission.
- Pharmacist as part of the Hospital in the Home team.
- In the future, pharmacists may be doing charting independently – effectively writing prescriptions, like advanced practice nurses
- Some specialised pharmacists.
- Streamline dispensing, processes
- Genomics an emerging field, which will impact on prescribing patterns -15 years.
- Breakthroughs in therapeutics will cause a major shift in how health systems care for patients with certain diseases.
- Patient held devices with medicine information and education.
- Clinical trials - exponentially greater – need clean room, staff workstations, dedicated cabinet for storage and biological dispensing.
- Safe and adequate storage
- IT appropriate technical support – is time critical as delays impact on patient access to medications and patient flow.

Society of Hospital Pharmacists of Australia- has run a future summit for the last couple of years where leaders in pharmacy have come together over a couple of days to discuss current priorities/challenges/directions.

There were five major initiatives / projects identified by the Society of Hospital Pharmacists of Australia[385] in 2014:
1. Expanding the scope of practice of pharmacy support staff
2. Building capacity in the pharmacist workforce - to enable pharmacists to work in integrated care service model; and build capacity in support staff.
3. National Translational Research Collaborative – to facilitate collaborative translational research into optimising medicine use
4. National Medication Management Dashboard - data about the effectiveness of services; benefits and cost of these services, and the safety and risks associated with the services.
5. Evidence map to prioritise and link patient needs with medication management services of greatest benefit.

Plastic and Reconstructive Surgery

Current services
- Plastic and Reconstructive encompasses a range of conditions including the following ESRGs:
  - 511 Microvascular tissue transfer/skin grafts
  - 519 Other plastic & reconstructive surgery
  - 512 Skin, subcutaneous tissue & breast procedures
- *Note:*
  - *Some plastic and reconstructive surgery is mapped to other Service Related Groups such as Breast Surgery depending on the coding of the patient.*
  - *Maxillo-facial surgery has a separate Section*

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[385] The Society of Hospital Pharmacists of Australia (2014) *Report of the Proceedings of the SHPA 2014 Future Summit*

- The speciality provides:
  - o Inpatient services are provided in acute overnight inpatient beds as well as the Perioperative Unit accommodates some day only admissions
  - o Outpatient Services include POWH Plastics Clinic
- Maxillofacial Surgery operates as a shared service between POWH and SCH and the RHW
- Staffing includes senior and junior medical staff, nursing, with multidisciplinary support from other allied health.

Trends in patient demographics, activity and service delivery
- **Demographics**
  - o Approximately 32% of admissions are for people over 70 years, with people over 85 years making up 10% of admissions
  - o The majority of patients are from the SESLHD (66%), with a further 8% of patients travelling from Illawarra Shoalhaven LHD. Although small in number, patients from rural LHDs tended to have high complexity (evidenced by an average PEM greater than 3.00 versus SESLHD residents at 1.33).
- **Activity and service delivery**
  - o Admissions have been trending up between 2008/09 and 2013/14 (4.8% annual growth rate)
  - o The speciality is largely a planned service (75% separations) with the remainder from the ED.
  - o Most inpatients are day only (54%), with some staying multiple nights (27%) with an average length of stay 10.6 days and the remainder staying a single night.
  - o Approximately a third of the activity is paediatric (not included in the appended activity table which is for adults)
  - o Strong links for integrated care are required with
    - oncology
    - ear, nose and throat
    - head and neck surgery
    - maxillo-facial surgery
    - RHW
    - SCH
  - o Other important functional relationships exist with:
    - Medical imaging
- Current and projected activity and non-admitted activity is included in this Plan

Issues and challenges
- Population ageing and increasing numbers of older people living with long term conditions will be the major driver for surgical activity
- Given the ageing population and people living with multiple long term conditions, there will be an ongoing need for interaction between services or shared management.
- Increasing numbers of obese people who require more support services for management
- People of non-English speaking background are not always offered and/or provided with health care interpreter service
- Breast reconstruction differs significantly in relation to health insurance status
- Bulk of work is secondary including skin cancer, oncology and trauma reconstruction. In the future the primary work will be reconstruction and tissue engineering, with microsurgery being an important part of the future
- There will be ongoing demand for high turnover cases, both day only and extended day only
- Operating theatre equipment is ageing, out-of-date and/or needs replacement
- Limited capacity for teaching and research due to difficulties associated with data collection and statistical assistance.

Proposed strategic initiatives and recommendations
- **Refer to Proposed strategic initiatives and recommendations for Surgery**

- Continued general reconstructive surgery service to surgical oncology specialties will require increased access to operating theatre time.
- Ongoing expansion of the tertiary microsurgical reconstructive service requires transferring of patients from out of area where reconstructive services are inadequate.
- Resolution of inequities for breast reconstruction based on health insurance status.

Public Health Unit, South Eastern Sydney Local Health District

The District's Public Health Unit is located on the Randwick campus, and is recommended to remain on campus.

The role of the Public Health Unit is to identify, prevent and minimise public health risks to the community within District boundaries; those risks may be:
- infectious, chemical, radiological, etc
- from other humans
- from animals, e.g mosquitoes, bats
- from the inanimate environment, e.g public swimming pools, cooling towers.

This is delivered through a number of core activities:
1) Surveillance and Monitoring
- identifying and defining conditions, behaviours and practices which pose a public health risk
- surveillance of notifiable conditions
- monitoring vaccination coverage
- analysing interpreting and reporting epidemiological data on health and disease

2) Primary prevention at individual level
- Contact tracing of individuals exposed to infectious or chemical hazards
- Conducting the school-based adolescent vaccination program on behalf of the NSW Ministry of Health
- Facilitating immunisation for Aboriginal and Torres Strait Islander children

3) Enforcement of legislation and response
- responding to disease notifications
- investigating disease outbreaks and clusters
- maintaining and enforcing environmental health standards
- enforcing public health and tobacco control legislation

4) Education and advocacy
- providing information to general public
- informing and educating health professionals, whether District staff or in office based settings
- educating local government staff and those responsible for generating public health risk activities, e.g skin penetration premises, owners of cooling towers
- supporting immunisation providers and advisers in hospitals and the community
- advocacy, use of media, web page and social media profile, and input into health protection policy at local, state and national levels

5) Research, teaching and training
- a strong research program, both planned and opportunistic, evidenced by a string track record in scientific publications
- involvement in undergraduate and postgraduate teaching through UNSW School of Public Health and Community Medicine
- formal program-based training of public health officers and public health registrars
- training of public health personnel generally through secondments and work experience placements.

The clientele of the Public Health Unit comprises all residents, health care facilities (public and private), organisations and businesses within the District boundaries, including the Port of Sydney and Sydney Kingsford Smith International Airport.

Key relationships

The Public Health Unit (PHU) has very strong relationships with clinical services on the Randwick campus and the University of NSW, for example:

- Reliance on SEALS Randwick for a major proportion of the District's infectious disease notifications; frequent contact with SEALS Randwick including visits by Public Health Unit staff to SEALS Microbiology to discuss notifications and emerging infections, introduction of Microbiology staff to the disease control activities of the Unit, joint research projects
- Participation by Unit personnel in Biopreparedness meetings at Prince of Wales and SCHs, inclusion of Unit representatives in outbreak control meetings (e.g measles, meningococcal disease, gastroenteritis, pertussis etc)
- Representation on the SCH infection prevention and control committee
- Support provided by the Unit to the staff vaccination and related activities of the CHESS program
- Visits to EDs to educate clinical staff on disease notification, public health response, triage and preparedness for emerging infections, such as Ebola, MERS, measles
- Support of antenatal and maternal vaccination programs at RHW, assistance with development of clinical protocols and promotional materials, joint research, and education of clinical staff
- Provide teaching at undergraduate and postgraduate levels in public health to the UNSW Faculty of Medicine; joint research projects with and supervision of masters and doctoral candidates through the School of Public Health and Community Medicine, School of Women's and Children's Health and the School of Biological Sciences.

The PHU is aware of environmental health risks in the vicinity and works closely with government and industry stakeholders and the community to manage those risk:

- Active monitoring of processes and activities with potential for public health risk at Orica (Matraville) and legacy chemical contamination at Botany Industrial Park and the Botany area generally
- Surveillance of health status of passengers and crew of cruise ships visiting the Port of Sydney and of crew of cargo vessels visiting Port Botany (part of the Port of Sydney); environmental health inspection program for cruise ships berthing in the Port of Sydney
- Provide advice to Campus management regarding risks subject to regulation under the Public Health Act, including cooling towers, warm water systems, swimming pools, with site visits and sampling as appropriate.

Rehabilitation

Current services

- The General Rehabilitation service provides inpatient and outpatient care to a case mix that includes stroke, neurological disorders, and deconditioning after a variety of acute medical and surgical diagnostic groups, in order to restore functional ability.
- The Unit includes 20 inpatient beds, a Monday to Friday outpatient service, and an Acute Rehabilitation Team which provides in reach into the acute wards. Specialist consulting rooms, shared with spinal rehabilitation, are located on level 2.
- Inpatient and outpatient services are provided for amputees. The POWH Lower Limb Amputee Team provides services to the district, while POWH Upper Limb Amputee Team provides services to any NSW resident. Multiple limb amputees are referred to POWH from across the state. The service is a reputational centre of excellence for multi limb and upper & lower limb amputee rehabilitation
- The inpatient unit, located on Parkes 1 West, has been purpose built with a dining room and courtyard, and is co-located with the Allied Health therapy areas, which include a gymnasium (shared with spinal rehabilitation) and hydrotherapy pool. The therapy area is also used by outpatients for ongoing rehabilitation support.
- The majority of patients are referred from other acute wards within the hospital, and are discharged from rehabilitation.
- Staff include a team of Rehabilitation Specialists and registrars, specialist rehabilitation nursing and allied health staff, who provide multi-disciplinary, person centred care that enables clients to realise their maximum potential recovery and ensure the best transition to community life.

Trends in patient demographics, activity and service delivery

- Patient demographics
  - o Although rehabilitation patients may encompass all adult age groups, AROC data demonstrates the average age is static at 67 years. This may change as our population ages and demonstrates increasing complexity and acuity
  - o ABF NWAU data shows a higher dependency and complexity compared to average with rehabilitation patients having extensive comorbidity and complications. These higher acuity patients require a highly skilled team, to enable a greater range of acute conditions to be seen and much earlier rehabilitation to commence
  - o The majority of patients are public, with little opportunity for revenue from private patients
  - o The majority of referrals come from other acute wards within POWH, with neurology and neurosurgery being the major referrers, with approximately 50% of referrals for stroke patients
- Service delivery trends
  - o Since 2008 the average length of stay for general rehabilitation has declined from 36 days to 22 days (AROC Data)[386]
  - o AROC Benchmarking data demonstrates length of stay is 1-2 days below case mix adjusted benchmarks nationally
  - o Reduced length of stay has facilitated increases in episodes per annum, from 150 in 2008 to over 270 in 2015 (AROC data)
  - o Average waitlist times for rehabilitation (2 working days) permits acute services to reduce their Relative Stay Index, and improve bed flow. It is not anticipated that wait times for admission to inpatient rehabilitation will increase
  - o The readmission rate may increase due to the increasing complexity of patients living with multimorbidity
  - o 64% of patients are discharged home (AROC data)
  - o There is a waiting list for outpatient therapy, which causes delays to discharge
  - o Single limb amputee rehabilitation is trending towards a more outpatient delivered service
  - o Outpatients is currently at capacity and cannot provide the intensity of therapy ideally required because of this.
- Service delivery
  - o New models of care include the in-reach Acute Rehabilitation Team (ART), which allows rehab to start in the acute setting to avoid decline in function, facilitates earlier discharge home and potentially avoids in-patient rehabilitation admissions where possible. This team has reduced the waiting list for rehab and approx. 20% of patients are able to be discharged home without requiring transfer to rehab
  - o Delays to discharge are largely outside of the Units control e.g. availability of suitable accommodation, RACF beds, service availability (approximately 5-10% of patients experience exit block)
  - o There is a waiting list for outpatient therapy, which causes delays to discharge
  - o Outpatients is at capacity and as a result cannot provide the intensity of treatment ideally required

Issues and challenges

- The rehab unit should remain on the acute hospital site to allow concurrent high acuity medical issues to be addressed, allow earlier intervention in the acute setting and timely transfer to the Rehabilitation setting
- The ACI recommended model of care for rehabilitation[387] promotes day rehabilitation and domiciliary services as preferable to inpatient care as soon as patients are stable enough to leave hospital. Currently Outpatient services are at capacity and have a waiting list, and are unable to offer the intensity of therapy required. Transitional care is used when appropriate, however there is currently no domiciliary rehabilitation team to service those waiting for rehabilitation outpatients or unable to attend as an outpatient
- Commonwealth funded aged care and transitional packages are often not suitable or available to the general rehabilitation demographic. A Post-Acute Care team is not currently available for

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[386] Australasian Rehabilitation Outcomes Centre, University of Wollongong. AROC Core Report: Inpatient – Pathway 3 *Prince of Wales Hospital (Rehabilitation Unit)* July 2014- June 2015
[387] NSW Health: NSW Rehabilitation Model of Care
URL: http://www.aci.health.nsw.gov.au/resources/rehabilitation/rehabilitation-model-of-care/NSW-Rehabilitation-moc-2014.pdf

general rehabilitation patients
- There is limited availability of age appropriate residential care, which results in delays to discharge
- Bariatric care in combination with the social and psychological determinants of ill-health present significant future challenges and require novel and innovative solutions

Proposed strategic initiatives and recommendations
- An on-site Rehabilitation model as currently exists provides the best rehabilitation service to support the acute care services at POWH and underpin patient flow from these services back to the community
- Ideally, the service would provide a Rehabilitation precinct, with close functional links to the Spinal Unit (e.g. shared gym and expertise), Neuroscience and Aged Care. The NSW Rehabilitation Model of Care[388] is the recommended model, allowing different solutions for patients at different stages of their journey and reducing length of stay by minimising over-reliance on expensive in-patient rehabilitation. This would include a co-located:
  o Inpatient unit, with a philosophy of personalised Rehabilitation based on intensity of therapy, an enabling ward environment, with 7day a week Allied Health working collaboratively and integrated with a 24hr therapeutic Nursing service
  o Outpatient service, (preferably as a Day rehabilitation service), with adequate staffing to allow out-patient intensity to substitute for in-patient, prevent delays to discharge
  o Transport provided for outpatients, as required
  o An in-reach service to the acute wards (a continuation of the ART model)
  o An outreach domiciliary service to the community, with specialised rehabilitation staffing, potentially as part of a PACS or HITH service, for those who can't access day rehabilitation.
- Better integration with community support providers that currently significantly block and delay discharge. This would involve developing and strengthening links with partners in social care and primary health services to form integrated person centred pathways with multiple teams working in partnership with clients and carers and families, in order to address social disadvantage and the social determinates of health
- NDIS may offer greater levels of enabling community care and participation for newly disabled younger people (below age 65)
- Increased referral to targeted consumer co-designed programs for self-management support of chronic and long term conditions
- Personalised health records, may better facilitate individualised goals, values and preferences that promotes the health & wellbeing of an engaged and active growing community of older people.

Respiratory and Sleep Medicine

Current services
- The Department of Respiratory and Sleep Medicine manages a wide variety of respiratory conditions:
  o COPD-Emphysema
  o COPD-Bronchitis
  o COPD-Bronchiectasis
  o Asthma
  o Pneumonia
  o Pneumothorax
  o Pulmonary Embolism
  o Tuberculosis
  o Cystic Fibrosis
  o Thoracic Malignancies
  o Acute respiratory Failure
  o Cor Pulmonale
  o Obstructive and Central Sleep Apnoea
  o Pulmonary Hypertension
  o Pulmonary Fibrosis
  o Sarcoidosis
  o Occupational Lung Diseases
- The Unit also manages patients with HIV/AIDs related respiratory conditions, including:
  o Pneumonia (PCP)
  o Pneumocystic Carinii
  o Cryptococcal infections,
  o Cytomegalovirus (CMV)
  o Mycobacterium Avium Complex (MAC),
  o Candidiasis Toxoplasmosis
  o Tuberculosis

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[388] ibid

- The Sleep Disorders Service provides comprehensive investigation and management of a wide range of sleep disorders:
  - Obstructive sleep apnoea
  - Obesity hypoventilation
  - Neuromuscular disorders leading to hypoventilation
  - Non-respiratory sleep disorders
  - Insomnia
- The Unit also manages patients with spinal injury related respiratory failure, including:
  - Chronic Respiratory Failure
  - Tracheostomy management
  - Non-invasive Ventilation
  - Invasive Ventilation

Services provided by the Unit include:
- Lung Function Services
  - Peak Flow monitoring
  - Spirometry and complex lung function testing
  - Arterial Blood Gas interpretation
  - Cardiopulmonary Exercise Testing
- Sleep Lab Services
  - Non Invasive Ventilation, continuous or intermittent (BiPAP/CPAP)
  - Whisper Flow CPAP
  - Sleep studies and nocturnal CPAP
  - Tracheostomy Management

The Unit provides:
- Inpatient services on Dickinson Level 4 (26 acute in-patient beds shared with Infectious Diseases patients, including a 4 bed Acute Respiratory Failure Unit and a 4 bed Respiratory Medical Assessment Unit
- Outpatient Services , located on Level 2, campus centre include:
  - Lung Function Laboratory (Pulmonary Function and Exercise tests)
  - Comprehensive sleep disorders service (public-private partnership model)
  - Sleep Laboratory
  - Respiratory Medicine Clinic
  - Respiratory and Sleep Clinic
  - Bronchoscopy Service
  - Comprehensive TB service (non-chargeable)
  - Chest (TB) Clinic (daily)
  - Cystic Fibrosis Clinic (monthly)
  - Smoking Cessation clinic (4 days/week)
- Pulmonary Rehabilitation Service
  - Cardiopulmonary Rehabilitation gym
  - Education room
  - Pulmonary Hydrotherapy Rehabilitation
- Community based outreach services, including:
  - Respiratory Coordinated Care Services (RCCP)
  - Home based pulmonary rehabilitation and tele-medicine rehabilitation
  - Outreach clinic at the La Perouse Aboriginal Medical Service
  - Partnership with Heartlink, HITH and other Co-ordinated Care services.
- Respiratory and Sleep Research Program
  - Basic and clinical respiratory research (Clinical Sciences Building Level 2 and UNSW. Clinical Academic appointment, with Medical/ scientific research collaboration with St Vincent's Hospital, UNSW and Concord Hospital.
  - Respiratory and sleep research are also conducted in Neuroscience Research Australia with longstanding collaboration and continuous NHMRC funding over many years.
  - The Unit also hosts PhD students and undergraduate medical, nursing and physiotherapy students.
- Bronchoscopies are conducted in the Billington (Endoscopy) Centre, with sedation and recovery supported by respiratory medicine staff
- Respiratory Medicine is a participant in the fortnightly Lung Cancer Multi-disciplinary team clinic

- Transitional care services for respiratory patients from SCH, e.g. for young adults with neuromuscular disorders and cystic fibrosis. A relationship also exists with the respiratory laboratory at SCH
- Respiratory research is conducted in the. There is a
- Consultation is provided to Justice Health for medical consultation of prisoners; and to Sydney Hospital as a tertiary referral service for respiratory medicine
- A patient support group, Pink Panters, meets regularly
- Staffing includes senior and junior medical staff, nursing, Health Service Manager, Health Education Officer for smoking cessation clinics and clinical trials, a Physiotherapist, Scientific Officer, technicians and administrative staff, and research officers/students; with multidisciplinary support from other allied health, community based services and HITH/PACS services

Trends in patient demographics, activity and service delivery
- Demographics
  - The unit receives over 80% of its admissions from the ED, but also receives a significant number of admissions from the Adult Intensive Care Unit and Respiratory Outpatient Clinics
  - More than 50% of admissions are for people over 70 years, with people over 85 making up over 20% of total admissions
  - The majority of patients are from the SESLHD and local metro catchment areas, with a small percentage from rural (mostly NSWND) areas
- Activity and service delivery
  - Admissions are relatively stable, however length of stay has reduced over the last 3 years and is now likely to stabilise
  - Bariatric patients have a longer length of stay
  - Admitted patients are becoming increasingly complex, as more patients are able to be managed as outpatients and in the community
  - Outpatient clinics are currently at capacity, with a waiting list of 2-4 months and this may increase with changing models of care
  - The RCCP has reduced ED presentations and hospital admissions since its inception in 2008
  - Currently a CNC is available to review a subset of patients in ED and determine their suitability for discharge home with RCCP management or admission to MAU
  - Strong links for integrated care are required with:
    - Cardiology
    - Aged care
    - Emergency Department
    - Palliative Care
- Other important functional relationships exist with:
  - HITH/PACS services
  - Acute Spinal
  - Medical and Radiation Oncology
  - Emergency
  - Neurology and Clinical Neurophysiology
  - Cardiothoracic medicine & surgery
  - Gastroenterology/ endoscopy
  - ENT
  - Drug and Alcohol Unit
  - Liaison Psychiatry

Issues and challenges
- Bed Flow – Admission Block:
  - The Respiratory MAU is inefficient: it does not have faster access to diagnostic services, which can cause delays to diagnosis and discharge
  - The increasingly rapid identification of viruses requires negative pressure rooms for management
  - Increasing numbers of bariatric patients, who tend to have a longer length of stay and require more support services and specialised equipment for management
  - DB4 is the primary unit for infectious diseases. Lack of isolation and negative pressure

- rooms is an issue for infection control and safe management of infectious patients
  - o Telemetric monitoring is needed for high acuity patients in isolation rooms
- Bed Flow – Discharge Block:
  - o Although more patient's wish to die at home with outreach support, palliative care is still required in the inpatient setting. Currently patients are transferred to Sacred Heart, however this may not continue into the future, and there is a need for more palliative care outreach and palliative care beds at POWH, so that patients do not die on the ward
  - o There is a need for access to low acuity beds for patients waiting for placement, rehabilitation or other services but do not need acute inpatient care
  - o Timely discharge for patients with multiple medical problems that require consultation with other specialties and need ongoing support
- Appropriate setting for aseptic interventional procedures
  - o Increasing clinical need for dedicated space for pleural and bronchoscopic procedures, with the capacity to use niche equipment such as cryobiopsies, C-arm fluoroscopy, Radial-probe endobronchial ultrasound and pleuroscopy with anaesthetic support.
- Unique Patient Populations:
  - o Population ageing and increasing numbers of older people living with long term conditions will be the major driver for respiratory activity
  - o **Bariatric patients** present logistical and medical issues relating to the safe delivery of medical care for sleep apnoea and other respiratory conditions, which may be a driver of activity in the future
  - o **Spinal patients** with ventilatory requirements are often transferred to POWH and require complex respiratory management
- Community Care and Preventing Readmission:
  - o Pulmonary rehabilitation services are currently restricted by access to relief staff, and loss of previous Medicare Local funding for a community service
  - o There is currently a lack of integrated management of people living with multiple long term conditions, with little interaction between services or shared management
  - o
- Tertiary Multidisciplinary Clinics
  - o Multi-disciplinary clinics involving respiratory, cardiology, rheumatology, neurology, rehabilitation, nursing, physiotherapy, dietetics need to be accommodated in often cramped outpatient clinics that are not fit for purpose.
  - o Managing staff in multiple locations
  - o Sleep Labs are likely to have more activity as a result of increasing levels of obesity
  - o Integrated services require integrated health records, and currently this is lacking and hampers productivity. Shared medical record access for RCCP, palliative care, CHOC and GPs is required
- Research
  - o Access to research funding is limited
- Dated Equipment
  - o Equipment is ageing and needs replacement on a 5-7 year cycle, e.g. home ventilation equipment, pulmonary rehab equipment, exercise study equipment.

Proposed Strategic Initiatives and Recommendations
- Improved Models of Care
  - o Continue a 3 prong multi-disciplinary integrated service with inpatients, outpatients and increasing community outreach to avoid ED presentation and hospitalisation.
  - o Inpatients:
    - **Establish a Respiratory NIV** service model for high acuity respiratory patients including acute respiratory failure with other organ disease who require NIV. This requires increasing nursing ratio and central monitoring including ECG.
    - **Ensure increased respiratory isolation capacity** with negative pressure capability to deal with a potential increase in the number of respiratory viruses that will require isolation in an institution that will have more at-risk immunocompromised patients. This requires more isolation rooms and tele-monitoring capability.
    - **Ensure adequate space & equipment suitable for bariatric** patients (>200kg), with capacity to deal with patients much heavier than this (>300kg). Extra floor

space, wider corridors, suitable equipment (lifters, beds, trolleys), built in hoists, and amenities will be required for this patient population.

- o Low acuity care:
  - Access to step down, low-acuity beds for patients needing rehabilitation, palliative care or waiting for other services, community support or residential placement
- o Outpatients:
  - Develop an expanded public sleep clinic with the capability to deal with tetraplegic and neuromuscular inpatients.
  - Develop of a Pulmonary Hypertension Clinic in conjunction with cardiology and rheumatology, as well as allied health including physiotherapy and nursing staff
  - Establish a day only Rapid Access clinic with multi-disciplinary support, whereby patients referred from ED, RCCP or GPs can be assessed and referred for HITH or short stay admission.
  - Establish an integrated service for breathlessness including Palliative Care and Clinical Psychology
  - Establish an integrated Bariatric management service, i.e. with Gastroenterology, Endocrinology, Respiratory medicine, Upper GI surgeons, Rehabilitation, allied health, etc.
  - Investigate potential partnerships for clinical and translational research, e.g. Universities, industry, etc.
- o Community Outreach
  - Increase access to HITH, with staff working across specialties and specialists maintaining clinic involvement with their patients
  - Increase integration of outreach services with cardiology, aged care, palliative care and community services to develop a collaborative service delivery model to care for all vulnerable patients in the community
  - Increase the integration of outreach services such as RCCP and Heartlink, to improve efficiency and patient management, i.e. with shared facilities, admin, some staffing
- o Highly trained and skilled staff
  - Appropriate staffing resources (medical, nursing, technical, educational, allied health and clerical) to enhance existing high quality service delivery and support new outpatient clinics, higher acuity ward patients, a greater number of HITH patients and expanded community based outreach services. Advanced telemetric monitoring with sophisticated IT algorithms would reduce staff time in performing routine observations allowing efficiency gains.

Infrastructure aligning to future needs
- Inpatients
  - o Increase isolation capacity with negative pressure rooms and isolation rooms, with half of beds single rooms with the capacity to increase to two thirds in the flu season
  - o Include point of care teaching facilities, multi-purpose teaching/meeting room
  - o Maintain two equipped sleep study beds on the ward for inpatient access in order to provide nursing requirements overnight, with technicians nearby for ventilator dependent patients with higher-care needs such as complex neuro-muscular or spinal patients.
  - o Permanent, Built in gantry-hoist for neuromuscular and bariatric patients
- Outpatients
  - o Ensure outpatient clinic rooms are 'fit-for-purpose', co-located with respiratory and sleep laboratories.
  - o Increase the capacity of outpatient clinics to accommodate patients with complex medical needs, wheelchair bound patients, or bariatric patients, as well as a team of clinicians simultaneously.
    (e.g: wide doors, space for wheelchairs and carers)
  - o Maintain respiratory medicine outpatients with sleep lab and pulmonary rehab gym
  - o Co-locate these with multi-purpose team meeting and education rooms to facilitate sharing of interdisciplinary knowledge.
  - o Two to three bed Sleep Unit with the capabilities to accommodate bariatric patients, wheelchair bound & ventilator dependent neuromuscular patients, with appropriate space for carers if required

- Interventional Procedures
  - Consider colocation of theatres and Endoscopy Unit to provide (ACI guideline recommended) Anaesthetic support when required, shared recovery service (with isolation room capacity) and close functional relationships with imaging, ICU and HDU
  - Increase the size of the procedure room to allow capability for
    - image intensification/fluoroscopy on a C-arm, with lead shielding,
    - anaesthetic capacity
    - negative pressure ventilation for infectious patients.
  - Include space and budget for equipment such as:
    - radial probe endobronchial ultrasound;
    - Bronchoscopy cryoprobe;
    - Video rhinoscopy equipment, including sterilisation capacity;
    - Medical pleuroscopy
  - Expanded Rhinoscopy service, with 3 rhinoscopes and sterilisation capability.
- Budgeting for capital replacement
  - Maintain a capital replacement program for equipment, usually:
    - 3-5 years for sleep computers & technology,
    - 5-7 years for ventilators,
    - 7-10 years for sleep hardware,
    - 8-10 years for bronchoscopic units,
    - 10-15 years for lung function equipment
- Utilise Technology to optimize efficiency of patient care
  - Full integration of lung function and sleep data into eMR, including ordering of tests and reporting
  - Ensure access to medical records and information sharing is available for staff in outreach, outpatients and community e.g. GPs
  - Enable uploading of Sleep Lab results onto common system
  - Consider multi-lingual health apps as an educational tool
  - Review application and access to tele rehab and tele monitoring for RCCP patients, building on the success of a pilot program
  - Incorporate wireless technology for inpatient sleep studies

Rheumatology

Current services
- The Rheumatology service provides extensive expertise in a broad range of medical conditions, including bone diseases and arthropathies, non-surgical spinal disorders and inflammatory musculo-skeletal disorders that cross a wide spectrum of clinical disciplines and specialities. Management of biological therapies is a key area of expertise. A specialist is on call at all times to provide for Emergency referrals
- Rheumatology provides a wide-ranging consultative service to other campus hospitals and specialties, and works closely with these services to provide integrated care, including:
  - RHW
  - Sydney/Sydney Eye Hospital for telephone consultation and advice and patient transfer
  - SCH e.g. for Juvenile arthritis
  - Immunology e.g. for SLE
  - Infectious Diseases e.g. for septic arthritis/osteomyelitis
  - Dermatology e.g. for psoriasis and arthritis
  - Endocrinology e.g. for osteoporosis with fracture
  - Renal medicine e.g. for vasculitis
  - Ophthalmology e.g. for Giant cell arteritis
  - Respiratory e.g. for pulmonary fibrosis
  - Cardiology e.g. for Pulmonary Hypertension
  - Orthopaedics and Neurosurgery
  - Infusion Centre to prevent admissions
- The department manages transition of care of youth and young adults with rheumatological conditions from the SCH to the POWH Adult service
- Shared weekly meetings are held with St George and Wollongong Hospitals, and the department hosts NSW's largest Rheumatological clinical network meeting, which includes representation of most teaching hospitals in Sydney Metro as well as private practitioners.

- Rheumatology department offices are on Level 4 of the Dickinson Building. A clinical academic is based in the POWH Clinical School as well as UNSW.
- Outpatient consultations are provided in the POWH Outpatient Unit with clinics held 3 days per week. Clinics include:
  - Rheumatology Biological Disease Modifying Antirheumatic Drugs (bDMARD) Clinic
  - POWH Rheumatology Clinic
  - A new Emergency clinic for patients from ED or GP direct referral
- A registrar led shared clinic with SCH is also provided
- There are no designated Rheumatology beds, with inpatients treated in wards throughout the hospital
- Staffing includes Specialist and junior medical officers, including a clinical academic, with no nursing, allied health or administrative support
- The Rheumatology service is highly reliant on diagnostic services of medical imaging and pathology. The department currently has an Ultrasound which is used for research purposes
- Teaching is provided to Undergraduate students at the UNSW and for medical student attachments to outpatient clinics and ward rounds. POWH Rheumatology is also a popular destination for overseas graduates seeking super-speciality training, e.g. for ultrasound in rheumatology

Trends in patient demographics, activity and service delivery
- The majority of activity is provided in outpatient setting, for both public and privately referred patients, and this is expected to continue
- Approximately 80% of services are provided to residents of SESLHD
- Inpatient trends have remained stable
- Outpatient activity is at capacity, with a 2 year waiting list for public patients. Clinics are limited by the availability of clinic space and time in the Outpatients Unit
- Rheumatologists provide services to all age groups, however the medical management of increasing numbers of people with multiple long term conditions and the aging population will increase demand for services
- New technologies and treatments have allowed earlier diagnosis and improved management, allowing more people to be managed in the outpatient setting and avoiding admission

Issues and challenges
- The loss of a Basic Physician Trainee rotation has seriously impacted on the service's ability to meet demand, particularly for outpatients
- Many rheumatological patients have chronic disease that requires ongoing specialist management
- There has been a withdrawal of support and services from the Rheumatology Department over the last few years, e.g.
  - Biologics clinic and Biologics nurse, which has meant greater waiting lists for the general clinics
  - Access to allied health support, social work, pharmacy, hydrotherapy etc. This impacts on the Department's ability to provide a comprehensive, patient centred service
- There is no clerical support provided in the public hospital, thus considerable administrative burden is undertaken by Specialists and resource support needs to be provided from private rooms. This results in administrative inefficiencies and potential loss of billing income.
- Difficulties with intra-hospital services have led to an increased use of private providers in both imaging and pathology
- Lack of space in ambulatory care results in under-utilisation of equipment, e.g. polarising Light Microscope
- Lack of access to computers creates inefficiencies and firewalls prevent access from Staff Specialist private rooms to patient information, e.g. pathology results. NSW Health Pathology (via the SEALS Information Technology Unit) are continuing to work with and improve the interface between information systems used by Staff Specialists and the SEALS Laboratory Information System (LIS).
- Lack of dedicated beds for Rheumatology means that patients are outliers in a variety of wards and no nursing or allied health expertise is developed in their care, as well as inefficiencies of patient management

- Much activity performed by the department is not captured under ABF, e.g. telephone consultations, emergency consultations, consults to other specialties, education and research activity.

Proposed strategic initiatives and recommendations
- POWH Rheumatology Department will continue to provide a Level 6 role delineation service for outpatient, inpatient and consultative services, however this will require improved access to nursing and allied health input e.g. physiotherapy, hand therapy, orthotists and inclusion of dedicated Pharmacist
- New models of care:
  - Establish Centre for Innovative Therapy in Inflammation Medicine e.g. for new agent clinical trials, orphan use of drugs, including a dedicated clinic for patients with rarer diseases that require this treatment
  - Establish a Centre of Excellence for Musculoskeletal Imaging in South East Asia, including the provision of regional MRI and Ultrasound for improved and earlier diagnosis of disease. This would have applications for a number of specialties
  - Re-establish the Biologics service, to provide patients from a variety of specialties better access to targeted therapies and facilitate participation in clinical trials and research
  - Outpatient Clinics are integral to service provision, teaching and research, and for avoiding ED presentations and hospital admissions. This requires:
    - A New Patient clinic and an additional Registrar clinic to reduce waiting lists
    - Formalisation of the Ultrasound clinic for soft tissue imaging
    - Funding for regional low field MRI for joint imaging, which could be housed and operated from the Rheumatology department
    - Provision of shared space for U/S and MRI to provide Centre of Excellence for Musculoskeletal Imaging.
    - Provision of space for polarising light microscope for analysis of synovial fluid specimens
    - Provision of space for a dedicated Rheumatology Outpatient clinic e.g. Respiratory Department set up.
    - Funding for Department Manager
    - Restore Biologics clinic and restore funding for employment of a dedicated nurse
    - Establish a database of all patients attending clinics to allow ready access to information and reporting
    - Establish a Vasculitis clinic to be shared with Immunology/Dermatology/Renal
    - Establish triaging of referrals and mechanisms to manage care in the community
  - Consider the establishment of:
    - Vasculitis MDT clinics
    - Obstetric Rheumatology
- Potential partnerships include:
  - Radiology
  - Ultrasound
  - Regional MRI, for joints (shared with Orthopaedics, Plastics, Vascular, Hand surgeons, Foot surgeons, Occupational Therapy, Physiotherapy)
  - Dual Energy CT scanner (shared with Urology, Orthopaedics, Neurology, Vascular) for swifter, more accurate diagnostics
  - Biologics nurse (shared with Gastroenterology, Dermatology, Immunology, Neurology)
- Staffing:
  - Attachment of BPT to Rheumatology Department
  - Improve access to allied Health support to prevent delays to discharge and improve patient management
  - Provide administrative support to provide workflow efficiencies
  - Streamline the processes to allow overseas fellows to work in the Department
- Research and teaching:
  - Forge links with basic scientists for research purposes
  - Expansion of undergraduate presence at outpatient clinics
  - Improvement of the student rotation program
  - Formalise ultrasound teaching and provide appropriate infrastructure
- Infrastructure:

- o Consider colocation of inpatient and ambulatory rheumatology services with other specialties, e.g. Infectious Diseases, Immunology, Endocrinology and/or Dermatology, to:
  - improve integrated care
  - avoid emergency presentation and hospitalisation
  - share resources e.g. reception, waiting area, clinic rooms, treatment spaces and administrative support
  - facilitate workflow efficiencies, e.g. reporting, appointment and billing processes
- o Provide suitable multipurpose point of care educational space for medical and other trainees
- o Office spaces co-located in Ambulatory care with linked IT
- o Space for equipment/new technology

Spinal Medicine and Rehabilitation

Current services
- The Spinal Cord Unit provides care to patients suffering both traumatic and non-traumatic spinal cord injuries[389]. These patients "require early intensive and specialised hospital care, followed by expert rehabilitation to ensure the optimal outcome. Evidence based practice has shown that patients with spinal cord injuries cared for in specialist centres have improved outcomes, the Prince of Wales spinal unit is one of two such units in NSW"[390].
- The two functions of the spinal unit are
  - o Acute management of patients with a new spinal cord injury and their rehabilitation
  - o Health maintenance and care of complications of people living with spinal cord injury in the community. This is provided by outpatients' services, acute inpatients as well as a small number of to the rehabilitation unit.
- The Unit is co-located with a 10 bed acute spinal unit and a 16 bed spinal rehabilitation unit with 4 additional spinal rehabilitation beds accommodated on the General Rehabilitation Unit.
- In addition the service has a number of clinics providing
  - o Speciality services (e.g. multidisciplinary health, support and equipment review, decubitus treatment, etc.),
  - o medical review to monitor and prevent complications of spinal cord injury
  - o medical health maintenance clinics for complex and highly dependent patients and
  - o Adult Spina Bifida review and health maintenance services and care
  - o These clinics are scattered across multiple locations including outpatients, some in the offices of the Spinal Medicine Department and others in allied health departments (e.g. seating clinic, gymnasium, hydrotherapy pool, psychology, etc.).
- The unit has close proximity to gymnasium, hydrotherapy pool and vocational / occupational therapy spaces but, Departmental offices are on a separate floor. In addition the team has strong links with neurosciences, intensive care, pain service, plastic and reconstructive surgery, otolaryngology, orthopaedics and infectious diseases as well as RHW (reproductive aspects of spinal cord injury)
- To deliver this successful state wide highly specialised service requires concurrent, coordinated interplay of interdisciplinary medical (neurosurgical, respiratory medicine, urological, orthopaedic, plastic surgery and rehabilitation medicine) intervention as well as allied health (physiotherapists, social workers, occupational therapists, clinical psychologists, etc.) and nursing.

Trends in patient demographics and service delivery
- Demographics of spinal cord injury patients are changing. The average age of onset of spinal cord injury has increased by 10 years in past decade due to a greater proportion of injuries occurring in older people who are now more prevalent and active.
- Improved survivorship due to clinicians pre-empting and better management of health complications means people with spinal cord injuries are able to live to an old age.
- Complexity of spinal cord injury patients has increased due to higher numbers of aging and/or obese patients and compounded by high rates of multi resistant organism.

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[389] NSW Health, 2010, Selected Specialty and Statewide Service Plans Number 8: Spinal Cord Injury. Available at http://www.aci.health.nsw.gov.au/networks/spinal-cord-injury. Accessed 3 February 2016
[390] Available at: http://seslhnweb/powh/Services/spinal.asp Accessed 26 February 2016

- The incidence of non-traumatic spinal cord injuries (e.g. primary spinal tumour, degenerative conditions, etc.) is increasing. Current estimates are 26 patients per 1 million adults per year[391] and expected to increase as the population ages[392].
- There are increasing numbers of minimal trauma incidence particularly for elderly with increased co-morbidities.
- The POWH's colocation of acute and rehabilitation spinal cord injury units has proven to be an efficient model with a significantly shorter length of stay for both acute and rehabilitation than the Royal North Shore / Royal Rehabilitation Service model[393].

Issues and challenges
- The Spinal Unit and Clinics are at capacity: at any given time there 2 – 4 acute patients and 1-3 rehabilitation patients waiting for a bed while the waiting time for clinics can vary between 1 – 3 months.
- With a higher number of aging spinal cord injury patients, especially tetraplegics with more co-morbidities and complications, the level of care is higher and more complex leading to longer length of stays which are also extended by complicated discharge planning as many people over 70 years require nursing home placement. There are few suitable beds for this group because of the high level of their needs and if they go into a home their access to the equipment necessary to prevent complications and maintain mobility is very limited.
- Patients aged 65 years and older have different entitlements to community support, worse functional outcomes and poor family support.
- The main limiting factor with most spinal injury rehabilitation progression has been the lack of availability of appropriate discharge destinations and care when patients have concluded their inpatient rehabilitation.
- As POWH does not have a trauma service ambulances divert acute spinal cord injury patients to Royal North Shore or St George Hospitals. Since 2011 between 10-15% patients are diverted, assessed and/or stabilised then transferred to POWH for ongoing acute management and rehabilitation.
- Existing infrastructure not suited to patient cohort and best practice models of care e.g. limited single rooms, no bariatric beds and/or equipment, insufficient meeting and education areas, physical environment not conducive to rehabilitation, insufficient therapy, consult/clinic, storage and office space, poor access to parking and treatment areas, and office space are not ideally located close to ward.
- Locating additional spinal rehabilitation beds on the General Rehabilitation Unit is not ideal – the remote location means it is only suited to a few patients who are fit, stable and ready for discharge.
- There are no private facilities or services offering specialist Spinal Cord Injury care.

Proposed strategic initiatives and recommendations
- Continuation of Statewide spinal cord injury services being provided at POWH as a co-located acute/ rehabilitation service with This joint service model is best practice, improving continuity of care for patients, allowing streamlined care between the units, providing best practice care with improved patient outcomes, increasing flexibility of bed utilisation and improving staff skill mix and reducing treatment and therapy delays, length of stay and associated costs. The co-location of spinal's acute and rehabilitation units allows for close collaboration in therapeutic approaches and appropriate timing of interventions, approximately 50% of patients develop an acute illness during their rehabilitation admission and so will require acute treatment.
- Close proximity of inpatient areas to therapy areas and Departmental offices to facilitate ward / allied health interaction and minimise need for porters.
- Requirement for:
  o Single rooms to accommodate spinal cord injury patients with multi resistant organisms,
  o Capacity to care for obese patients requiring additional bariatric equipment, and
  o physical environment conducive to enriched rehabilitation which encourages patients return to independence, interaction and normal activities including dining room, Activities

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[391] New et al, 2014, Global maps of non-traumatic spinal cord injury epidemiology: towards a living data repository, Spinal Cord (2014) 52, 97–109
[392] Lee et al, 2015, Demographic profile of spinal cord injury
[393] ACI Spinal Cord Injury

of Daily Living (ADL) kitchen, lounge style living spaces to meet people, access to vocational services, interactive communication devices and Wi-Fi internet service, etc.

- Continuation of partnership with Trapeze for adolescents and young adults (e.g transition patients with congenital spinal deformities from SCH to POWH).
- Establish a TeleHealth Medical Clinic to follow up rural spinal cord injury clients
- Expansion of inpatient services to accommodate increasing numbers of non-traumatic spinal cord injury patients from across NSW. Best practice management for rehabilitation of these patients is in a spinal unit[394] [395].
- Establish transitional care model including:
  o Transitional Rehabilitation Program: this outreach program to patient's homes or nursing homes has been successfully implemented in Queensland[396] and "assists individuals with new spinal cord injury in their transition from hospital rehabilitation to community living through the delivery of specialist, community-based, time limited, and goal directed rehabilitation programs. This service recognises the improved survivorship of spinal cord injury patients and considers different settings for ongoing care. Planning towards a better resourced outreach service that continues rehabilitation support in the patient's final care environment with appropriate care allows earlier discharge and a more tailored rehabilitation planning.
  o Purpose built transition accommodation (e.g. Medihotel and/or independent living units) on site or close to the spinal cord unit providing a supportive environment for people transitioning to the community, rural clients requiring easy access to outpatient services or review, and/or people who are awaiting home modifications, a package of care, and/or other suitable accommodation. This is suited to spinal cord injury patients allowing for independent living testing, early discharge trial with outpatient supported rehabilitation. However, these transitional housing options are not straightforward - people with spinal cord injuries require trained care attendants, appropriate physical space and equipment[397].
  o Outpatient Spinal Rehabilitation 'Day therapy' allows multidisciplinary therapy packages (e.g. 10 day bundles of therapy time for 2-3 hours per day) for up to one third of spinal rehabilitation inpatients (e.g. patients not requiring overnight stay at the hospital, transitioning to local hospital and/or those in transitional accommodation but still benefiting from intensity of therapy). This would reduce length of stay in rehabilitation, provide continuity of care, and allow trouble shooting problems encountered when first going home and possible prevention of readmission. This model of care would be dependent on an increase in outpatient resources (staff, space, and equipment) to accommodate the additional occasions of service and patients having appropriate home care and access to transport. Rural patients would require access to suitable transitional accommodation and care.
  o Ensure a range of community accommodation options are available including:
    ▪ Developing LHD service level agreements: Memorandums of understanding need to be in place to enable the transitioning spinal cord injured patients from Prince of Wales Spinal Unit to local rehabilitation units once they have finished spinal specific rehabilitation and have a management plan in place.
    ▪ Establishing service level agreements with the Department of Housing facilitating early access to housing. It is important this is seen as a whole of government approach as the lack of coordination between departments results in huge waste including extended hospitalisations and/or subsidies of hotel housing, etc.
    ▪ A coordinated and fast tracked state-wide system of home modification to ensure rapid approval and carrying out of home modifications (as exists in Queensland).
    ▪ This would have to be backed up with an arrangement with a large community care provider e.g. ParaQuad who could provide temporary care for those needing it once funding for it was approved as part of the community support package. An equipment pool may also be necessary.

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[394] Raj et al, 2013, Rehabilitation and treatment of spinal cord tumours, The Journal of Spinal Cord Medicine, 2013 VOL. 36 NO. 1
[395] New, 2006, Non-traumatic spinal cord injury: what is the ideal setting for rehabilitation? Aust Health Rev 2006: 30(3): 353–361.
[396] Queensland Health, Queensland Spinal Cord Injury Service Model of Care Available at: https://www.health.qld.gov.au/qscis/documents/qscis-moc.pdf. Accessed 2 February 2015.
[397] Queensland Health, Queensland Spinal Cord Injury Service Model of Care Available at: https://www.health.qld.gov.au/qscis/documents/qscis-moc.pdf. Accessed 2 February 2015.

- Development of models of care for spinal cord patients aged 65 years and older as these people have different entitlements to community support, worse functional outcomes and poor family support. These people fall into wo groups requiring different models of care:
  - Robust elderly with significant ADL independence and/or extensive spousal support so that they are likely to be able to manage on a 14 hour care package per week. This group needs conventional spinal rehabilitation programme
  - Frail / severely impaired elderly who do not have extensive support in the community. These people will be discharged to a nursing home. They require a streamlined programme with rapid provision of appropriate equipment to be used in the nursing home (including but not limited to wheelchair cushion, manual wheelchair and appropriate mattress)

Sterilising services

Current services
- Sterilising services is a shared service with POWH, RHW and SCH
- Currently the service has more than 150 users including
  - Operating theatres / procedure rooms
  - Intensive care
  - Emergency department
  - General wards plus
  - Specialised instrument sterilising for rural hospitals
- Due to the multiple users the unit needs to be centrally located
- Hours of operation are 6am – 11pm with on-call for neurosurgery and obstetrics

Trends in patient demographics, activity and service delivery
- Service delivery:
  - Increasing hospital throughput (e.g. operating theatres and inpatients) will require increasing speed and efficiency of sterilising services
  - Increasing volume of specialised instrumentation will add to workload
  - New technologies and innovative products (e.g. combination products or tissues/biologics) entering the market increase the need for advanced sterilisers that are compatible with such equipment and/or require new test methods and sterilisation or process validation

Issues and challenges
- The current sterilising unit is suited to servicing 10 operating theatres not the multiple users is currently services
- Dirty instruments are returned to sterilising through public areas
- No capacity for the detailed ultrasonic cleaning required for robotic instrumentation
- Lack of visibility throughout the unit

Proposed strategic initiatives and recommendations
- More space to adequately service all users into the future
- Separate receiving area for loan sets
- Separate cleaning space for ultrasonic cleaning for robotic instruments
- Need for a wide variety of and sufficient numbers of sterilisers to meet different needs (e.g. steam, ethylene oxide, vaporized hydrogen peroxide, hydrogen peroxide gas plasma, ozone gas based sterilisation, etc.)

Surgical Services (consolidated)

Proposed strategic initiatives and recommendations for Surgical Services
- Models of care:
  - Continuation of the orthogeriatric model and consideration of other shared care models as deemed clinically appropriate
  - Increased streaming of short stay planned activity through dedicated high volume short

stay infrastructure.
- o Ongoing improvement of the patient journey through multidisciplinary preoperative assessment, 'enhanced recovery after surgery' pathway and a 'preflight' checklist in the operating theatre.[398]
- o Expand perioperative service in line with guidelines currently being developed by ACI
- o Ongoing cooperation and integration with the Prince of Wales Private Hospital to maintain mutual benefits
- o Increased use of Hospital in the Home where clinically and socially appropriate
- o Establish an integrated Bariatric management service, i.e. with Gastroenterology, Endocrinology, Respiratory medicine, Upper GI surgeons, Rehabilitation, allied health, etc.
- o Consideration of intraoperative radiotherapy as a technique, impacting on radiotherapy services
- o Investigate potential integration and/or partnerships for clinical and translational research, e.g. Universities, industry, etc.
- o Improve access to surgical services for vulnerable populations including:
  - Ensure preadmission, admission and discharge planning processes / pathways adequately identify and address the needs of vulnerable populations
  - Ensure identification of vulnerable patients with special needs, chronic conditions and co morbidities
  - Involve carers and family as partners in care throughout the continuum of care
  - Ongoing monitoring of the recording of Aboriginality and rates of hip or knee replacements and ophthalmic surgery for Aboriginal people
- o Improved support for data collection (including clinical outcomes) and maintenance,
- o Access to real-time activity and financial data
- o Integration of clinical activity, data and patient outcomes with campus-wide clinical research (e.g. tissue banking) with all staff involved
- Staffing:
  - o Appropriate staffing resources (medical, nursing, technical, educational, allied health and clerical) to enhance existing high quality service delivery and support new outpatient clinics, higher acuity ward patients, a greater number of HITH patients and expanded community based outreach services
- Infrastructure:
  - o Construct a dedicated standalone HVSS facility for appropriate streaming of planned short stay surgical and procedural patients away from more complex and/or unplanned activity[399]
  - o Invest in appropriate information, communication and technological to support the efficient operation of the HVSS unit e.g. ensure all patients are notified 10 days in advance of procedure, confirmation call 3 days prior and SMS 2 days prior.
  - o Physically integrating the peri-operative unit with the operating theatres to improve patient flow, work-flow for staff and efficiency of elective surgery while reducing waiting lists.
  - o Maintain a capital replacement program for equipment to provide excellent care specifically operating theatre equipment including:
    - navigation system (including a linked intraoperative CT) relevant for a number of specialities,
    - image guidance (e.g. for base of skull work),
    - robotics (e.g. for trans-oral surgery),
    - Hybrid theatre(s) (e.g. for vascular surgery),
    - intraoperative CT/MRI,
    - stack with image capture,
    - Mini-C arm, etc.
  - o General support for the integration of all aspects of the service in one place, the "Pod concept" i.e. co-location of outpatient / clinic area, ward, theatre/procedure room availability
  - o Infrastructure in ward setting and operating theatre to adequately accommodate morbidly obese people having orthopaedic surgery
  - o Need facilities for the development of on-campus clinical research

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[398] Waxman, B, 2013, Smoothing out the ride for surgical patients, MJA198 (8), 6 May 2013, p 407
[399] For example The Alfred Centre, Melbourne. Available at: http://www.alfredhealth.org.au/Department.aspx?ID=284
Accessed: 7 April 2016

- o Require improved teaching and learning facilities and access including
  - point of care teaching facilities,
  - multi-purpose teaching/meeting room and
  - labs for staff, trainees and students from all clinical disciplines
- o Provide appropriate accommodation and facilities for patients and relative, childcare, etc

Supportive and Palliative Care

Current services

1. **Inpatient consult service**
   - o consults at POWH nursing, specialist medical and 1 x BPT, fractional appointment OT. Dedicated liaison psychiatry
   - o consult service SCH, includes outreach to paediatric patients, some are referred to the hybrid (SHH/POWH) outreach service
   - o transfer to SHH for inpatient multidisciplinary or complex palliative care
   - o Strong pain team liaison
   - o Developing RSC for inpatients
   - o Recently devolved MND clinic requires medical and care co-ordination resources

2. **Outpatient clinic**

   - o 2 palliative care clinics per week focus oncology/haematology
   - o co-located, integrated liaison psychiatry clinic fortnightly
   - o hybrid social work (med onc/pall care outreach)
   - o Renal Supportive care clinic
   - o Room for development of clinic/case conferencing for respiratory and cardiology services

3. **Medical and allied health outreach**

   - o 1 FTE senior staff specialist, 1.3 FTE advance trainees
   - o social work
   - o no integrated nursing support from POWH, liaison service with SHH
   - o Developing integration with heart link and respiratory outreach services, lacking staffing and model requires increased staff e.g respiratory or cardiology registrar co-supervised by respiratory physician/cardiologist plus palliative care physician
   - o There is significant scope to develop hospital in the home categorisation for the proportion of patients contacted daily by palliative care outreach service. This is impacted by the hybrid team as nurses are from SVH.

- The Supportive and Palliative Care Service provides care to patients from a variety of disciplines, including oncology and symptom, pain and psychosocial management as well as end of life care for patients with non-cancer diagnoses in inpatient, outpatient and community settings.
- It is a networked service between POWH, RHW, SCH and the Sacred Heart Supportive and Palliative Care (St Vincent's Health Network).
- POWH has 2-4 palliative care beds for oncology patients located within Oncology Ward (Parkes 4E). In practice medical staffing is insufficient for direct care and patients are admitted with palliative care as AMO1 in name only and support from oncology AMO2 team is required for these patients. Recent changes in Radiation oncology staffing has also further diminished the ability for palliative care physicians to accept direct care of inpatients. In addition the service provides inpatient consultations to patients being cared for on acute speciality wards.
- Complex symptom management, advance care planning and family supported palliative care are provided in the community either in patient's home or nursing home. There is an outreach service to Long Bay Jail, and historically costs for this service have been "absorbed" by SESLHD.
- Staff for the service include staff specialists, registrar and social workers. There is no CNC and no nursing staff in the Prince of Wales team. Doctors and social workers from POWH work with outreach nurses from St Vincents Health Network (Sacred Heart).

Trends in patient demographics, activity and service delivery
- In 2014 palliative care services at POWH provided:
  - More than 800 inpatient consultations with 65% of new referrals for cancer patients, and
  - Nearly 450 community referrals supporting nearly 600 active community patients with 70% of new referrals for people with cancer[400].
- Over the past decade (2004 to 2014) there has been a strong upward trend[401] of
  - Registrations for palliative care services
  - Community referrals
  - Number of active patients

- By comparison there has been a variable trend over the same period for
  - Hospital consultations
    - Approximately 65-70% of consultations being consistently for new referrals
    - A gradual increase in the proportion of new non-cancer referrals
  - Non admitted occasions of service
  - Palliative care deaths
- With our growing and ageing population demand for palliative care and support services will continue to increase. In addition, demand is increasing due to patients being referred to palliative care services earlier in disease progression and living longer and having active patient management.

Issues and challenges
Issues and challenges facing palliative care services for people of norther SESLHD LGAs are similar to those faced by many NSW residents.

"Care to people approaching and reaching the end of life is often fragmented and under-utilised by identified population groups or clinical cohorts. These include but are not limited to:
- Aboriginal people
- People of culturally and linguistically diverse backgrounds
- People under the age of 65
- People with non-cancer diagnosis such as motor neurone disease
- People who live alone
- People living with dementia."[402]

NSW Health acknowledges[403]:
- Of all the people in NSW who die of cancer or of other conditions where death is predictable only about 10% receive specialist palliative care services in their last year of life.
- There is an inadequate number of palliative care services and that these are not available equally to all residents. For residents of SESLHD's northern LGAs there
  - Appears to be a requirement for more than 1,000 specialist palliative care referrals for services[404].
  - Is a lack of palliative care inpatient beds at POWH, instead non-cancer palliative care patients are cared for in acute speciality wards which are poorly suited to providing high quality end of life care.[405]
  - Is a shortage of palliative care specialists
  - Is insufficient allied health support for community patients with only 25% having access to a Social Worker.

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[400] POWH, 2015, POWH palliative care activity trends 2000 – 2015 PowerPoint presentation presented 18 March 2014
[401] Prince of Wales Hospital, 2015, Palliative Care Department Plan (draft document)
[402] NSW Agency for Clinical Innovation, 2014, Diagnostic Report: To inform the Model for Palliative and End of Life Care Service Provision. Available at: http://www.aci.health.nsw.gov.au/__data/assets/pdf_file/0011/208937/ACI_Diagnostic_Report_to_inform_the_Model_for_PEoLC_Service_Provision.pdf Accessed 18 March 2016
[403] NSW Health, 2012, *The NSW Government plan to increase access to palliative care 2012-2016*
[404] NSW Health has estimated "Of the 13,000 people in NSW who die of cancer each year, about two-thirds receive specialist palliative care. A similar number of people die of other conditions where death is predictable. Only about 10 per cent of these people receive specialist palliative care in their last year of life." Applying these assumptions to SESLHD's northern LGA population equates to approximately 750 cancer deaths and a similar number of predictable deaths of people with other conditions indicating a requirement for more than 1,000 specialist palliative care services.
[405] Palliative Care Australia, National Standards Assessment Program. Available at: http://palliativecare.org.au/national-standards-assessment-program/ Accessed on: 18 March 2016

- Not all end of life care requires palliative care specialists however there is a strong role for palliative care providers engaging in support and education for non-specialist providers.

While people want to be cared for and die at home, they also require a flexible service. Care at home can be extended if there is a reliable avenue for direct admission for appropriate patients known to a palliative care physician. In the Randwick catchment over the past decade between 20-25% people having palliative care died at home or in a Residential Aged Care Facility.

Proposed strategic initiatives and recommendations

The NSW Agency for Clinical Innovation's Blueprint for Palliative and End of Life Care identifies essential components for the delivery of high quality, patient and family focused care for those who are approaching the end of life. These form the basis for the proposed strategic initiatives including:

- Increased use of advanced care planning for people diagnosed with a life limiting condition, including those in RACF
- Ongoing focus on palliative care being provided to people in the community including in their own home or Residential Aged Care Facility and for inmates of Long Bay Correctional Centre
- Establish a palliative care clinic in large Nursing Homes in the area. This may reduce ED presentations and Inpatient admissions. It is important that ACP initiatives dovetail with symptom management options and that site of presentation does not dictate levels of medical intervention. ED presentations will continue however continuity of care planning will assist patients and carers in accessing the best care
- Increasing capacity to address unmet demand for palliative care services in the community, outreach, outpatients (e.g. motor neurone disease, and cardiac, respiratory and renal failure) and where required inpatient settings
- Establish an inpatient palliative special care unit for management of complex symptoms.
- Develop a multi-disciplinary palliative care service for inpatients circumventing the need for cross referral to SHH
- Creating an ideal inpatient environment for patients requiring supportive and palliative care with life limiting conditions (e.g. dementia, cardiac, respiratory and renal failure)
- Develop skill and expertise within cardiology, renal and respiratory wards so patients not requiring direct care under a palliative care physician or MDT, can receive appropriate symptom management and end of life care, with support if needed from the palliative care consultation service
- Review appropriateness of the "hub and spoke" model of 'Renal Supportive Care' to POWH specifically consider funding fractional appointment palliative care physician, develop involvement of renal trainees in RSC clinic
- Implement integrated care along the lines of renal supportive care for respiratory, cardiology and neurodegenerative conditions. Investigate needs of dementia patients
- Acknowledge the role of palliative care in integrated care, exploit synergy between various medical specialties and possibility for registrar training and development
- Ensure that the model of care has recurrent funding rather than time limited which is currently the situation at St George Hospital
- Foster the view that "*Providing care to people approaching and reaching the end of their life, their families and carers is everybody's business*"[406]
- Improve and enhance integrated care for example:
  - As above in integrated, collaborative outreach services including joint visits and registrar supervision
  - Working with the Primary Health Network to establish communication lines, improve prioritisation, resource analysis, etc
  - Partnering with 'Family Care' – an afterhours home doctor service providing a 'house of care' model - anticipatory care (e.g. St George Hospital's recent trial admissions with Respiratory medicine/palliative and supportive care DCS)
- Increase in workforce to meet demand.

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[406] NSW Agency for Clinical Innovation, Palliative and End of Life Care – A Blueprint for Improvement ("The Blueprint"). Available at: http://www.aci.health.nsw.gov.au/palliative-care-blueprint Accessed 18 March 2016

Technologists and Scientific Support Services

Medical Imaging

Current services

- The medical imaging service is also a shared service on the campus offering traditional X-ray, CT, MRI and ultra-sonography. A small number of other satellite imaging services, such as vascular sonography, bone density and ante-natal services are provided separately to the Medical Imaging service.
- Current collaborations with the UNSW vis-à-vis the development of the academic health precinct has heralded the proposed installation of a research MRI scanner adjacent to the current Medical Imaging department on level 0 of POWH, the exact location is yet to be finalised. There is also consideration of housing an MRI in the Nelune Comprehensive Cancer Care Centre, however cost at this stage is a barrier.

Issues and Challenges

- Image storage requirements are increasingly a barrier to cost effective and efficient management, and a strain on ICT infrastructure. Centralisation of clinical imaging storage allowing immediate access to imaging for comparison as well as use for intraoperative work is increasingly demanded, while Cloud technology is maturing, there are still significant regulatory and architectural challenges.
- The proliferation of medical image devices and files offer opportunity but need a centralised storage facility, bigger servers for new imaging storage and more complex infrastructure network connectivity, these requirements will also increase the load of air conditioning and power in the facility.
- Centralised and decentralised services offer efficiency opportunities and the colocation of imaging services [including CT] in high demand, high throughput areas such as the Emergency Depts. are increasingly the norm. See RNSH, STG, Westmead, Royal Adelaide.
- Interventional Radiology is proliferating and POWH are currently a lead site for Interventional Neuro Radiology, this modality is expanding to take in more diagnostic and treatment areas and is seen as an essential part of the future of medical imaging., however there are inadequate angiography suites currently to meet expected future demand
- The disruptive nature of technological advances also means that there is an inevitable lag between technology coming to market and the capacity of services to fully meet the training and competency requirements. Training time for staff to manage equipment:
  - MRI ~ 6 months
  - Interventional radiology ~ 3 months

Nuclear Medicine

Current services

- The Department of Nuclear Medicine and PET provides a range of diagnostic and therapeutic services as part of a shared service arrangement on the Randwick Hospitals Campus. The service is multidisciplinary and includes medical, nursing, nuclear medicine technologists, radiopharmaceutical science and physics disciplines. While the majority of activity is performed on a non-admitted basis, many inpatient studies are performed [particularly for paediatric and RHW referrals] and the Nuclear Medicine department also manages inpatients receiving radioactive iodine.
- The role of the Nuclear Medicine Department is to:
  - Provide a paediatric and adult Level 6 (NSW Ministry of Health role delineation) diagnostic and therapeutic nuclear medicine and PET service to all inpatients and to non-inpatients referred to the service.
  - Undertake diagnostic studies/procedures for acute and emergency care, and investigations and therapy for patients undergoing tertiary care in other specialities referred to this group of hospitals.
  - Participate in research, teaching and training
- The service is multidisciplinary and include specialist and junior medical staff, nuclear medicine technologists, nursing, medical physics and Radiopharmacy. The department also has its own dedicated admin support.

Issues and Challenges
- Nuclear medicine is capital intensive and current imaging is performed using Gamma Cameras [now obsolete but still operational], SPECT-CT and PET-CT, the latter technologies are current although the industry is fast moving and PET-MRI is likely to come to the fore over the medium term.
- Much Nuclear Medicine hardware requires significant shielding, which adds considerable weight and structural requirements to facility development.
- The half –life of many of the radioactive tracers used for diagnostic scanning are extremely short and as such require on-site manufacture by the Radiopharmacist. The need for local manufacture to meet technological and service requirements is now industry standard and is putting increasing pressure on current service profiles, proposals for the on-site manufacture of Gallium have been submitted to the LHD.
- The manufacture of more complex isotopes requires a Cyclotron, and Nuclear Medicine are part of a consortium across the POWH and UNSW campuses exploring the opportunity for increased collaboration between research and treatment groups as part of an academic health precinct.
- The use of some radioactive treatments isotopes means that patients themselves are a radioactive source and consequently appropriate accommodation for this risk is required, including inpatient space that is lead-lined and can house patients up to a week on a ward staffed 24/7, how waste products are handled which necessitate 'lag tanks' for sewage collection that are isolated and have alternative sewage outlets that allow storage of sewage up to 90 days depending on the isotope, it is suggested this requires 2 tanks x 9000 litres for new building.
- Nuclear Medicine also faces a looming workforce crisis particularly in Medical Physics and Radiopharmacy. While the deficiency of qualified medical physicists has over the past 3 years begun to be addressed through an increase in government supported training programs [there are currently less than 30 accredited Nuc Med physicists nationwide], the efforts to combat the gaps in Radiopharmacy are only in their infancy. There are currently only 6 radiopharmacists in NSW and although there are commercial options for radiopharmaceutical manufacture these are currently cost prohibitive due to the lack of scale in the Australian market. The POWH Radiopharmacist is a major contributor the development of a Masters level teaching syllabus at Macquarie University.
- There is a long lead time between university graduation and accreditation, with professional accreditation training programs lasting circa 3-5 years post Masters qualification.
- The disruptive nature of technological advances also means that there is an inevitable lag between technology coming to market and the capacity of services to fully meet the training and competency requirements.
- There are opportunities herein:
  - POWH has the potential to become a training centre of excellence
  - POWH Nuclear Medicine and Medical Imaging services should strive to collaborate to a greater extent, including training of Nuclear Medicine technologists in diagnostic [CT]
  - Establishment of comprehensive service provision using PET-CT etc and creation of patient centred one-stop-shop diagnostic centres.
  - Increased use of portable imaging due to the growth of solid state detectors making equipment smaller and lighter in some cases
  - The colocation of PET-MRI and a Cyclotron would deliver improved diagnostic possibilities

Radiation Oncology

Current services
- Radiation oncology provides radiotherapy treatments for a comprehensive range of malignant and non-malignant conditions including external beam, brachytherapy, superficial and stereotactic treatments.
- Planning, treatment and consultation services are available 5 days per week with the department operating between 0730 and 1800 Monday to Friday, and an on-call emergency service on weekends.
- Radiation Oncology are a shared service on the campus RHC, providing services to POWH, SCH, RHW and work closely with the other cancer care specialities in a multidisciplinary

environment, 95% of the work performed is on an ambulatory care basis. In 2013/14 the Radiation Oncology service moved into stage 1 of the Nelune Comprehensive Cancer Care centre at subterranean levels [to take advantage of the natural rock shielding] located on the North Eastern corner of the campus and occupy a footprint consisting of 3 linear accelerator treatment bunkers, a brachytherapy unit, a superficial x-ray service and a further research bunker that offers capacity to expand services and/or adopt new technologies. There is also a dedicated CT-scanner room for radiotherapy planning.

- The service is multidisciplinary, with approx. 6 FTE staff specialist, 4 FTE Reg/JMO, 30 FTE Radiation Therapist, 7 FTE Medical Physics, 6 FTE nursing and admin support provided through the cancer care centre admin team .There are also a number of trainee positions in radiation therapy [up to 4 FTE] and medical physics [circa 4 FTE] that are funded either fully or partially through state/commonwealth grants.

Issues and Challenges
- Capital equipment in radiation oncology is invariably high cost and demands extensive physical and ICT infrastructure, technical support and training.
- The circa $80m investment in the Nelune Comprehensive Cancer Care Centre has included a range of capital equipment replacement as well as upgrade of ICT infrastructure and equipment, including networks, servers and PC, however the nature of the industry is such that even information system upgrades often require significant additional investment in processing capacity of PCs etc.
- Traditionally Radiation Oncology have operated a 64 slice CT scanner to assist with treatment planning and the near future indicates that MRI technology will supersede this, including incorporating MRI capacity in treatment machines [linear accelerators] which is currently being trialled at Liverpool Hospital. Advances in diagnostic imaging have catalysed closer collaboration with Nuclear Medicine and this is most evident in PET-CT which itself is likely to be succeeded in the medium term by PET-MRI.
- Radiation Oncology is highly active in a range of retrospective and prospective research, including longitudinal studies to assess treatment efficacy as well as contributing to the development of new treatment modalities, physics dosimetry and models of care. Currently the Department Head Professor M Jackson is a key contributor to a national project driving the development of Hyperthermia techniques for treating certain tumour types.
- The Nelune Comprehensive Cancer Care centre has included a 4th 'research' bunker that can house either a new linear accelerator or additional technology.

Respiratory: Lung function and sleep
- Infrastructure and equipment costs are a fraction of the other services' needs, however a common issue is access to results and images which are not currently available in a timely manner and require additional manual work to convert files and upload into eMR. The use of imaging in the outreach and community based services is compromised by the lack of connectivity and current 4-G capacity doesn't quite offer the upload speeds required for high resolution imaging.

Transition for adolescents and young adults

Current services
- Transition services encompass healthcare for young people with chronic health problems and disabilities to facilitate their effective transition from paediatric to adult health services. Successful transition means that the young person maintains their health and quality of life and continues to use health care services appropriately[407].
- Adolescents and young adults requiring transition may include a range and or combination of conditions including brain injury, cystic fibrosis, diabetes, rare genetic conditions, neurology, spina bifida, spinal cord injury and oncology.
- Transition care needs to adopt an integrated approach to healthcare by inviting all sectors including primary, secondary and tertiary. For tertiary health providers the care is

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[407] ACI, Getting connected: Information on Transition from Children's Health Services to Adult Services. Available at: http://www.aci.health.nsw.gov.au/__data/assets/pdf_file/0005/164246/Information-for-health-professionals.pdf. Accessed 15 February 2016

predominantly through outpatients.

- Trapeze is the adolescent chronic care service for The SCHN. The service provides care to young people who are known to the Network and will transition some of the young people enrolled in the service to Prince of Wales Hospital and Health Services.

Trends in patient demographics, activity and service delivery

- In 2011 there were more than 50,000 adolescents and young adults in northern SESLHD with an estimate of 6,000 having a least one chronic disease / condition[408]. The majority of these patients are predominantly cared for by their GP however, there is a very small cohort of patients with complex, chronic and/or multi-morbidities.
- Due to improved treatments and care young people with complex, chronic and/or multi-morbid conditions are surviving into adulthood (e.g. there is increased prevalence of some conditions in adolescence such as Type 1 diabetes, inflammatory bowel disease (IBD) and some oncology.

Issues and challenges

- ".... young people with chronic conditions are doubly disadvantaged when they leave paediatric care because they 'engage in risky behaviours at a rate at least similar if not higher than healthy peers, while having the potential for greater adverse health outcomes from these behaviours"[409].
- It is recognised adolescents and young adults with chronic conditions and their families have difficulty transitioning "from family orientated, developmentally focused paediatric health services, to more independently orientated adult services" [410] where tertiary health care for adults expects a high level of self-management.
- Improved survivorship of adolescents and young adults with very complex medical issues and needs usually involve multiple teams, complex admission and ongoing management, compounded by the rarity of these conditions in adults (children with some of these conditions never made it to transition before).
- A lack of well planned, effectively coordinated transition processes lead to young people opting out of health services which may then result in poor health outcomes and crisis presentations.

Proposed strategic initiatives and recommendations

- Implement and adhere to evidence-based principles to improve the care and management of young people with chronic conditions transitioning from paediatric to adult health care (refer to diagram).
- Many of the health-related behaviours that arise during adolescence have implications for both present and future health and development. Adolescence is a window of opportunity to prevent future complications of health in

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[408] Royal Australasian College of Physicians, Transition to adult health services for adolescents with chronic conditions. Notes: "This population is estimated to comprise approximately 12% of all young people in Australia and New Zealand". Available at: http://consultations.nhmrc.gov.au/files/consultations/_email_submissions/obesity/c_transition_adulthealth.pdf. Accessed 15 February 2016

[409] ACI, 2014, Key Principles for Transition of Young People from Paediatric to Adult Health Care. Available at: http://www.aci.health.nsw.gov.au/__data/assets/pdf_file/0011/251696/Key_Principles_for_Transition.pdf. Accessed 15 February 2016

[410] The Sydney Children's Hospitals Network, 2014, Transitional Care Policy

adult life.[411]

- Establish transition pathways from paediatrics to POWH for young people requiring ongoing tertiary care even if out of area. This may include multiple teams and/or planning joint clinics/transition clinics to facilitate transfer
- Multi-disciplinary collaborations for transition across sub-specialties between paediatric and adult colleagues.

Transplant Surgery

Current services
- Transplant surgery at POWH is focused on kidney transplants.
- The speciality provides:
  - o Inpatient services are provided in acute overnight inpatient beds
  - o Outpatient Services include Prince of Wales Renal Transplant Coordinator Clinic
  - o Shared service with SCH
- Staffing includes senior and junior medical staff, nursing, with multidisciplinary support from other allied health

Trends in patient demographics, activity and service delivery
- Demographics
  - o Approximately 3% of admissions are for people over 70 years
  - o The majority of patients are from the SESLHD (63%), with the main flows from Illawarra Shoalhaven and other patients travelling from surrounding metropolitan or rural areas.
- Activity and service delivery
  - o Admissions have been variable between 2008/09 and 2013/14
  - o The speciality is largely a planned service (94% separations) with the remainder from the ED.
  - o All inpatients stay multiple nights, with an average length of stay of 12.7 days a very high average NWAU 9.08 and very high cost and complexity (average Public Equivalent Model is 9.48).
  - o At the end of 2014 there were 500 people in NSW on the Australian Kidney Transplant Waiting List[412].
  - o Strong links for integrated care are required with
    - ▪ Renal / nephrology services
    - ▪ Intensive care services
    - ▪ Operating theatres
  - o Other important functional relationships exist with:
    - ▪ Medical imaging
    - ▪ Social worker

Issues and challenges
- While the underlying disease leading to kidney transplants in Australia remains glomerulonephritis the percentage is decreasing, and being replaced by diabetes as the leading cause. Therefore the increasing incidence of diabetes will be a major driver for the need for transplant surgical activity[413]
- People of non-English speaking background are not always offered and/or provided with health care interpreter service
- The main constraint for transplants is the number of organ donors.

Proposed strategic initiatives and recommendations
- Refer to Proposed strategic initiatives and recommendations for Surgery
- Continued increase in living-donor transplantation rates in NSW, is likely to lead to increased opportunity for kidney transplants and a reduction of waiting lists for these transplants

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[411] *Health for the world's adolescents, a second chance in the second decade*, World Health Organisation, 2014. http://apps.who.int/adolescent/second-decade/ Accessed 30 Oct 2014
[412] ANZDATA Registry. 38th Report, Chapter 7: Transplant Waiting List. Australia and New Zealand Dialysis and Transplant Registry, Adelaide, Australia. 2016. Available at: http://www.anzdata.org.au
[413] ibid

Upper Gastrointestinal Surgery

Current services
- Upper Gastrointestinal Surgery encompasses a range of conditions including the following ESRGs:
  - 441 - Cholecystectomy
  - 442 - Disorders of Biliary Tract and Pancreas
  - 449 - Other Upper GIT Surgery
- The speciality provides:
  - Inpatient services are provided in acute overnight inpatient beds as well the Perioperative Unit accommodates some day only admissions
  - Outpatient Services
- Staffing includes senior and junior medical staff, nursing, with multidisciplinary support from other allied health

Trends in patient demographics, activity and service delivery
- Demographics
  - Approximately 24% of admissions are for people over 70 years, with people over 85 years making up 5% of admissions
  - The majority of patients are from the SESLHD (79%), with other patients travelling predominantly from surrounding metropolitan areas.
- Activity and service delivery
  - Admissions have been trending up between 2008/09 and 2013/14 (1.5% annual growth rate)
  - The speciality is evenly split between planned and admissions through the ED.
  - Most inpatients stay multiple nights (60%) with an average length of stay 7.7 days, with a high NWAU (2.69) and high cost and complexity (average PEM 2.91). Most other patients stay a single night (32%) with only a very few day only patients
  - Strong links for integrated care are required with oncology, geriatrics, upper gastrointestinal surgery and endocrinology

Issues and challenges
- Population ageing and increasing numbers of older people living with long term conditions will be the major driver for surgical activity
- Given the ageing population and people living with multiple long term conditions, there will be an ongoing need for interaction between services or shared management.
- Increasing numbers of obese patients, who require more support services for management
- Currently there is extremely limited access to public bariatric surgery for SESLHD residents (97% of residents from northern SESLHD LGAs having bariatric surgery do so in private hospitals or as private patients in a public facility), only 3 residents of northern SESLHD LGAs had non-chargeable bariatric surgery in 2013/14.
- People of non-English speaking background are not always offered and/or provided with health care interpreter service
- Ongoing discussions across NSW regarding pancreatectomy and oesophagostomy volumes and outcomes.
- Operating theatre equipment is ageing, out-of-date and/or needs replacement
- Limited capacity for teaching and research due to difficulties associated with data collection and statistical assistance

Proposed strategic initiatives and recommendations
- Refer to Proposed strategic initiatives and recommendations for Surgery
- Investigate the provision of a sustainable bariatric surgery model
- Continuation of pancreatectomy and oesophagostomy at POWH with combined public and private activity providing a caseload above NSW Cancer Institute threshold, with a well-established multidisciplinary team approach to the management of these complex cancers and agreed protocols, pathways, management and reporting of outcomes data

Urology

Current services
- Urology encompasses a range of conditions including the following ESRGs:
  - 523 TURP
  - 529 Other urological procedures
  - 521 Cystourethroscopy
- The speciality provides:
  - Inpatient services on Clinical Science Building Lvl 3 with 7 acute urology day stay beds
  - Outpatient Services at POWH include:
    - Urology Clinic
    - Millard Urology Clinic
    - Urology Research Clinic
    - Urology Preadmission Clinic
    - Urology Theatre Medical Surgical Clinic
    - Uro Oncology Multidisciplinary Team
- Staffing includes senior and junior medical staff, nursing, with multidisciplinary support from other allied health, and HITH/PACS services

Trends in patient demographics, activity and service delivery
- Demographics
  - Approximately 34% of admissions are for people over 70 years, with people over 85 making up 5% of admissions
  - The majority of patients are from the SESLHD (66%) and local metro catchment areas, with a small percentage from rural areas
- Activity and service delivery
  - Admissions have remained relatively stable between 2008/09 and 2013/14
  - The speciality is overwhelmingly a planned service (95% separations) with the remainder from the ED.
  - Most inpatients are day only (71%), with some staying multiple nights (22%) with an average length of stay 6.2 and the remainder staying a single night
  - Strong links for integrated care are required with:
    - Geriatrics
    - Renal Medicine
    - Spinal Rehabilitation
    - Oncology
    - Medical imaging

Issues and challenges
- Population ageing and increasing numbers of older people living with long term conditions will be the major driver for general surgical activity
- Given the ageing population and people living with multiple long term conditions, there will be an ongoing need for interaction between services or shared management.
- Limited capacity for teaching and research due to difficulties associated with data collection and statistical assistance
- There will be ongoing demand for high turnover cases, both day only and extended day only
- Increasing number of minimally invasive cancer cases
- Robotic surgery will be essential to future practice
- Increasing numbers of obese patients, who require more support services for management
- People of non-English speaking background are not always offered and/or provided with health care interpreter service
- Operating theatre equipment is ageing, out-of-date and/or needs replacement

Proposed strategic initiatives and recommendations
- Refer to Proposed strategic initiatives and recommendations for Surgery

Vascular Surgery

Current services
- Vascular surgery includes the following ESRGs:
  - 531 Vein ligation & stripping
  - 539 Other vascular surgery
- The speciality provides inpatient and outpatient services including
  - POWH Ambulatory Care Unit Vascular Clinic.
  - POWH Vascular Diagnostic Centre
- Staffing includes senior and junior medical staff, nursing, with multidisciplinary support from other allied health

Trends in patient demographics, activity and service delivery
- Demographics
  - Just over 47% of admissions are for people over 70 years, with people over 85 years making up 10% of admissions
  - The majority of patients are from the SESLHD (82%), with other patients coming predominantly from surrounding metro LHDs or rural areas.
- Activity and service delivery
  - Admissions have been showing an upward trend between 2008/09 and 2013/14 (3.1% annual growth rate)
  - The speciality is mainly a planned service (77% separations) with other patients admitted from emergency.
  - Most inpatients stay multiple nights (56%) with an average length of stay of 12.9 days with an average NWAU 4.27 and high cost and complexity (average Public Equivalent Model of 4.51), with the remaining patients staying either a single night or as a day only.
  - Strong links for integrated care are required with endocrine
  - Strong links for integrated care are required with
    - geriatrics
    - endocrinology
  - The service is successfully implementing a vascular-geriatric model of shared care
  - There has been significant change in vascular surgery over the last decade including:
    - Technology
    - Increased use of minimally invasive surgery
    - Decreased length of stay and improved patient outcomes
    - Increasing age of patients
    - Increasing incidence of diabetes and it's complications

Issues and challenges
- Population ageing and increasing numbers of older people living with long term conditions will be the major driver for surgical activity
- Given the ageing population and people living with multiple long term conditions, there will be an ongoing need for interaction between services or shared management.
- Increasing numbers of obese patients, who require more support services for management
- People of non-English speaking background are not always offered and/or provided with health care interpreter service
- Operating theatre equipment is ageing, out-of-date and/or needs replacement
- Limited capacity for teaching and research due to difficulties associated with data collection and statistical assistance, staff and facilities

Proposed strategic initiatives and recommendations
- Refer to Proposed strategic initiatives and recommendations for Surgery
- Continuation of the vascular-geriatric model of shared care
- Ongoing shift from open surgery to endoluminal procedures warranting the need for hybrid theatres

Appendix 6: Additional data

Table A1: Population projections by LGA, 2011 through to 2027

LGA	2011	2017	2022	2027	2032	2011 - 2027 Change #	2011 - 2027 AAGR
Botany Bay	41,504	45,594	48,599	52,866	56,400	11,362	1.5%
Randwick	137,792	148,065	157,673	166,306	175,166	28,514	1.2%
Sydney (part)	78,215	89,424	99,538	108,128	116,882	29,913	2.0%
Waverley	68,698	71,776	75,211	78,827	82,515	10,129	0.9%
Woollahra	56,320	58,541	61,398	64,446	67,568	8,126	0.8%
Northern SESLHD LGAs	382,529	413,400	442,419	470,572	498,531	88,043	1.3%
Metro LHD's (excluding northern SESLHD LGA's)	4,679,007	5,098,423	5,510,618	5,918,288	6,315,064	1,239,281	1.5%
NSW total	7,218,136	7,760,620	8,280,962	8,788,388	8,778,258	1,570,252	1.2%

Source: NSW Department of Planning and Environment, 2014, reformatted by NSW Ministry of Health in Jun 14.
Inclusions: LGAs: Botany Bay, Randwick, Sydney (part), Waverley, Woollahra. All ages
Exclusions: Lord Howe Island
Note: Sydney (part) LGA includes Sydney – Inner and Sydney – East SLA which fall within the geographic boundary of SESLHD

Table A2: Population estimates by age group, northern part of SESLHD, 2011 through to 2027

Age Group	2011	2017	2022	2027	2032	2011 - 2027 Change #	2011 - 2027 AAGR
0-15	53,496	62,147	68,807	73,530	76,388	20,034	2.0%
16-44	200,596	208,413	216,120	223,692	231,098	23,096	0.7%
45-69	95,292	104,892	113,402	123,060	133,511	27,768	1.6%
70-84	25,848	29,590	35,138	39,891	44,622	14,043	2.7%
85+	7,297	8,359	8,951	10,399	12,912	3,102	2.2%
Total	382,529	413,400	442,419	470,572	498,531	88,043	1.3%

Sources, exclusions and notes refer to Table A1

Table A3: Population estimates by LGA and age group, 2011 and 2027

Year / LGA / SLA	0-15	16-44	45-69	70-84	85+	Total
2011						
Botany Bay	7,890	18,142	11,368	3,428	676	41,504
Randwick	21,597	68,768	34,443	10,157	2,827	137,792
Sydney (part)	4,448	52,265	17,386	3,271	845	78,215
Waverley	10,735	36,385	15,859	4,336	1,383	68,698
Woollahra	8,826	25,036	16,236	4,656	1,566	56,320
Total 2011	53,496	200,596	95,292	25,848	7,297	382,529
2027						
Botany Bay	10,288	21,426	14,558	5,284	1,310	52,866
Randwick	30,013	75,081	42,840	14,453	3,919	166,306
Sydney (part)	7,843	63,923	27,598	6,991	1,772	108,128
Waverley	14,385	36,927	19,800	6,098	1,617	78,827
Woollahra	11,001	26,334	18,264	7,065	1,781	64,446
Total 2027	73,530	223,692	123,060	39,891	10,399	470,572

Sources, exclusions and notes refer to Table A1

Table A4: Overview of acute inpatient activity, Prince of Wales Hospital, 2014/15

	Seps	Bed days	ALoS	NWAU v 15	Av NWAU v 15	PEM v 15	Av PEM v 15
Age Groups							
5 to 15 Years	1	1	1.0	0	0.28	0	0.28
16 to 44 Years	8,173	20,971	2.6	8,965	1.10	9,605	1.18
45 to 69 Years	10,604	43,341	4.1	18,438	1.74	19,992	1.89
70 to 84 Years	7,923	40,454	5.1	14,155	1.79	15,618	1.97
85 Years and Over	3,525	17,523	5.0	5,098	1.45	5,681	1.61
Source of Referral							
Emergency Department	18,593	80,362	4.3	25,377	1.36	28,549	1.54
Outpatients	8,867	30,052	3.4	15,989	1.80	16,670	1.88
Medical Practitioner	1,983	3,461	1.7	1,748	0.88	1,843	0.93
All other referrals	783	8,415	10.7	3,541	4.52	3,834	4.90
Urgency of Admission							
Emergency	19,131	85,703	4.5	27,549	1.44	30,934	1.62
Planned	10,813	33,531	3.1	17,787	1.64	18,567	1.72
Other	282	3,056	10.8	1,319	4.68	1,396	4.95
ABF Service Type							
Acute Medical	18,831	64,973	3.5	16,499	0.88	18,452	0.98
Acute Planned Surgery	5,471	18,724	3.4	12,600	2.30	13,048	2.38
Acute Other Surgery	3,195	30,452	9.5	14,605	4.57	16,120	5.05
Acute Procedural	2,721	8,133	3.0	2,953	1.09	3,276	1.20
Unknown	8	8	1.0	0	0.00	0	0.00
Length of stay							
Day only	9,557	9,557	1.0	3,308	0.35	3,520	0.37
Overnight	6,788	6,788	1.0	5,841	0.86	6,179	0.91
Multiple nights	13,881	105,945	7.6	37,507	2.70	41,197	2.97
HITH Flag							
No HITH	29,233	111,179	3.8	44,241	1.51	48,456	1.66
Episode partly as HITH	687	9,116	13.3	2,028	2.95	2,052	2.99
Episode entirely as HITH	306	1,995	6.5	387	1.27	389	1.27
ICU Flag							
Did not spend time in ICU	28,667	99,430	3.5	32,500	1.13	35,661	1.24
Spent Time in ICU	1,559	22,860	14.7	14,156	9.08	15,236	9.77
HDU Flag							
Did not spend time in HDU	29,536	110,997	3.8	40,779	1.38	44,431	1.50
Spent Time in HDU	690	11,293	16.4	5,877	8.52	6,465	9.37
Separation Mode							
Discharge by Hospital	26,705	89,830	3.4	34,567	1.29	37,387	1.40
Type Change Separation	1,315	17,031	13.0	5,801	4.41	6,517	4.96
Transfer to other Hospital	1,189	8,225	6.9	3,294	2.77	3,747	3.15
All other separation modes	1,017	7,204	7.1	2,994	2.94	3,245	3.19
Corrected Payment Status							
Non-Chargeable	21,283	83,238	3.9	35,698	1.68	35,698	1.68
Private	7,338	32,185	4.4	8,442	1.15	12,683	1.73
Other	934	3,575	3.8	1,437	1.54	1,437	1.54
DVA	671	3,292	4.9	1,079	1.61	1,079	1.61
Total	**30,226**	**122,290**	**4.0**	**46,656**	**1.54**	**50,897**	**1.68**

Source, inclusions and exclusions refer to Table 2

Table A5: High cost SRG by location of residence, Prince of Wales Hospital, 2014/15

	Seps	Bed days	ALoS	NWAU 15	Av NWAU v 15	Public Equivalent Model 15	Av PEM v 15
63 - Tracheostomy	**118**	**4,117**	**34.9**	**3,700**	**31.36**	**3,945**	**33.43**
Northern SESLHD residents	45	1,515	33.7	1,294	28.77	1,412	31.37
Other metro LHD residents	32	1,099	34.3	952	29.75	1,016	31.76
Rural & interstate residents	30	845	28.2	815	27.18	853	28.45
Southern SESLHD residents	11	658	59.8	639	58.06	663	60.29
61 - Transplantation	**37**	**455**	**12.3**	**369**	**9.98**	**381**	**10.31**
Other metro LHD residents	14	169	12.1	134	9.58	137	9.75
Southern SESLHD residents	12	171	14.3	123	10.27	126	10.49
Northern SESLHD residents	11	115	10.5	112	10.16	119	10.82
42 - Cardiothoracic Surgery	**456**	**5,903**	**12.9**	**3,934**	**8.63**	**4,148**	**9.10**
Rural & interstate residents	175	2,376	13.6	1,646	9.41	1,675	9.57
Northern SESLHD residents	122	1,783	14.6	974	7.98	1,077	8.83
Other metro LHD residents	118	1,259	10.7	961	8.14	1,010	8.56
Southern SESLHD residents	41	485	11.8	353	8.61	384	9.37
99 - Unallocated	**36**	**505**	**14.0**	**164**	**4.57**	**171**	**4.76**
Northern SESLHD residents	19	286	15.1	82	4.31	87	4.60
Rural & interstate residents	8	117	14.6	51	6.36	51	6.36
Other metro LHD residents	6	24	4.0	13	2.21	15	2.42
Southern SESLHD residents	3	78	26.0	18	6.14	18	6.14
46 - Neurosurgery	**1,035**	**6,703**	**6.5**	**3,647**	**3.52**	**4,004**	**3.87**
Northern SESLHD residents	510	2,950	5.8	1,244	2.44	1,409	2.76
Other metro LHD residents	282	1,924	6.8	1,251	4.44	1,350	4.79
Rural & interstate residents	170	1,330	7.8	878	5.16	933	5.49
Southern SESLHD residents	73	499	6.8	275	3.76	311	4.27
43 - Colorectal Surgery	**363**	**2,199**	**6.1**	**983**	**2.71**	**1,059**	**2.92**
Northern SESLHD residents	267	1,641	6.1	716	2.68	780	2.92
Other metro LHD residents	65	354	5.4	168	2.58	176	2.71
Rural & interstate residents	21	157	7.5	70	3.33	74	3.52
Southern SESLHD residents	10	47	4.7	29	2.91	29	2.93
53 - Vascular Surgery	**571**	**3,722**	**6.5**	**1,428**	**2.50**	**1,545**	**2.71**
Northern SESLHD residents	385	2,619	6.8	925	2.40	1,012	2.63
Other metro LHD residents	104	605	5.8	273	2.62	284	2.73
Southern SESLHD residents	57	217	3.8	128	2.25	139	2.43
Rural & interstate residents	25	281	11.2	102	4.07	111	4.43
44 - Upper GIT Surgery	**662**	**3,126**	**4.7**	**1,403**	**2.12**	**1,524**	**2.30**
Northern SESLHD residents	504	2,211	4.4	914	1.81	993	1.97
Other metro LHD residents	86	470	5.5	254	2.95	276	3.21
Rural & interstate residents	51	343	6.7	170	3.34	184	3.62
Southern SESLHD residents	21	102	4.9	64	3.05	71	3.36

Source, inclusions and exclusions refer to Table 2
Definition: "High cost SRG inflows" are SRG with an average PEM (NWAU excluding private patient adjustment) greater than 3.00

Table A6: Peer Group Hospital comparison, 2014/15

	POWH (inc'g Coll Care)								All Principal Referral Hospitals						
	Seps	Bed days	ALoS	NWAU v 15	Av NWAU v 15	PEM v 15	Av PEM v 15		Seps	Bed days	ALoS	NWAU v 15	Av NWAU v 15	PEM v 15	Av PEM v 15
Total	29,896	121,723	4.1	46,496	1.56	50,721	1.70		425,276	1,851,227	4.4	637,165	1.50	696,375	1.64
Age Groups															
16 to 44 Years	26%	17%	2.6	19%	1.12	19%	1.20		25%	17%	2.9	19%	1.13	19%	1.21
45 to 69 Years	35%	35%	4.1	40%	1.74	39%	1.89		37%	36%	4.2	40%	1.62	40%	1.76
70 to 84 Years	26%	33%	5.1	30%	1.79	31%	1.97		26%	32%	5.3	29%	1.68	30%	1.86
85 Years and Over	12%	14%	5.0	11%	1.45	11%	1.61		11%	15%	5.9	11%	1.50	11%	1.68
"Top 4" Source of Referral															
Emergency Department	61%	66%	4.4	54%	1.38	56%	1.55		60%	65%	4.7	55%	1.36	55%	1.51
Outpatients	30%	25%	3.4	34%	1.80	33%	1.88		9%	7%	3.2	9%	1.52	9%	1.61
Medical Practitioner	7%	3%	1.8	4%	0.88	4%	0.93		23%	15%	2.8	22%	1.41	21%	1.51
Other Hospital	1%	3%	11.8	4%	6.10	4%	6.39		1%	3%	11.0	3%	5.28	3%	5.59
Urgency of Admission															
Emergency	63%	70%	4.5	59%	1.46	61%	1.63		66%	75%	5.0	64%	1.46	65%	1.62
Planned	36%	27%	3.1	38%	1.65	37%	1.72		30%	20%	2.9	30%	1.49	29%	1.58
Other	1%	3%	10.9	3%	4.71	3%	4.98		4%	5%	5.4	6%	2.13	6%	2.32
ABF Service Type															
Acute Medical	62%	53%	3.5	35%	0.88	36%	0.99		64%	55%	3.7	37%	0.86	37%	0.96
Acute Other Surgery	11%	25%	9.6	31%	4.59	32%	5.07		12%	26%	9.6	34%	4.26	34%	4.65
Acute Planned Surgery	18%	15%	3.4	27%	2.31	26%	2.39		16%	12%	3.3	22%	2.09	21%	2.21
Acute Procedural	9%	7%	3.0	6%	1.09	6%	1.20		8%	7%	3.5	7%	1.24	7%	1.38
Unknown	0%	0%	1.0	0%	0.00	0%	0.00		0%	0%	1.6	0%	0.00	0%	0.00
HITH Flag															
Episode entirely as HITH	1%	2%	6.5	1%	1.27	1%	1.27		1%	1%	5.5	0%	0.94	0%	0.96
Episode partly as HITH	2%	7%	13.3	4%	2.95	4%	2.99		1%	3%	16.7	2%	3.14	2%	3.28
No HITH	97%	91%	3.8	95%	1.53	95%	1.67		98%	96%	4.2	98%	1.49	98%	1.63
Length of Stay															
Day only	31%	8%	1.0	7%	0.35	7%	0.37		29%	7%	1.0	6%	0.32	6%	0.36
Overnight	22%	5%	1.0	12%	0.87	12%	0.92		20%	5%	1.0	11%	0.81	11%	0.87
Multiple nights	46%	87%	7.6	81%	2.71	81%	2.97		50%	89%	7.6	83%	2.46	83%	2.69

Greater Randwick Integrated Health Services Plan

	POWH (inc'g Coll Care)								All Principal Referral Hospitals						
	Seps	Bed days	ALoS	NWAU v 15	Av NWAU v 15	PEM v 15	Av PEM v 15		Seps	Bed days	ALoS	NWAU v 15	Av NWAU v 15	PEM v 15	Av PEM v 15
"Top 3" Separation Mode															
Discharge by Hospital	89%	73%	3.4	74%	1.30	73%	1.41		87%	71%	3.6	73%	1.27	73%	1.38
Type Change Separation	4%	14%	12.9	12%	4.41	13%	4.95		3%	10%	12.6	8%	3.69	8%	4.02
Transfer to other Hospital	4%	7%	7.3	7%	2.95	7%	3.35		5%	10%	8.2	10%	2.77	10%	3.18
Corrected Payment Status															
Non-Chargeable	70%	68%	3.9	77%	1.69	70%	1.69		70%	69%	4.3	76%	1.63	70%	1.63
Private	24%	26%	4.4	18%	1.16	25%	1.74		24%	25%	4.5	17%	1.04	24%	1.62
Other	3%	3%	3.8	3%	1.55	3%	1.55		3%	3%	4.4	4%	1.97	4%	1.97
DVA	2%	3%	4.9	2%	1.61	2%	1.61		2%	3%	5.5	2%	1.63	2%	1.63

Source: CaSPA FlowInfo v 15.0
Inclusions: Principal Referral Hospitals: Bankstown/Lidcombe, Concord, Gosford, John Hunter, Liverpool, Nepean, Royal North Shore, Royal Prince Alfred (including Institute of Rheum and Orthopaedics), St. George, St. Vincents – Public, Westmead, Wollongong (inc'g Coll. Care), Prince of Wales Hospital including Collaborative Care separations
Exclusions: SRGs – chemotherapy, renal dialysis, gynaecology, obstetrics, qualified neonate, unqualified neonates, perinatology, psychiatry - acute, psychiatry - non acute. Age Group: 00 to 15 years. ED Status: excluding ED only activity. ABF Service type: Acute Obstetrics, Acute Mental Health, Non-Acute Mental Health, Sub and Non Acute Other
Note: the activity data for POWH does not match previous data tables due to slightly different inclusions and exclusions in this table

Table A7: Scenario projections for acute inpatient activity by ESRG, Prince of Wales Hospital, 2021/22 to 2031/32

ESRGv40 Code and Name	2022		2027		2031	
	Separations	Bed days	Separations	Bed days	Separations	Bed days
111 - Chest Pain	948	1,369	1,060	1,491	1,178	1,627
112 - Unstable Angina	57	131	66	152	77	176
113 - Heart Failure and Shock	322	2,338	362	2,609	417	2,980
114 - Non-Major Arrhythmia and Conduction Disorders	447	1,326	504	1,495	569	1,703
115 - AMI W/O Invasive Cardiac Inves Proc	89	458	103	526	123	623
116 - Syncope and Collapse	398	1,163	451	1,310	512	1,488
119 - Other Cardiology	329	1,310	373	1,461	421	1,632
121 - Invasive Cardiac Inves Proc	897	2,546	984	2,821	1,077	3,125
122 - Percutaneous Coronary Angioplasty	496	1,755	565	1,984	641	2,239
129 - Other Interventional Cardiology	463	2,682	532	3,073	609	3,511
131 - Dermatology	145	346	156	372	169	402
141 - Diabetes	142	506	164	582	187	665
149 - Other Endocrinology	80	262	88	288	96	315
151 - Oesophagitis, Gastroent and Misc Digestive System Disorders	299	1,089	338	1,236	380	1,405
152 - Gastroscopy	544	1,285	607	1,435	672	1,599
153 - ERCP	136	728	150	811	167	907
159 - Other Gastroenterology	1,414	5,025	1,580	5,548	1,767	6,150
161 - Other Colonoscopy	866	1,297	954	1,425	1,048	1,563
162 - Other Gastrsocopy	414	896	442	944	473	1,001
172 - Lymphoma and Non-Acute Leukaemia	572	1,478	600	1,548	635	1,635
173 - Acute Leukaemia	91	656	93	669	95	687
174 - Bone Marrow Transplant	17	349	18	368	19	388
179 - Other Haematology	114	507	128	582	144	668
181 - Immunology	181	449	205	485	230	522
184 - Infectious Diseases	82	395	86	423	91	454
191 - Respiratory Neoplasms	121	709	134	782	149	867
192 - Digestive Malignancy	153	543	169	594	187	652
199 - Other Oncology	415	2,099	455	2,289	498	2,501
211 - Stroke	289	2,486	317	2,692	351	2,960
212 - TIA	119	511	136	576	156	659
213 - Seizures	292	1,191	313	1,284	334	1,385
219 - Other Neurology	1,141	4,424	1,263	4,769	1,393	5,149
221 - Renal Failure	226	1,062	262	1,373	302	1,526
229 - Other Renal Medicine	397	939	471	1,073	552	1,222
241 - Bronchitis and Asthma	124	394	134	425	145	461
242 - Chronic Obstructive Airways Disease	429	2,129	483	2,394	546	2,704
243 - Respiratory Infections/Inflammations	559	3,148	626	3,529	713	4,015
244 - Bronchoscopy	160	757	172	792	184	832
249 - Other Respiratory Medicine	637	3,615	710	4,001	794	4,455
251 - Rheumatology	238	1,096	266	1,187	297	1,299
261 - Pain Management	535	991	580	1,044	630	1,109
271 - Kidney and Urinary Tract Infections	562	1,912	626	2,137	703	2,411
272 - Cellulitis	483	2,450	519	2,646	561	2,887
275 - Injuries - Non-surgical	131	600	154	703	183	836
276 - Dementia and Delirium	184	1,221	205	1,360	233	1,542
277 - Septicaemia	228	1,801	257	2,030	292	2,306
278 - Surgical Follow Up	37	136	42	150	48	167
279 - Other Non Subspecialty Medicine	943	3,910	1,043	4,204	1,156	4,555
411 - Breast Surgery	120	174	128	182	136	190
421 - Coronary Bypass	219	2,686	213	2,621	207	2,561
429 - Other Cardiothoracic Surgery	276	2,973	306	3,297	337	3,644
432 - Anal, Stomal and Pilonidal Procedures	362	490	390	520	418	553
439 - Other Colorectal Surgery	205	2,743	227	3,009	251	3,311
441 - Cholecystectomy	259	841	279	898	301	963
442 - Disorders of Biliary Tract and Pancreas	280	1,297	310	1,437	343	1,599
449 - Other Upper GIT Surgery	172	1,803	192	1,962	213	2,131
461 - Head Injuries	153	473	169	526	187	589
462 - Craniotomy	229	2,585	247	2,771	266	2,973
463 - Neurosurgery - Non-procedural	375	2,385	405	2,561	443	2,790
469 - Other Neurosurgery	315	1,991	345	2,149	376	2,312

ESRGv40 Code and Name	2022		2027		2031	
	Separations	Bed days	Separations	Bed days	Separations	Bed days
471 - Dental Extractions and Restorations	60	125	64	133	68	140
481 - Tonsillectomy or Adenoidectomy	54	66	58	70	61	75
482 - Myringotomy W Tube Insertion	8	8	8	8	8	8
483 - Non-procedural ENT	432	919	459	985	490	1,063
484 - Head and Neck Surgery	83	282	90	301	97	320
489 - Other Procedural ENT	326	460	350	493	375	526
491 - Injuries to Limbs - Medical	540	2,358	587	2,581	643	2,872
492 - Wrist and Hand Procedures incl Carpal Tunnel	499	674	544	730	589	788
494 - Knee Procedures	155	266	167	286	180	307
495 - Other Orthopaedics - Surgical	1,271	8,344	1,387	9,183	1,515	10,170
496 - Hip Replacement/Revision	238	2,392	269	2,663	305	2,989
497 - Knee Replacement/Revision	184	1,276	213	1,442	244	1,614
499 - Other Orthopaedics - Non-surgical	217	1,199	242	1,372	269	1,565
502 - Non-procedural Ophthalmology	123	369	133	393	144	420
503 - Glaucoma and Lens Procedures	341	349	396	405	454	465
509 - Other Eye Procedures	129	223	144	241	160	262
511 - Microvascular Tissue Transfer or Skin Grafts	233	1,368	256	1,479	282	1,611
512 - Skin, Subcutaneous Tissue and Breast Procedures	363	585	390	623	423	669
513 - Maxillo-Facial Surgery	125	335	132	348	140	363
519 - Other Plastic and Reconstructive Surgery	50	182	57	202	64	227
521 - Cystourethroscopy	397	397	443	443	495	495
522 - Urinary Stones and Obstruction	269	435	296	471	324	512
523 - TURP	129	430	146	465	164	503
524 - Other Non-procedural Urology	375	872	423	962	475	1,065
529 - Other Urological Procedures	939	2,379	1,023	2,604	1,114	2,853
531 - Vein Ligation and Stripping	55	65	55	63	55	62
532 - Non-procedural Vascular Surgery incl Skin Ulcers	172	1,012	188	1,075	207	1,161
539 - Other Vascular Surgery Procedures	448	3,842	497	4,153	551	4,514
541 - Injuries	628	1,501	696	1,643	778	1,828
542 - Abdominal Pain	372	797	399	847	428	904
543 - Appendicectomy	281	810	298	848	315	887
544 - Digestive System Diagnoses incl GI Obstruction	132	654	146	721	162	802
545 - Inguinal and Femoral Hernia Procedures Age>0	239	345	263	367	288	391
546 - Post-operative Infections and Sequlae of Treatment	241	1,026	265	1,128	291	1,240
547 - Thyroid Procedures	75	148	81	155	88	163
549 - Other Non-specialty Surgery	592	3,735	654	4,127	721	4,558
611 - Transplantation	51	642	53	673	55	703
621 - Extensive Burns	4	9	4	10	5	11
631 - Tracheostomy or Ventilation >95 hours	180	6,294	198	6,946	217	7,629
712 - Endoscopic Procedures for Female Reproductive System	4	4	4	4	4	4
713 - Conisation, Vagina, Cervix and Vulva Procedures	6	17	6	18	6	18
717 - Non-procedural Gynaecology	146	236	156	249	164	262
719 - Other Gynaecological Surgery	21	33	23	36	25	39
721 - Ante-natal Admission	83	44	85	96	87	99
724 - Post-natal Admission	22	24	23	24	23	25
811 - Drug and Alcohol	487	626	512	657	539	690
999 - Unallocated	16	139	16	139	16	139
Grand Total	32,703	137,208	36,053	150,468	39,790	165,594

Table A8: Diagnosis Related Group (DRG) to Enhanced Service Related Group (ESRG) Mapping Table

ESRG v4.0	Australian Refined Diagnosis Related Groups Version 6.0
111 Chest pain	
	F74Z CHEST PAIN
112 Unstable angina	
	F72A UNSTABLE ANGINA + CSCC
	F72B UNSTABLE ANGINA - CSCC
113 Heart failure & shock	
	F43Z CIRC SYS DIAG W NIV
	F62A HEART FAILURE & SHOCK + CCC
	F62B HEART FAILURE & SHOCK - CCC
114 Non-major arrhythmia & conduction disorders	
	F76A ARRHY, CARD & COND DISDR +CSCC
	F76B ARRHY, CARD & COND DISDR -CSCC
115 AMI w/o invasive cardiac inves proc	
	F60A CRC DSRD+AMI-INVA INVE PR+CCC
	F60B CRC DSRD+AMI-INVA INVE PR-CCC
116 Syncope & collapse	
	F73A SYNCOPE & COLLAPSE + CSCC
	F73B SYNCOPE & COLLAPSE - CSCC
119 Other cardiology	
	F40A CIRC SYS DX+VENTILTR SUPPT+CCC
	F40B CIRC SYS DX+VENTILTR SUPPT-CCC
	F61A INFECTIVE ENDOCARDITIS +CCC
	F61B INFECTIVE ENDOCARDITIS -CCC
	F66A CORONARY ATHEROSCLEROSIS +CSCC
	F66B CORONARY ATHEROSCLEROSIS -CSCC
	F68A CONGENITAL HEART DISEASE +CC
	F68B CONGENITAL HEART DISEASE -CC
	F69A VALVULAR DISORDERS + CSCC
	F69B VALVULAR DISORDERS - CSCC
	F75A OTHER CIRCULATRY SYSTEM DX+CCC
	F75B OTH CIRCULATRY SYSTEM DX+SMCC
	F75C OTHER CIRCULATY SYSTEM DX-CC
121 Invasive cardiac inves proc	
	F41A CRC DSRD+AMI+INVA INVE PR+CSCC
	F41B CRC DSRD+AMI+INVA INVE PR-CSCC
	F42A CRC DSRD-AMI+IC IN PR +CSCC
	F42B CRC DSRD-AMI+IC IN PR -CSCC
	F42C CRC DSRD-AMI+IC IN PR SD
122 Percutaneous coronary angioplasty	
	F10A INTERVENTN CORONARY PR+AMI+CCC
	F10B INTERVENTN CORONARY PR+AMI-CCC
	F15A INTER CORONARY PR-AMI+STN+CSCC
	F15B INTER CORONRY PR-AMI+STNT-CSCC
	F16A INTERVN CORONARY PR-AMI-STN+CC
	F16B INTERV CORONARY PR-AMI-STNT-CC
129 Other interventional cardiology	
	F01A IMPLNTN/REPLCMNT AICD TTL+CCC
	F01B IMPLNTN/REPLCMNT AICD TTL-CCC

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	F02Z OTHER AICD PROCEDURES
	F03A CRDC VALV PR+PMP+INV INVES+CCC
	F03B CRDC VALV PR+PMP+INV INVES-CCC
	F12A IMPLANT/REPLACE PM,TOT SYS+CCC
	F12B IMPLANT/REPLACE PM,TOT SYS-CCC
	F17A INSERT/REPLACE PM GENERTR+CSCC
	F17B INSERT/REPLACE PM GENERTR-CSCC
	F18A OTHER PACEMAKER PROCEDURES+CC
	F18B OTHER PACEMAKER PROCEDURES-CC
	F19Z TRNS-VSCLR PERC CRDC INTRV
131 Dermatology	
	J68A MAJOR SKIN DISORDERS +CSCC
	J68B MAJOR SKIN DISORDERS -CSCC
	J68C MAJOR SKIN DISORDERS, SAMEDAY
141 Diabetes	
	K60A DIABETES + CSCC
	K60B DIABETES - CSCC
149 Other endocrinology	
	K63A INBORN ERRORS OF METABOLISM+CC
	K63B INBORN ERRORS OF METABOLISM-CC
	K64A ENDOCRINE DISORDERS + CSCC
	K64B ENDOCRINE DISORDERS - CSCC
151 Oesophagitis, gastroent & misc digestive system disorders	
	G67A OESPHS, GASTR +CSCC
	G67B OESPHS, GASTR -CSCC
152 Gastroscopy	
	G46A COMPLEX GASTROSCOPY+CCC
	G46B COMPLEX GASTROSCOPY-CCC
	G46C COMPLEX GASTROSCOPY,SD
	G47A OTH GASTROSCOPY +CCC
153 ERCP	
	H43A ERCP PROCEDURE +CSCC
	H43B ERCP PROCEDURE -CSCC
159 Other gastroenterology	
	G61A GI HAEMORRHAGE +CSCC
	G61B GI HAEMORRHAGE - CSCC
	G64A INFLAMMATORY BOWEL DISEASE +CC
	G64B INFLAMMATORY BOWEL DISEASE-CC
	G70A OTHER DIGESTIVE SYS DIAG +CSCC
	G70B OTHER DIGESTIVE SYS DIAG -CSCC
	H40A ENDO PR BLEED OES VARICES +CCC
	H40B ENDO PR BLEED OES VARICES -CCC
	H60A CIRRHOSIS & ALC HEPATITIS +CCC
	H60B CIRRHOSIS & ALC HEPATITIS+SMCC
	H60C CIRRHOSIS & ALC HEPATITIS -CC
	H63A DSRD LVR-MAL,CIRR,ALC HEP+CSCC
	H63B DSRD LVR-MAL,CIRR,ALC HEP-CSCC
	K40A ENDO/INVEST PR METAB DIS +CCC
	K40B ENDO/INVEST PR METAB DIS -CCC
	K40C ENDO/INVEST PR METAB DIS, SD
	Q61A RED BLOOD CELL DISDERS + CSCC
	Q61B RED BLOOD CELL DISDERS - CSCC
161 Other colonoscopy	

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	G48A COLONOSCOPY +CSCC
	G48B COLONOSCOPY - CSCC
	G48C COLONOSCOPY, SD
162 Other gastroscopy	
	G47B OTH GASTROSCOPY -CCC
	G47C OTH GASTROSCOPY, SD
172 Lymphoma & non-acute leukaemia	
	R03A LYMPHMA LEUKMA+OTH OR PR +CSCC
	R61A LYMPHMA &N-ACUTE LEUKAEMIA+CCC
	R61B LYMPHMA &N-ACUTE LEUKAEMIA-CCC
	R61C LYMPHOMA/N-A LEUKAEMIA,SAMEDAY
173 Acute leukaemia	
	R60A ACUTE LEUKAEMIA + CCC
	R60B ACUTE LEUKAEMIA - CCC
174 Bone marrow transplant	
	A07Z ALLOG BONE MARROW TRANSPLANT
	A08A AUTO BONE MARROW TRANSPLNT+CCC
	A08B AUTO BONE MARROW TRANSPLNT-CCC
179 Other haematology	
	B40Z PLASMAPHERESIS + NEURO DIS SD
	B62Z APHERESIS
	Q60A RETICLENDO&IMNTY DIS+CSCC
	Q60B RETICLENDO&IMNTY DIS-CSCC+MAL
	Q62Z COAGULATION DISORDERS
181 Immunology	
	Q60C RETICLENDO&IMNTY DIS-CSCC-MAL
	S60Z HIV, SAMEDAY
	S65A HIV-RELATED DISEASES +CCC
	S65B HIV-RELATED DISEASES +SCC
	S65C HIV-RELATED DISEASES -CSCC
	X61Z ALLERGIC REACTIONS
184 Infectious diseases	
	T40Z INFECT&PARAS DIS+VENT SUPPORT
	T63Z VIRAL ILLNESS
	T64A OTH INFECTOUS&PARSTIC DIS +CCC
	T64B OTH INFECTOUS&PARSTIC DIS+SMCC
	T64C OTH INFECTOUS & PARSTIC DIS-CC
191 Respiratory neoplasms	
	E71A RESPIRATORY NEOPLASMS +CCC
	E71B RESPIRATORY NEOPLASMS -CCC
192 Digestive malignancy	
	G60A DIGESTIVE MALIGNANCY + CCC
	G60B DIGESTIVE MALIGNANCY - CCC
199 Other oncology	
	B66A NERVOUS SYSTEM NEOPLASM+CSCC
	B66B NERVOUS SYSTEM NEOPLASM-CSCC
	D60A EAR NOSE MOUTH&THROAT MAL+CSCC
	D60B EAR NOSE MOUTH&THROAT MAL-CSCC
	H61A MALG HEPATOBILIARY SYS PAN+CCC
	H61B MALG HEPATOBILIAY SYS PANC-CCC
	I65A MUSCSKEL MALIG NEO+CCC
	I65B MUSCSKEL MALIG NEO -CCC
	J62A MALIGNANT BREAST DISORDERS +CC

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	J62B MALIGNANT BREAST DISORDERS -CC
	J69A SKIN MALIGNANCY +CCC
	J69B SKIN MALIGNANCY -CCC
	L62A KDNY&UNRY TRCT NEOPLASMS +CSCC
	M60A MALIGNANCY, MALE REPR SYS+CSCC
	N60A MALIGNANCY FEM REPROD SYS +CCC
	N60B MALIGNANCY FEM REPROD SYS -CCC
	R62A OTHER NEOPLASTIC DISORDERS +CC
	R62B OTHER NEOPLASTIC DISORDERS -CC
	R64Z RADIOTHERAPY
201 Chemotherapy	
	R63Z CHEMOTHERAPY
211 Stroke	
	B70A STROKE & OTH CEREB DIS +CCC
	B70B STROKE & OTH CEREB DIS +SCC
	B70C STROKE & OTH CEREB DIS -CSCC
	B70D STRKE&OTH CEREB DIS DIE/TRN<5D
212 TIA	
	B69A TIA & PRECEREBRAL OCCLUSN+CSCC
	B69B TIA & PRECEREBRAL OCCLUSN-CSCC
213 Seizures	
	B41Z TELEMETRIC EEG MONITORING
	B76A SEIZURE + CSCC
	B76B SEIZURE - CSCC
219 Other neurology	
	B42A NERV SYS DX W VENT SUPPORT+CCC
	B42B NERV SYS DX W VENT SUPPORT-CCC
	B65Z CEREBRAL PALSY
	B67A DEGNRTV NERV SYS DIS+CSCC
	B67B DEGNRTV NERV SYS DIS+MCC
	B67C DEGNRTV NERV SYS DIS-CC
	B68A MLT SCLROSIS&CEREBEL ATAXIA+CC
	B68B MLT SCLROSIS&CEREBEL ATAXIA-CC
	B71A CRANIAL & PERIPHL NERV DSRD+CC
	B71B CRANIAL & PERIPHL NERV DSRD-CC
	B72A NRVS SYS INF EX VRL MNGTS+CSCC
	B72B NRVS SYS INF EX VRL MNGTS-CSCC
	B73Z VIRAL MENINGITIS
	B77Z HEADACHE
	B81A OTHER DSRD OF NERVOUS SYS+CSCC
	B81B OTHER DSRD OF NERVOUS SYS-CSCC
	C61A NEUROLOGICAL&VASCLR EYE DIS+CC
	C61B NEUROLOGICAL&VASCLR EYE DIS-CC
	D61Z DYSEQUILIBRIUM
221 Renal failure	
	L60A RENAL FAILURE +CCC
	L60B RENAL FAILURE +SCC
	L60C RENAL FAILURE -CSCC
229 Other renal medicine	
	F67A HYPERTENSION + CSCC
	F67B HYPERTENSION - CSCC
	L02A OP INS PERI CATH DIALYSIS+CSCC
	L02B OP INS PERI CATH DIALYSIS-CSCC

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	L09A OTH KIDNY & URNRY TRACT PR+CCC
	L67A OTH KIDNY & URNRY TRCT DX+CSCC
	L67B OTH KIDNY & URNRY TRCT DX-CSCC
231 Renal dialysis	
	L61Z HAEMODIALYSIS
	L68Z PERITONEAL DIALYSIS
241 Bronchitis & asthma	
	E69A BRONCHITIS & ASTHMA +CC
	E69B BRNCHTS&ASTHMA -CC
242 Chronic obstructive airways disease	
	E65A CHRNIC OBSTRCT AIRWAY DIS +CCC
	E65B CHRNIC OBSTRCT AIRWAY DIS -CCC
243 Respiratory infections/inflammations	
	E62A RESPIRATRY INFECTN/INFLAMM+CCC
	E62B RESPIRATRY INFECTN/INFLAM+SMCC
	E62C RESPIRATORY INFECTN/INFLAMM-CC
	E76Z RESPIRATORY TUBERCULOSIS
244 Bronchoscopy	
	E42A BRONCHOSCOPY +CCC
	E42B BRONCHOSCOPY -CCC
	E42C BRONCHOSCOPY SAMEDAY
249 Other respiratory medicine	
	E02A OTHER RESPIRATRY SYS OR PR+CCC
	E02B OTH RESPIRATRY SYS OR PR+SMCC
	E40A RESP DX W VENTILATOR SUPPT+CCC
	E40B RESP DX W VENTILATOR SUPPT-CCC
	E41Z RESP SYS DX +NON-INVAS VENTILN
	E60A CYSTIC FIBROSIS +CSCC
	E60B CYSTIC FIBROSIS -CSCC
	E61A PULMONARY EMBOLISM + CCC
	E61B PULMONARY EMBOLISM - CCC
	E63Z SLEEP APNOEA
	E64A PULMONRY OEDEMA &RESP FAIL+CCC
	E64B PULMONRY OEDEMA &RESP FAIL-CCC
	E67A RESPIRATRY SIGNS & SYMPTM+CSCC
	E67B RESPIRTRY SIGNS & SYMPTM -CSCC
	E68A PNEUMOTHORAX +CC
	E68B PNEUMOTHORAX -CC
	E70A WHOOPNG CGH &ACTE BRNCHIO+CC
	E70B WHOOPNG CGH &ACTE BRNCHIO-CC
	E73A PLEURAL EFFUSION + CCC
	E73B PLEURAL EFFUSN + SMCC
	E73C PLEURAL EFFUSION - CC
	E74A INTERSTITAL LUNG DIS +CCC
	E74B INTERSTITIAL LUNG DIS +SMCC
	E74C INTERSTITIAL LUNG DIS -CC
	E75A OTHER RESP SYS DX +CCC
	E75B OT RESP SYS DX +SMCC
	E75C OTHER RESP SYS DX - CC
251 Rheumatology	
	I66A INFLM MUSCL DSR +CSCC
	I66B INFLM MUSCULSKTL DSR -CSCC

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	I69A BONE DISEASES AND ARTHRO +CSCC
	I69B BONE DISEASES AND ARTHROP-CSCC
261 Pain management	345
	A11A INS IMPLNT SP INFUS DEV+CCC
	A11B INS IMPLNT SP INFUS DEV-CCC
	A12Z INS NEUROSTIMULATOR DEV
	I68C NON-SURG SPINAL DISORDERS, SD
	I71A OTH MUSCTENDIN DISRD +CSCC
	I71B OTH MUSCTENDIN DISRD -CSCC
271 Kidney & urinary tract infections	
	L63A KDNY & UNRY TRCT INF +CSCC
	L63B KDNY & UNRY TRCT INF -CSCC
272 Cellulitis	
	J64A CELLULITIS +CSCC
	J64B CELLULITIS -CSCC
275 Injuries - non-surgical	
	J65A TRAUMA TO SKN,SUB TIS&BST+CSCC
	X60A INJURIES + CSCC
276 Dementia & delirium	
	B63Z DMNTIA&CHRNIC DISTURB CRBRL FN
	B64A DELIRIUM+CCC
	B64B DELIRIUM-CCC
277 Septicaemia	
	T60A SEPTICAEMIA + CCC
	T60B SEPTICAEMIA - CCC
278 Surgical follow up	
	Z63A OTH SURG FU & MED CARE + CCC
	Z63B OTH SURG FU & MED CARE - CCC
279 Other non subspecialty medicine	
	B60A ACUTE PARA/QUAD+/-OR PR +CCC
	B60B ACUTE PARA/QUAD+/-OR PR -CCC
	B74A NONTRAUMATIC STUPOR & COMA +CC
	B74B NONTRAUMATIC STUPOR & COMA -CC
	B75Z FEBRILE CONVULSIONS
	B82A CHR UNSP PARA/QUAD+/-OR PR+CCC
	B82B CHR UNSP PARA/QUAD+/-PR+SCC
	B82C CHR UNSP PARA/QUAD+/- PR -CSCC
	F63A VENOUS THROMBOSIS + CSCC
	F63B VENOUS THROMBOSIS - CSCC
	I79A PATHOLOGICAL FRACTURE +CCC
	I79B PATHOLOGICAL FRACTURE -CCC
	K61Z SEVERE NUTRITIONAL DISTURBANCE
	K62A MISC METABOLIC DISORDERS +CSCC
	K62B MISC METABOLIC DISORDERS -CSCC
	T62A FEVER OF UNKNOWN ORIGIN + CC
	T62B FEVER OF UNKNOWN ORIGIN - CC
	X40Z INJ,POIS,TOX EFF DRUG W VENT
	X64A OTH INJ, POIS & TOX EF DX+CSCC
	X64B OTH INJ, POIS &TOX EFF DX-CSCC
	Y60Z BURNS,TRANS OTH ACUT CARE <5 D
	Z61A SIGNS AND SYMPTOMS
	Z61B SIGNS AND SYMPTOMS, SAMEDAY

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	Z65Z CNGNTL & PRB ARISING FRM NNT
411 Breast surgery	
	J06Z MAJOR PROC FOR BREAST CONDITNS
	J07Z MINOR PROC FOR BREAST CONDITNS
	J63A NON-MALIGNANT BREAST DISORD+CC
	J63B NON-MALIGNANT BREAST DISORD-CC
421 Coronary bypass	
	F05A CRNRY BYPSS+INV INVES+REOP/CCC
	F05B CRNRY BYPSS+INV INVES-REOP-CCC
	F06A CRNRY BYPSS-INV INVS+REOP/CSCC
	F06B CRNRY BYPSS-INV INVS-REOP-CSCC
429 Other cardiothoracic surgery	
	A10Z INSERTION OF VAD
	E01A MAJOR CHEST PROCEDURE + CCC
	E01B MAJOR CHEST PROCEDURE - CCC
	F04A CRD VLV PR+PMP-INV INVES+CCC
	F04B CRD VLV PR+PMP-INV INVES-CCC
	F07A OTHER CARDTHOR/VASC PR+PMP+CCC
	F07B OTH CARDTHOR/VASC PR+PMP+SMCC
	F07C OTHER CARDTHOR/VASC PR+PMP-CC
	F09A OTH CARDIOTHOR PR-PMP+CCC
	F09B OTH CARDIOTHOR PR-PMP +SMCC
	F09C OTH CARDIOTHOR PR-PMP -CC
432 Anal, stomal & pilonidal procedures & pilonidal procedures	
	G11Z ANAL & STOMAL PROCEDURES
	J09Z PERIANAL & PILONIDAL PR
439 Colorectal surgery	
	G01A RECTAL RESECTION +CCC
	G01B RECTAL RESECTION -CCC
	G02A MJR SMALL & LARGE BOWEL PR+CCC
	G02B MJR SMALL & LARGE BOWEL PR-CCC
	G05A MNR SMALL&LARGE BOWEL PR +CCC
	G05B MNR SMALL&LARGE BOWEL PR +SMCC
	G05C MNR SMALL & LARGE BOWEL PR -CC
441 Cholecystectomy	
	H07A OPEN CHOLECYSTECTOMY+CDE/+CCC
	H07B OPEN CHOLECYSTECTOMY-CDE-CCC
	H08A LAP CHOLECYSTECTMY+CDE/+CSCC
	H08B LAP CHOLECYSTECTMY-CDE-CSCC
442 Disorders of biliary tract & pancreas	
	H62A DISORDERS PANCREAS-MALIG+CSCC
	H62B DISORDERS PANCREAS-MALIG-CSCC
	H64A DISORDERS OF BILIARY TRACT +CC
	H64B DISORDERS OF BILIARY TRACT -CC
449 Other upper GIT surgery	
	G03A STOMCH,OESPH&DUODNL PR+MAL/CCC
	G03B STMCH,OESPHGL&DDNL PR-MAL+SMCC
	G03C STMCH,OESPHGL&DDNL PR-MAL-CC
	G06Z PYLOROMYOTOMY PROCEDURE
	G12A OTH DIGEST SYS OR PR+CCC
	G12B OTH DIGEST SYS OR PR+SMCC
	G12C OTH DIGEST SYS OR PR-CC

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	H01A PANCREAS, LIVER & SHUNT PR+CCC
	H01B PANCREAS, LIVER &SHUNT PR-CCC
	H02A MJR BILIARY TRACT PR +CCC
	H02B MJR BILIARY TRACT PR +SCC
	H02C MJR BILIARY TRACT PR -CSCC
	H05A HEPATOBILIARY DIAGNTIC PR +CCC
	H05B HEPATOBILIARY DIAGNTIC PR -CCC
	H06A OTH HEPTOBILRY & PANCRS PR+CCC
	H06B OTH HEPTOBILRY &PANCRS PR-CCC
	K04A MAJOR PROCS FOR OBESITY +CC
	K04B MAJOR PROCS FOR OBESITY -CC
	Q01Z SPLENECTOMY
	W03Z ABDOMINAL PR MULT SIG TRAUMA
461 Head Injury	
	B78A INTRACRANIAL INJURY+CSCC
	B78B INTRACRANIAL INJURY-CSCC
	B79A SKULL FRACTURES+CSCC
	B79B SKULL FRACTURES-CSCC
	B80Z OTHER HEAD INJURY
462 Craniotomy	
	B02A CRANIAL PROCEDURES + CCC
	B02B CRANIAL PROCEDURES + SCC
	B02C CRANIAL PROCEDURES - CSCC
463 Neurosurgery - non-procedural	
	B61A SPINAL CORD COND+/-OR PR +CSCC
	B61B SPINAL CORD COND+/-OR PR -CSCC
	I68A NON-SURG SPINAL DISORDERS +CC
	I68B NON-SURG SPINAL DISORDERS -CC
469 Other neurosurgery	
	B01A VENTRICULAR SHUNT REV+CSCC
	B01B VENTRICULAR SHUNT REV-CSCC
	B03A SPINAL PROCEDURES + CSCC
	B03B SPINAL PROCEDURES - CSCC
	B06A CBL PSY,MUS DYSY,NPTHY PR +CC
	B06B CBL PSY,MUS DYSY,NPTHY PR -CC
	I09A SPINAL FUSION +CCC
	I09B SPINAL FUSION -CCC
	I10A OTHER BACK & NECK PROCS + CSCC
	I10B OTHER BACK & NECK PROCS - CSCC
	I15Z CRANIO-FACIAL SURGERY
	K02A PITUITARY PROCEDURES +CC
	K02B PITUITARY PROCEDURES -CC
471 Dental extractions & restorations	
	D40Z DENTAL EXTRACT & RESTORATIONS
481 Tonsillectomy & adenoidectomy	
	D11Z TONSILLECTOMY, ADENOIDECTOMY
482 Myringotomy w tube insertion	
	D13Z MYRINGOTOMY +TUBE INSERTION
483 Non-procedural ENT	
	D62Z EPISTAXIS
	D63Z OTITIS MEDIA AND URI
	D64Z LARYNGOTRACHEITIS&EPIGLOTTITIS

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	D65Z NASAL TRAUMA & DEFORMITY
	D66A OTH EAR,NOSE,MOUTH&THRT DX +CC
	D66B OTH EAR,NOSE,MOUTH&THRT DX -CC
484 Head & neck surgery	
	D02A HEAD & NECK PR +CSCC
	D02B HEAD & NECK PR+MALIGNANCY/MCC
	D02C HEAD & NECK PR -MALIGNANCY -CC
	D05Z PAROTID GLAND PROCEDURES
	D14Z MOUTH & SALIVARY GLAND PROCS
489 Other procedural ENT	
	D01Z COCHLEAR IMPLANT
	D06Z SINUS &CMPLX MDDL EAR PR
	D10Z NASAL PROCEDURES
	D12Z OTH EAR,NOSE,MOUTH & THROAT PR
	D15Z MASTOID PROCEDURES
	E02C OTHER RESPIRATY SYS OR PR -CC
491 Injuries to limbs - medical	
	I60Z FEMORAL SHAFT FRACTURES
	I61A DISTAL FEMORAL FRACTURES +CC
	I61B DISTAL FEMORAL FRACTURES -CC
	I63A SPR,STR&DSLC HIP,PELV&THIGH+CC
	I63B SPR,STR&DSLC HIP,PELV&THIGH-CC
	I74Z INJ FOREARM, WRIST, HAND, FOOT
	I75A INJ SH,ARM,ELB,KN,LEG,ANKL +CC
	I75B INJ SH,ARM,ELB,KN,LEG,ANKL -CC
	I77A FRACTURE OF PELVIS+CSCC
	I77B FRACTURE OF PELVIS -CSCC
	I78A FRACTURE NECK FEMUR+CSCC
	I78B FRACTURE OF NECK FEMUR-CSCC
492 Wrist & hand procedures incl carpal tunnel	
	B05Z CARPAL TUNNEL RELEASE
	I30Z HAND PROCEDURES
	X05A OTH PR FOR INJURIES TO HAND+CC
	X05B OTH PR FOR INJURIES TO HAND-CC
494 Knee procedures	
	I18Z OTHER KNEE PROCEDURES
	I29Z KNEE RECONSTRUCTION/REVISION
495 Other orthopaedics - surgical	
	B07A PRPHL & CRANL NERV & OTH PR+CC
	B07B PRPHL & CRANL NERV & OTH PR-CC
	I02A MCRVAS TT/SKIN GRAFT+CSCC-HAND
	I02B SKIN GRAFT -CSCC -HAND
	I05A OTH JNT REPLACEMENT +CSCC
	I05B OTH JNT REPLACEMENT -CSCC
	I06Z SPINAL FUSION + DEFORMITY
	I07Z AMPUTATION
	I08A OTHER HIP & FEMUR PROC +CCC
	I08B OTHER HIP & FEMUR PR -CCC
	I11Z LIMB LENGTHENING PROCEDURES
	I12A INFC/INFM BONE/JNT+MISC PR+CCC
	I12B INFC/INFM BNE/JNT+MISC PR+SMCC
	I12C INFC/INFM BNE/JNT+MISC PR-CC
	I13A HUMER,TIBIA,FIBUL,ANKL PR+CC

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	I13B HUMER,TIBIA,FIBUL,ANKL PR-CC
	I16Z OTHER SHOULDER PROCEDURES
	I19A OTHER ELBOW, FOREARM PROCS +CC
	I19B OTHER ELBOW, FOREARM PROCS -CC
	I20Z OTHER FOOT PROCEDURES
	I21Z LOC EX, REM INT FIX DEV HP&FMR
	I23Z LOC EX,REM INT FIX-HP&FMR
	I24Z ARTHROSCOPY
	I25A BNE,JNT DXTIC PR INC BIOPSY+CC
	I25B BNE,JNT DXTIC PR INC BIOPSY-CC
	I27A SOFT TISSUE PROCEDURES +CC
	I27B SOFT TISSUE PROCEDURES -CC
	I28A OTH MUSCULOSKELETAL PR+CC
	I28B OTH MUSCULOSKELETAL PR-CC
	W02A HIP,FEMR&LIMB PR MLT TRMA+CSCC
	W02B HIP,FEMR&LIMB PR MLT TRMA-CSCC
	W04A OTH OR PR MULT SIG TRAUMA+CSCC
	W04B OTH OR PR MULT SIG TRAUMA-CSCC
	X04A OTHER PR INJ LWR LMB +CSCC
	X04B OTHER PR INJ LOWR LIMB -CSCC
496 Hip replacement/revision	
	I03A HIP REPLACEMENT + CCC
	I03B HIP REPLACEMENT - CCC
	I31A HIP REVISION +CCC
	I31B HIP REVISION -CCC
497 Knee replacement/revision	
	I04A KNEE REPLACEMT +CSCC
	I04B KNEE REPLACEMT -CSCC
	I32A KNEE REVISION +CCC
	I32B KNEE REVISION +SCC
	I32C KNEE REVISION -CSCC
499 Other orthopaedics - non-surgical	
	I64A OSTEOMYELITIS +CSCC
	I64B OSTEOMYELITIS -CSCC
	I67A SEPTIC ARTHRITIS + CSCC
	I67B SEPTIC ARTHRITIS - CSCC
	I72A SPEC MUSCTEND DISRD +CSCC
	I72B SPEC MUSCTEND DISRD -CSCC
	I73A AFTCARE MUSCSK IMPL +CSCC
	I73B AFTCARE MUSCSK IMPL -CSCC
	I76A OTH MUSCULOSKELETL DSRD +CSCC
	I76B OTH MUSCULOSKELETAL DSRD -CSCC
502 Non-procedural ophthalmology	
	C60A AC & MJR EYE INFECTN +CC
	C60B AC & MJR EYE INFECTN -CC
	C62Z HYPHEMA &MED MANAGD EYE TRAUMA
	C63Z OTHER DISORDERS OF THE EYE
503 Glaucoma & lens procedures	
	C15A GLAUCOMA/CX CATARACT PROCS
	C15B GLAUCOMA/CX CATARACT PROCS, SD
	C16Z LENS PROCEDURES
509 Other eye procedures	

ESRG v4.0	Australian Refined Diagnosis Related Groups Version 6.0
	C01Z PROC FOR PENETRATNG EYE INJURY
	C02Z ENUCLEATIONS & ORBITAL PROCS
	C03Z RETINAL PROCEDURES
	C04Z MAJOR CORN, SCLERAL&CONJNCT PR
	C05Z DACRYOCYSTORHINOSTOMY
	C10Z STRABISMUS PROCEDURES
	C11Z EYELID PROCEDURES
	C12Z OTHER CORN, SCLERAL&CONJNCT PR
	C13Z LACRIMAL PROCEDURES
	C14Z OTHER EYE PROCEDURES
511 Microvascular tissue transfer/skin grafts	
	J01A MICRVS TSS TRNSF SKN/BRST+CSCC
	J01B MICRVS TSS TRNSF SKN/BRST-CSCC
	J08A OTH SKN GRF&/DBRDMNT PR +CC
	J08B OTH SKN GRF&/DBRDMNT PR -CC
	J12B L LMB PR+ULCR/CELS-CCC+GRAFT
	J13A L LMB PR-ULC/CEL+CCC/(GFT+SCC)
	X02A MVTT/SKIN GFT+CSCC INJUR HAND
	X02B SKIN GRAFT INJURIES HAND -CSCC
	X07A SK GRAFT INJ-HAND+MIC TT/+CSCC
	X07B SK GRAFT INJ-HAND-MIC TT-CSCC
512 Skin, subcutaneous tissue & breast procedures	
	J10Z SKN,SUBC TIS & BRST PLASTIC PR
	J11Z OTHER SKIN, SUBC TIS & BRST PR
	J14Z MAJOR BREAST RECONSTRUCTIONS
513 Maxillo-facial surgery	
	D04A MAXILLO SURGERY + CC
	D04B MAXILLO SURGERY - CC
	D67A ORAL&DNTAL DIS-EXTRCT&RESTN
	I17A MAXILLO-FACIAL SURGERY +CC
	I17B MAXILLO-FACIAL SURGERY -CC
519 Other plastic & reconstructive surgery	
	D03Z SURGCL RPR CLEFT LIP/PALATE DX
	J13B L LMB PR-ULC/CEL-CCC-(GFT+SCC)
	J69C SKIN MALIGNANCY, SAMEDAY
	K07Z OBESITY PROCEDURES
	Y02B OTHER BURNS + SKIN GRAFT -CC
	Y03Z OTHER OR PROCS FOR OTHER BURNS
	Y62B OTHER BURNS -CC
521 Cystourethroscopy	
	L41Z CYSTOURETHROSCOPY, SAMEDAY
	M40Z CYSTOURETHROSCOPY, SAMEDAY
522 Urinary stones & obstruction	
	L64Z URINARY STONES & OBSTRUCTION
523 TURP	
	L05A TRANURETH PROSTATECTOMY +CSCC
	L05B TRANURETH PROSTATECTOMY -CSCC
	M02A TRANSURETHRAL PROSTECTOMY+CSCC
	M02B TRANSURETHRAL PROSTECTOMY-CSCC
524 Other non-procedural urology	
	L62B KDNY&UNRY TRCT NEOPLASMS -CSCC
	L65A KDNY & UNRY TR SGNS&SYMPS+CSCC

ESRG v4.0	Australian Refined Diagnosis Related Groups Version 6.0
	L65B KDNY & UNRY TR SGNS&SYMPS-CSCC
	L66Z URETHRAL STRICTURE
	M60B MALIGNANCY, MALE REPR SYS-CSCC
	M61Z BENIGN PROSTATIC HYPERTROPHY
	M62Z INFLAMMATION MALE REPRD SYSTEM
	M64Z OTHER MALE REPRODUCTIVE SYS DX
529 Other urological procedures	
	L03A KDNY,URT&MJR BLDR PR NPSM +CCC
	L03B KDNY,URT&MJR BLDR PR NPSM +SCC
	L03C KDNY,URT&MJR BLDR PR NPSM-CSCC
	L04A KDY,URT&MJR BLDR PR N-NPM+CCC
	L04B KDY,URT&MJR BLDR PR N-NPM+SCC
	L04C KDY,URT&MJR BLDR PR N-NPM-CSCC
	L06A MINOR BLADDER PROCEDURES+CSCC
	L06B MINOR BLADDER PROCEDURES -CSCC
	L07A TRANSURETHRAL PROCS +CC
	L07B TRANSURETHRAL PROCS -CC
	L08A URETHRAL PROCEDURES + CC
	L08B URETHRAL PROCEDURES - CC
	L40Z URETEROSCOPY
	L42Z ESW LITHOTRIPSY+URINARY STONES
	M01A MAJOR MALE PELVIC PROCS +CSCC
	M01B MAJOR MALE PELVIC PROCS -CSCC
	M03Z PENIS PROCEDURES
	M04Z TESTES PROCEDURES
	M06A OTH MALE REPROD SYS OR PR +CC
	M06B OTH MALE REPROD SYS OR PR -CC
	M63Z STERILISATION, MALE
531 Vein ligation & stripping	
	F20Z VEIN LIGATION & STRIPPING
532 Non-procedural vascular surgery incl skin ulcers	
	F64A SKN ULCERS CIRC DISORD +CSCC
	F64B SKN ULCERS CIRC DISORD -CSCC
	F65A PERIPHERAL VASCULAR DSRD +CSCC
	F65B PERIPHERAL VASCULAR DSRD -CSCC
	J60A SKIN ULCERS +CCC
	J60B SKIN ULCERS -CCC
	J60C SKIN ULCERS, SAMEDAY
539 Other vascular surgery	
	B04A EXTRACRANIAL VASCULAR PR +CCC
	B04B EXTRACRANIAL VASCULAR PR -CCC
	F08A MJR RECONSTRC VASC PR-PUMP+CCC
	F08B MJR RECONSTRC VASC PR-PUMP-CCC
	F11A AMPUTN CIRC SYS-UP LMB&TOE+CCC
	F11B AMPUTN CIRC SYS-UP LMB&TOE-CCC
	F13A UP LIMB&TOE AMP CIRC DIS +CSCC
	F13B UP LIMB&TOE AMP CIRC DIS -CSCC
	F14A VASC PR-MJR RECONSTRC-PUMP+CCC
	F14B VASC PR-MJR RECONSTR-PUMP+SMCC
	F14C VASC PR-MJR RECONSTR-PUMP-CC
	F21A OTH CIRC SYS OR PR+CCC
	F21B OTH CIRC SYS OR PR -CCC
	J12A L LMB PR +ULCR/CELS+CCC

ESRG v4.0	Australian Refined Diagnosis Related Groups Version 6.0
	J12C L LMB PR+ULCR/CELS-CCC-GRAFT
	K01A OR PR DIABETIC COMPLICATNS+CCC
	K01B OR PR DIABETIC COMPLICATNS-CCC
	K09A OTH ENDCRN, NUTR& META PR +CCC
	K09B OTH ENDCRN, NUTR& META PR+SMCC
	K09C OTH ENDCRN, NUTR & META PR -CC
	L09B OTH KIDNY & URNRY TRACT PR+SCC
	L09C OTH KIDNY & URNRY TRCT PR-CSCC
541 Injuries	
	E66A MAJOR CHEST TRAUMA +CCC
	E66B MJR CHEST TRMA +SMCC
	E66C MAJOR CHEST TRAUMA -CC
	J65B TRAUMA TO SKN,SUB TIS&BST-CSCC
	W60Z MULTIPLE TRAUMA, DIED/TRANSF<5
	W61A MULTIPLE TRAUMA-SIGNIF PR+CSCC
	W61B MULTIPLE TRAUMA-SIGNIF PR-CSCC
	X60B INJURIES - CSCC
542 Abdominal pain	
	G66Z ABDMNL PAIN/MESENTRC ADENTS
543 Appendicectomy	
	G07A APPENDCTMY +MALIG/PERITON/CSCC
	G07B APPENDCTMY -MALIG-PERITON-CSCC
544 Digestive system diagnoses incl GI obstruction	
	G65A GI OBSTRUCTION + CSCC
	G65B GI OBSTRUCTION - CSCC
545 Inguinal & femoral hernia procedures Age>0	
	G10B HERNIA PROCEDURES -CC
546 Post-operative infections & sequlae of treatment	
	T61A POSTOP & POSTTRAUM INFECT+CSCC
	T61B POSTOP & POSTTRAUM INFECT-CSCC
	X63A SEQUELAE OF TREATMNT+CSCC
	X63B SEQUELAE OF TREATMNT-CSCC
547 Thyroid procedures	
	K06A THYROID PROCEDURES +CSCC
	K06B THYROID PROCEDURES -CSCC
549 Other non-specialty surgery	
	D67B ORAL&DNTAL DIS-EXTRCT&RESTN,SD
	G04A PERITONEAL ADHESOLYSIS +CCC
	G04B PRTNL ADHLY +SMCC
	G04C PERITONEAL ADHESOLYSIS -CC
	G10A HERNIA PROCEDURES +CC
	G62Z COMPLICATED PEPTIC ULCER
	G63Z UNCOMPLICATED PEPTIC ULCER
	K03Z ADRENAL PROCEDURES
	K05A PARATHYROID PROCEDURES +CSCC
	K05B PARATHYROID PROCEDURES -CSCC
	K08Z THYROGLOSSAL PROCEDURES
	M05Z CIRCUMCISION
	Q02A OTH OR PR BLD&BLD FRM ORG+CSCC
	Q02B OTH OR PR BLD&BLD FRM ORG-CSCC
	R01A LYMPHMA&LEUKMA+MJR OR PR +CSCC
	R01B LYMPHMA&LEUKMA+MJR OR PR -CSCC

ESRG v4.0	Australian Refined Diagnosis Related Groups Version 6.0
	R02A OTH NPLSTC DSRD+MJR OR PR+CCC
	R02B OTH NPLSTC DSRD+MJR OR PR+SMCC
	R02C OTH NPLSTC DSRD+MJR OR PR-CC
	R03B LYMPHMA LEUKMA+OTH OR PR -CSCC
	R04A OTH NPLSTC DSRD+OTH OR PR +CC
	R04B OTH NPLSTC DSRD+OTH OR PR -CC
	T01A OR PROC INFECT& PARAS DIS+CCC
	T01B OR PROC INFECT& PARAS DIS+SMCC
	T01C OR PROC INFECT & PARAS DIS-CC
	W01Z VENTILN/CRANIA MULT SIG TRAUMA
	X06A OTHER PR OTHER INJURIES + CSCC
	X06B OTHER PR OTHER INJURIES - CSCC
	Z01A OR PR+DX OTH CNT HLTH SRV+CSCC
	Z01B OR PR+DX OTH CNT HLTH SRV-CSCC
611 Transplantation	
	A01Z LIVER TRANSPLANT
	A03Z LUNG OR HEART/LUNG TRANSPLANT
	A05Z HEART TRANSPLANT
	A09A RENAL TRANSPLANT+PANCREAS/+CCC
	A09B RENAL TRANSPLANT -PANCREAS-CCC
621 Extensive burns	
	Y01Z VENT BURN&SEV FULL THICK BURN
	Y02A OTHER BURNS + SKIN GRAFT +CC
	Y61Z SEVERE BURNS
	Y62A OTHER BURNS +CC
631 Tracheostomy or ventilation >95 hours	
	A06A TRACHEOSTOMY W VENT>95 +CCC
	A06B TRCH&VNT-CCC OR TRCH/VNT+CCC
	A06C VENTILATION>95 - CCC
	A06D TRACHEOSTOMY -CCC
	A40Z ECMO
711 Abortion w D&C, aspiration curettage or hysterotomy	
	O05Z ABORTION+ OR PROC
712 Endoscopic proc for female reproductive system	
	N08Z ENDOS & LAPAR PR, FEM REPR SYS
713 Conisation, vagina, cervix & vulva proc	
	N09Z CONISTN,VAGINA,CERVIX&VULVA PR
714 Diagnostic curettage/hysteroscopy	
	N10Z DXC CURETTGE, DXC HYSTEROSCOPY
715 Hysterectomy	
	N04A HYSTERECTOMY FOR NON-MALG+CSCC
	N04B HYSTERECTOMY FOR NON-MALG-CSCC
717 Non-procedural gynaecology	
	N61Z INFECTIONS, FEMALE REPROD SYST
	N62Z MNSTRL & OTH FEM REPR SYS DIS
	O63Z ABORTION-OR PROC
719 Other gynaecological surgery	
	N01Z PELVIC EVSCRTN & RADCL VLVCTMY
	N05A OOPH&COM FAL TUBE PR NMAL+CSCC
	N05B OOPH&COM FAL TUBE PR NMAL-CSCC

ESRG v4.0	Australian Refined Diagnosis Related Groups Version 6.0
	N06A FEM REP SYS RECONSTRCT PR+CSCC
	N06B FEM REP SYS RECONSTRCT PR-CSCC
	N07Z OTH UTERN & ADNEXA PR FOR NMAL
	N11Z OTH FEMALE REPRODUCTIVE SYS PR
	N12A UTRN & ADNX PR FOR MAL+CCC
	N12B UTRN & ADNX PR FOR MAL-CCC
	O03A ECTOPIC PREGNANCY +CC
	O03B ECTOPIC PREGNANCY -CC
	O04A POSTPARTUM&POST ABORTN+PR+CSCC
	O04B POSTPARTUM&POST ABORTN+PR-CSCC
721 Antenatal admission	
	O64Z FALSE LABOUR
	O66Z ANTENATAL&OTH OBSTETRIC ADM
722 Vaginal delivery	
	O02A VAGINAL DELIVERY +OR PR +CSCC
	O02B VAGINAL DELIVERY +OR PR -CSCC
	O60Z VAGINAL DELIVERY
723 Caesarean delivery	
	O01A CAESAREAN DELIVERY +CSCC
	O01B CAESAREAN DELIVERY -CSCC
724 Postnatal admission	
	O61Z POSTPARTUM & POST ABORTN-OR PR
811 Drug & alcohol	
	V60Z ALCOHOL INTOXICATN & WITHDRWL
	V61Z DRUG INTOXICTN & WITHDRAWAL
	V62A ALCOHOL USE DSRD & DEPENDENCE
	V62B ALCOHOL USE DSRD & DEPENDNC+SD
	V63Z OPIOID USE DSRD & DEPENDENCE
	V64Z OTHER DRUG USE DISORD & DEPEND
	X62A POISNG/TOXC EFF DRUGS +CSCC
	X62B POISNG/TOXC EFF DRUGS -CSCC
823 Mental health treatment, sameday (excl. ECT)	
	U60Z MENTAL HEALTH TREAT,SAMEDY-ECT
829 Other psychiatry	
	U40Z MENTAL HEALTH TREAT,SAMEDY+ECT
	U61Z SCHIZOPHRENIA DISORDERS
	U62A PAR&ACUTE PSYCH DSRD+CSCC/MHLS
	U62B PAR&ACUTE PSYCH DSRD-CSCC-MHLS
	U63Z MAJOR AFFECTIVE DISORDERS
	U64Z OTH AFFECT & SOMATOFORM DSRD
	U65Z ANXIETY DISORDERS
	U66Z EATING & OBSESSV-COMPULSV DSRD
	U67Z PERSONLTY DSRD&ACUTE REACTIONS
	U68Z CHILDHOOD MENTAL DISORDERS
999 Unallocated	
	801A OR PR UNREL TO PDX+CCC
	801B OR PR UNREL TO PDX+SMCC
	801C OR PR UNREL TO PDX-CC
	960Z UNGROUPABLE
	961Z UNACCEPTABLE PRINCIPAL DX
Split allocation	
	I01A BL/MLT MJ JT PR LWR EXT+RV/CCC
	I01B BL/MLT MJ JT PR LWR EXT-RV-CCC

ESRG v4.0	Australian Refined Diagnosis Related Groups Version 6.0
	J67A MINOR SKIN DISORDERS
	J67B MINOR SKIN DISORDERS, SAMEDAY
	Z40Z ENDO+DX OTH CNT HLTH SRV SD
	Z64A OTH FACTOR INFL HEALTH STATUS
	Z64B OTH FCTR INFL HEALTH STATUS,SD
TBD, based on qualification status & hosp	
	963Z NEONATAL DX NOT CONSNT AGE/WGT
	E72Z RESP PROBS FROM NEONATL PERIOD
	P01Z NEONATE,D/T<5DAY ADM+SIG OR PR
	P02Z NEO,CARDIOTHORACIC/VASCULAR PR
	P03Z NEO,ADMWT 1000-1499G+SIG OR PR
	P04Z NEO,ADMWT 1500-1999G+SIG OR PR
	P05Z NEO,ADMWT 2000-2499G+SIG OR PR
	P06A NEO,ADMWT >2499G+SIG OR PR+MMP
	P06B NEO,ADMWT >2499G+SIG OR PR-MMP
	P60A NEO,D/TR<5D ADM-SIG PR+NEWBORN
	P60B NEO,D/TR<5D ADM-SIG PR-NEWBORN
	P61Z NEONATE, ADMISSION WT <750 G
	P62Z NEONATE, ADMISSION WT 750-999G
	P63Z NEO,ADMWT 1000-1249G-SIG OR PR
	P64Z NEO,ADMWT 1250-1499G-SIG OR PR
	P65A NEO,ADMWT 1500-1999G-SG OR+MMP
	P65B NEO,ADMWT 1500-1999G-SG OR+MJP
	P65C NEO,ADMWT 1500-1999G-SG OR+OTP
	P65D NEO,ADMWT 1500-1999G-SG OR-PRB
	P66A NEO,ADMWT 2000-2499G-SG OR+MMP
	P66B NEO,ADMWT 2000-2499G-SG OR+MJP
	P66C NEO,ADMWT 2000-2499G-SG OR+OTP
	P66D NEO,ADMWT 2000-2499G-SG OR-PRB
	P67A NEO,ADMWT >2499G-SIG OR PR+MMP
	P67B NEO,ADMWT >2499G-SIG OR PR+MJP
	P67C NEO,ADMWT >2499G-SIG OR PR+OTP
	P67D NEO,ADMWT >2499G-SIG OR PR-PRB

Appendix 7: Disadvantage by Postcode

Postcode 2036

- Postcode 2036 includes Chifley, Eastgardens, Hillsdale, La Perouse, Little Bay, Malabar, Matraville, Phillip Bay, Port Botany. It is located in the southern part of Randwick Local Government Area (LGA), and eastern part of the Botany Bay LGA.

- This graphic is based on data published in the *Dropping off the Edge (DOTE) 2015* report, which examined 621 NSW postcodes across 21 indicators of disadvantage.

- Based on the DOTE analyses, Postcode 2036 is the **most disadvantaged** of 46 postcode areas within South Eastern Sydney. Postcode 2036 has particularly high rates of:
  - **Poor schooling progress** (Yr 9, highest in SESLHD)
  - **Juvenile and criminal convictions**, and **prison admissions**
  - **Domestic violence** and **psychiatric admissions**
  - **Disability support pensions**
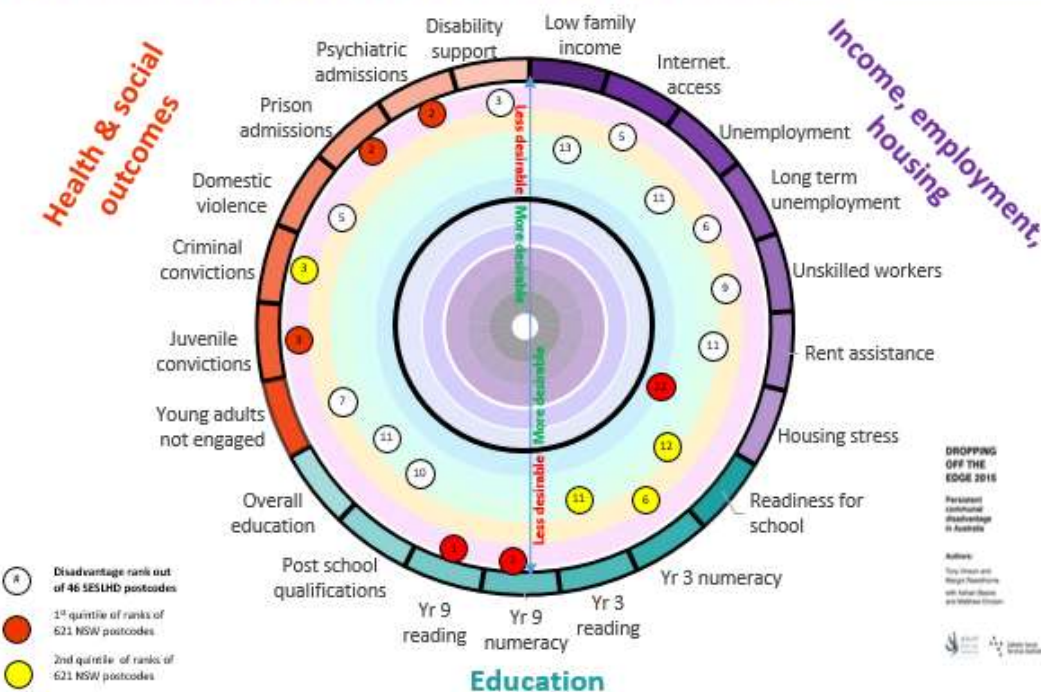
- The indicators used for the DOTE report are based on data collected from ABS and state government agencies, and reflect factors that may limit life opportunities in the broad areas of social wellbeing, health, community safety, access to housing, education and employment. In the DOTE report all 621 NSW postcodes are ranked on each indicator, and also on an overall composite measure, of disadvantage. For further information, including definitions of indicators, go to http://www.dote.org.au/

- For each indicator, Postcode 2036's rank and relative position is shown out of the 46 postcodes within the SESLHD geographic area only. However, to provide an idea of how Postcode 2036 compares with the other 620 NSW postcodes, have been coloured if Postcode 2036 was ranked in the top 20% or 40% (red or yellow) most disadvantaged of the NSW postcodes.

"Experiences of disadvantage are not evenly distributed across the community: they are geographically concentrated, complex and persistent."

Produced by Directorate of Planning, Population Health and Equity, South Eastern Sydney Local Health District, February 2016

Postcode 2035

❖ Postcode 2035 includes Maroubra, Maroubra South and Pagewood, and is located in Randwick and Botany Bay Local Government Areas (LGA). This graphic is based on data published in the *Dropping off the Edge (DOTE) 2015* report, which examined 621 NSW postcodes across 21 indicators of disadvantage.

❖ Based on this analysis, Postcode 2035 is the **16th most disadvantaged** of 46 postcode areas within South Eastern Sydney. Relative to NSW and other SESLHD postcode areas, Postcode 2035 has relatively high rates (within top two quintiles) of: **poor schooling progress; juvenile offending;** and **psychiatric admissions**.

❖ In common with much of South Eastern Sydney, postcode 2035 also has high levels of **housing stress**.
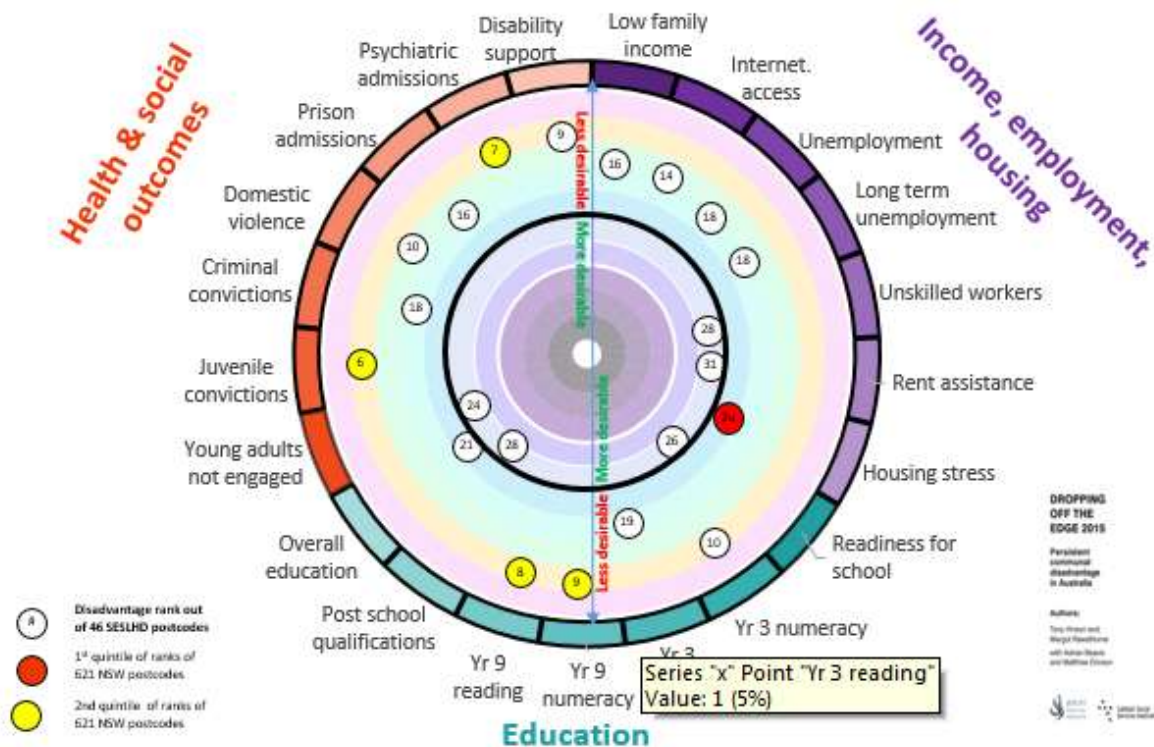
❖ The indicators used for the DOTE report are based on data collected from ABS and state government agencies, and reflect factors that may limit life opportunities in the broad areas of social wellbeing, health, community safety, access to housing, education and employment. In the DOTE report all 621 NSW postcodes are ranked on each indicator, and also on an overall composite measure, of disadvantage. For further information, including definitions of indicators, go to http://www.dote.org.au/.

❖ For each indicator, Postcode 2035's rank and relative position is shown out of the 46 postcodes within the SESLHD geographic area only. However, to provide an idea of how Postcode 2035 compares with the other 620 NSW postcodes, the circles have been coloured if Postcode 2035 was ranked in the top 20% or 40% (red or yellow) most disadvantaged.

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Produced by Directorate of Planning, Population Health and Equity, South Eastern Sydney Local Health District, February 2016
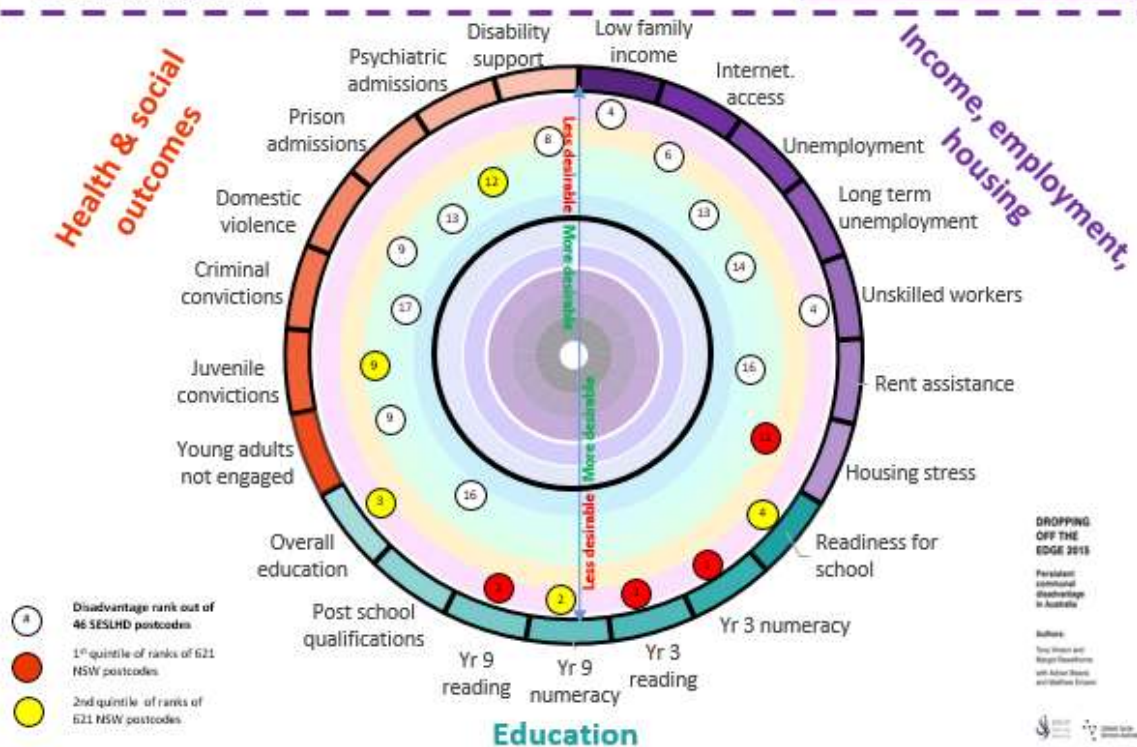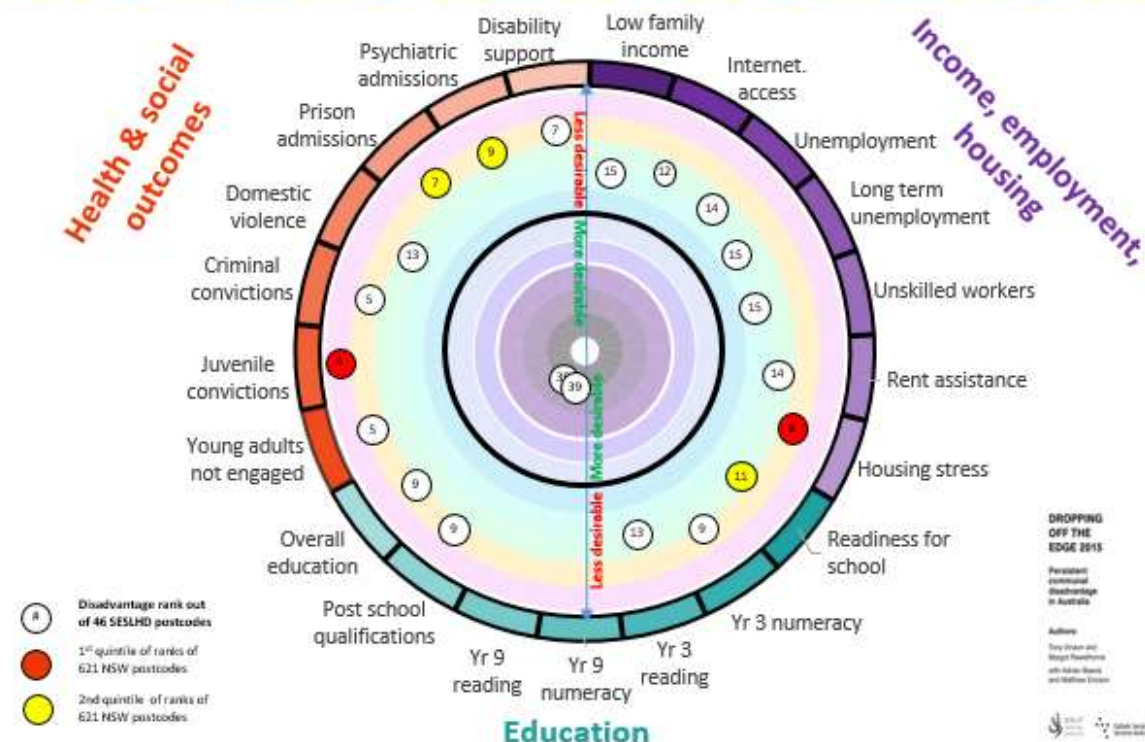
Postcode 2018

❖ Postcode 2018 includes Eastlakes and Rosebery, and is located in Randwick and Sydney Local Government Areas (LGA), and both South Eastern Sydney and Sydney Local Health Districts. This graphic is based on data published in the *Dropping off the Edge (DOTE) 2015* report, which examined 621 NSW postcodes across 21 indicators of disadvantage.

❖ Based on this analysis, Postcode 2018 is the **2nd most disadvantaged** of 46 postcode areas within South Eastern Sydney (following nearby Postcode 2036). Relative to other NSW and/ or SESLHD postcodes, Postcode 2018 has Relatively high rates of:
- **Developmental vulnerability** (low 'readiness for school')
- **Poor schooling progress** (Yr 3, highest in SESLHD)
- **Low income families** and **unskilled workers**
- **Juvenile convictions** and **psychiatric admissions**
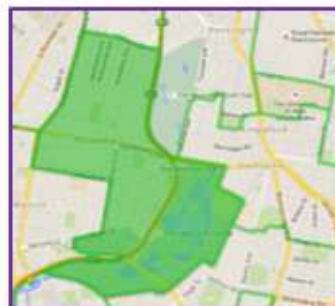
❖ In common with much of South Eastern Sydney, Postcode 2018 also has high levels of **housing stress**.

Health & social outcomes

Income, employment, housing

Disability support
Low family income
Internet. access
Psychiatric admissions
Prison admissions
Unemployment
Domestic violence
Long term unemployment
Criminal convictions
Unskilled workers
Juvenile convictions
Rent assistance
Young adults not engaged
Housing stress
Overall education
Readiness for school
Post school qualifications
Yr 3 numeracy
Yr 9 reading
Yr 9 numeracy
Yr 3 reading

Less desirable / More desirable / More desirable / Less desirable

DROPPING OFF THE EDGE 2015

Persistent communal disadvantage in Australia

Education

Disadvantage rank out of 46 SESLHD postcodes

1st quintile of ranks of 621 NSW postcodes

2nd quintile of ranks of 621 NSW postcodes

❖ The indicators used for the DOTE report are based on data collected from ABS and state government agencies, and reflect factors that may limit life opportunities in the broad areas of social wellbeing, health, community safety, access to housing, education and employment. In the DOTE report all 621 NSW postcodes are ranked on each indicator, and also on an overall composite measure, of disadvantage. For further information, including definitions of indicators, go to http://www.dote.org.au/.

❖ For each indicator, Postcode 2018's rank and relative position is shown out of the 46 postcodes within the SESLHD geographic area only. However, to provide an idea of how Postcode 2018 compares with the other 620 NSW postcodes, circles have been coloured if Postcode 2018 was ranked in the top 20% or 40% (red or yellow) most disadvantaged of the NSW postcodes.

`` **Experiences of disadvantage are not evenly distributed across the community: they are geographically concentrated, complex and persistent.** "

Produced by Directorate of Planning, Population Health and Equity, South Eastern Sydney Local Health District, February 2016
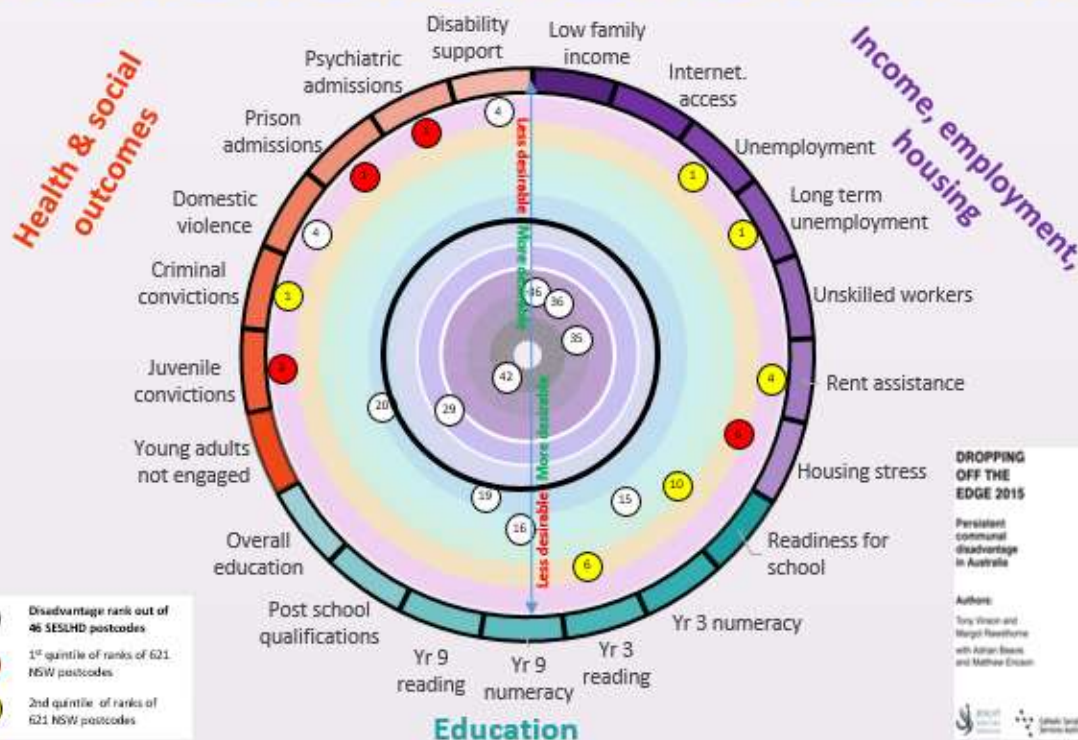
Postcode 2020

❖ Postcode 2020 includes Mascot, and is located in the Botany Bay Local Government Area. This graphic is based on data published in the *Dropping off the Edge (DOTE) 2015* report, which examined 621 NSW postcodes across 21 indicators of disadvantage.

❖ Based on this analysis, Postcode 2020 is the **9th most disadvantaged** of 46 postcode areas within South Eastern Sydney. Relative to other NSW and/ or SESLHD postcode areas, Postcode 2020 has relatively high rates of:
- **Disengaged youth** and **juvenile offending**
- **Criminal convictions** and **prison admissions**
- **Psychiatric admissions**

❖ In common with much of South Eastern Sydney, Postcode 2011 also has high **housing stress**.

❖ The indicators used for the DOTE report are based on data collected from ABS and state government agencies, and reflect factors that may limit life opportunities in the broad areas of social wellbeing, health, community safety, access to housing, education and employment. In the DOTE report all 621 NSW postcodes are ranked on each indicator, and also on an overall composite measure, of disadvantage. For further information, including definitions of indicators, go to http://www.dote.org.au/.
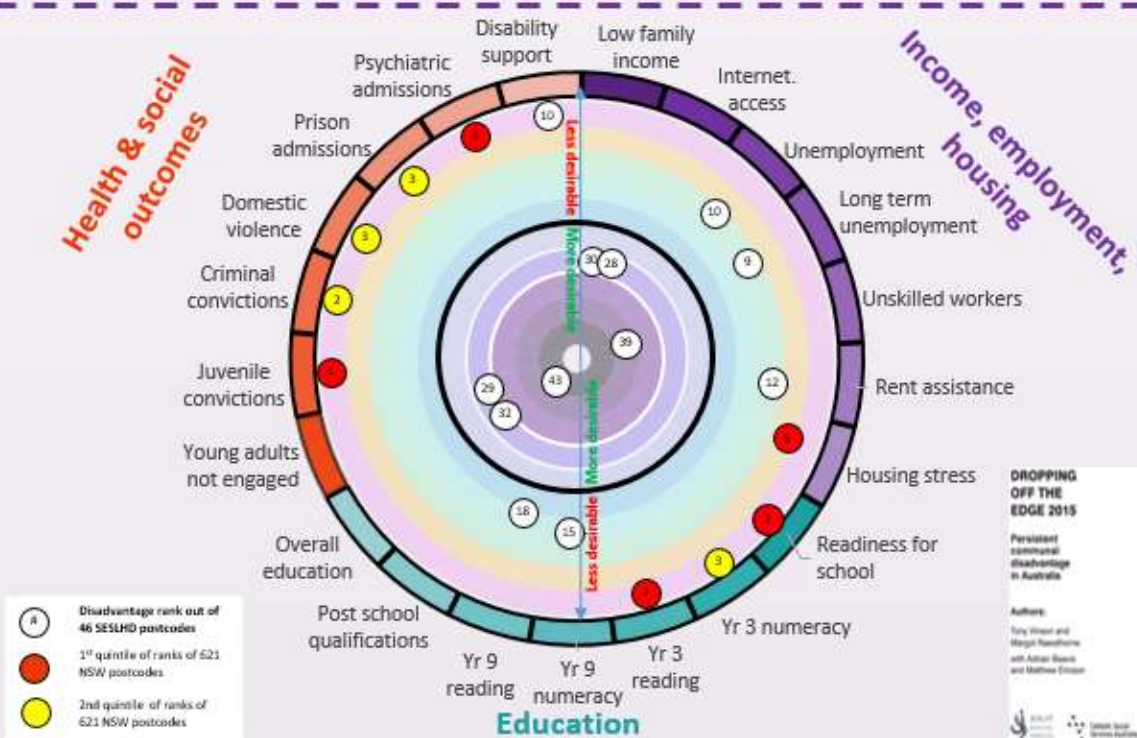
❖ For each indicator, Postcode 2020's rank and relative position is shown out of the 46 postcodes within the SESLHD geographic area only. However, to provide an idea of how Postcode 2020 compares with the other 620 NSW postcodes, circles have been coloured if Postcode 2020 was ranked in the top 20% or 40% (red or yellow) most disadvantaged of the NSW postcodes.

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Produced by Directorate of Planning, Population Health and Equity, South Eastern Sydney Local Health District, February 2016

Postcode 2011

❖ Postcode 2011 includes Woolloomooloo, Kings Cross, Potts Point, Elizabeth Bay and Rushcutters Bay, and is located in Sydney Local Government Area. This graphic is based on data published in the *Dropping off the Edge (DOTE) 2015* report, which examined 621 NSW postcodes across 21 indicators of disadvantage.

❖ Based on this analysis, Postcode 2011 is the **6th most disadvantaged** of 46 postcode areas within South Eastern Sydney. Relative to other NSW and/ or SESLHD postcode areas, Postcode 2011 has relatively high rates of:
   - **Developmental vulnerability** (not `school ready') and **poor school progress (Yr 3)**
   - **Convictions (criminal, juvenile)** and **prison admissions**
   - **Domestic violence**
   - **Psychiatric admissions**

❖ In common with much of South Eastern Sydney, Postcode 2011 also has high **housing stress**.

❖ The indicators used for the DOTE report are based on data collected from ABS and state government agencies, and reflect factors that may limit life opportunities in the broad areas of social wellbeing, health, community safety, access to housing, education and employment. In the DOTE report all 621 NSW postcodes are ranked on each indicator, and also on an overall composite measure of disadvantage. For further information, including definitions of indicators, go to http://www.dote.org.au/.

❖ For each indicator, Postcode 2011's rank and relative position is shown out of the 46 postcodes within the SESLHD geographic area only. However, to provide an idea of how Postcode 2011 compares with the other 620 NSW postcodes, circles have been coloured if Postcode 2011 was ranked in the top 20% or 40% (red or yellow) most disadvantaged of the NSW postcodes.

``Experiences of disadvantage are not evenly distributed across the community: they are geographically concentrated, complex and persistent."

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