Health
Nepean Blue Mountains
Local Health District

Nepean Blue Mountains Local Health District

Healthcare Services Plan

2012 to 2022

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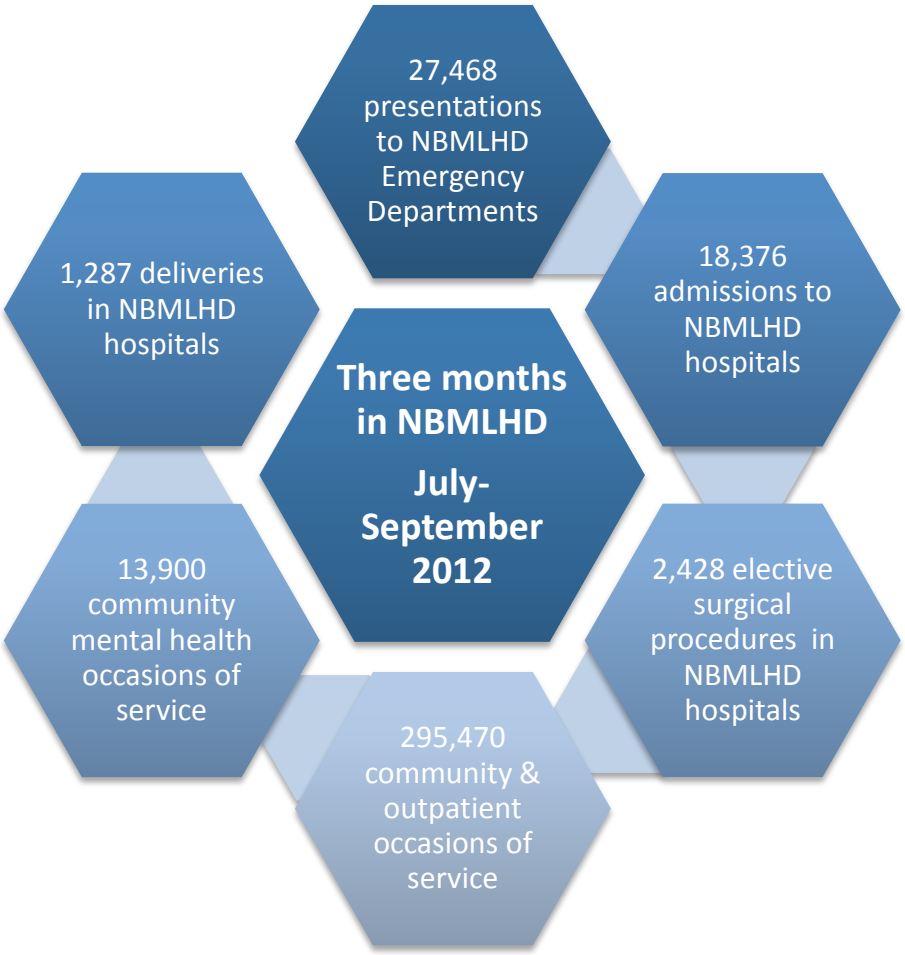
Executive Summary

High Levels of Health Service Activity in the Nepean Blue Mountains Local Health District



Higher Levels of Projected Health Service Activity

Significant increases in NBMLHD health care activity projected to 2022, with 27% increase in inpatient acute and sub-acute beddays.

This equates to 198 additional bed equivalents in NBMLHD to 2021/22.

A further 96 bed equivalents will be required in NBMLHD to 2026/27.

Source: Hospital Quarterly: At a glance July to September 2012 www.bhi.nsw.gov.au, Accessed 30/01/2013, Health Information Exchange, Webnaps, aIM 2012, SiAM 2012.
Notes: Quarterly average of calendar year 2012 figures. Accessed 31/01/2013.

About the Nepean Blue Mountains Local Health District

Nepean Blue Mountains Local Health District (NBMLHD) is one of nineteen Local Health Districts and Specialist Health Networks in NSW. NBMLHD is responsible for providing primary, secondary and tertiary level health care for people living in the Blue Mountains, Hawkesbury, Lithgow and Penrith local government areas (LGAs) and tertiary care to residents of the Greater Western Region. The NBMLHD covers an area of approximately 9,000 square kilometres from Portland in the west to St Marys in the east. The District is diverse with a mix of metropolitan, regional and rural areas.

The vision of the Nepean Blue Mountains Local Health District is:

Together, Achieving Better Health.

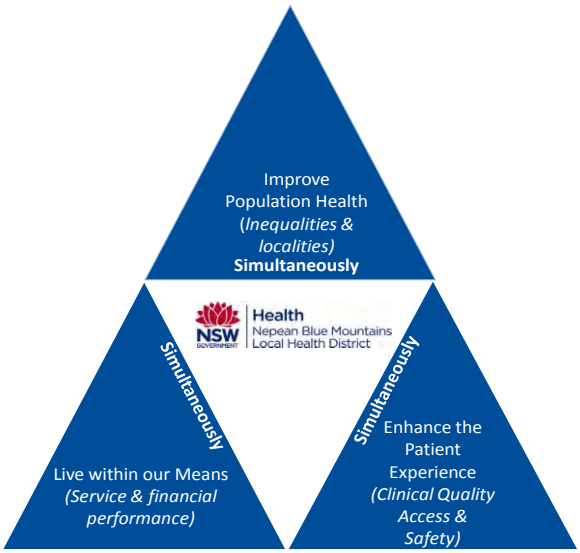
Nepean Blue Mountains Local Health District will drive innovation and excellence in health service delivery that provides safe, equitable, high quality, accessible, timely and efficient services that are responsive to the needs of patients and the community.

The NSW Minister of Health's values for the NSW public health system of CORE - Collaboration, Openness, Respect and Empowerment, are supplemented by Nepean Blue Mountains Local Health District specific values of SAFE - Safety, Agility, Fairness and Excellence, underpin all service delivery across the District.

Nepean Blue Mountains Local Health District works within the context of the organisational goals of:

- Improving population health (inequalities and localities)
- Enhancing the patient experience (clinical quality, access and safety)
- Living within our means (service and financial performance).

Strategic Directions of the Nepean Blue Mountains Local Health District



Nepean Blue Mountains Local Health District Healthcare Services Plan 2012-2022

The *Nepean Blue Mountains Local Health District Healthcare Services Plan 2012-2022* outlines the health care service requirements with a ten year horizon to 2022 across hospital and community services operating in the NBMLHD. The Plan is the first comprehensive planning process for the Nepean Blue Mountains Local Health District and covers all aspects of health care service delivery from inpatient activity (acute and sub-acute) to emergency department presentations to outpatient occasions of service provided through hospitals and community based services and population health programs and initiatives.

The *Nepean Blue Mountains Local Health District Healthcare Services Plan 2012-2022* has been developed in the context of *Nepean Blue Mountains Local Health District Strategic Plan 2012-2017* and to inform the *Nepean Blue Mountains Local Health District Asset Strategic Plan* and Workforce Development Plan.

A comprehensive process has been undertaken in the development of the *Nepean Blue Mountains Local Health District Healthcare Services Plan 2012-2022*. This has involved a Reference Group of senior clinicians and management from across the Nepean Blue Mountains Local Health District, consultations with over 100 clinicians across the Nepean Blue Mountains Local Health District and a Steering Committee chaired by the Chief Executive. Input from community members from across the Nepean Blue Mountains Local Health District has also been sought through community consultations.

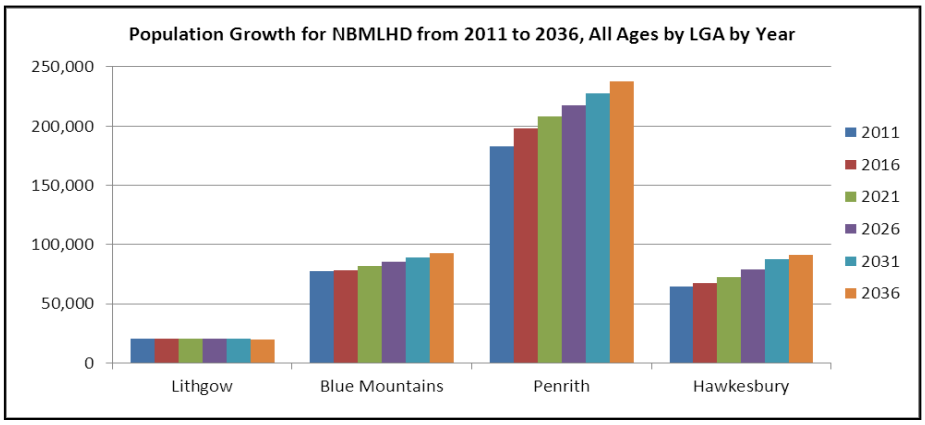
Projected health care activity in the Nepean Blue Mountains Local Health District is drawn from the tools provided by the Ministry of Health. These include the Acute Inpatient Modelling (aIM) 2012 tool, Sub-acute inpatient Modelling (SiAM) 2012 tool, Mental Health Clinical Care and Prevention (MHCCP) tool as well as Ministry of Health guidelines and statewide service planning frameworks such as intensive care, chemotherapy and radiation oncology, population projections, historical activity trends and clinician judgement. Renal dialysis, chemotherapy and mental health projections are presented separately and are not included in the acute inpatient projections, as different methodologies have been used for their projected activity.

For acute inpatient projections the base case from aIM 2012 is presented. It is anticipated that Nepean Blue Mountains Local Health District will experience higher levels of increased projected health care activity than presented in the base case. A number of factors including the changed role of Lithgow Community Private Hospital in providing overnight inpatient care, patient flow reversals, such as for paediatric district level care and mental health acute inpatient care and the future arrangements for Hawkesbury Hospital following the expiration of the contract in 2016 underlie this assumption.

Challenges and Drivers

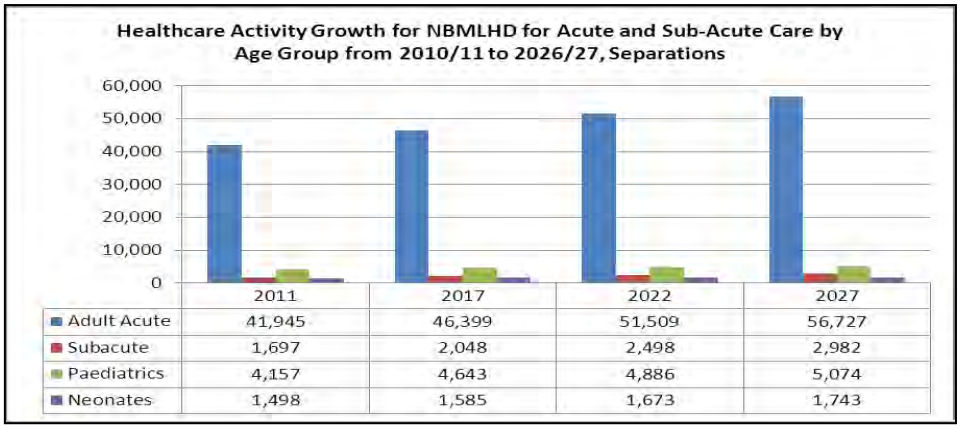
Significant population growth

- Significant increases (28%) are projected in the Nepean Blue Mountains Local Health District (NBMLHD) population from 2011 to 2036, with approximately 100,000 additional people living in the NBMLHD by 2036.
- The NBMLHD has a younger population compared to other NSW Local Health Districts and will have a 20% increase in the 0-14 years population by 2036.
- NBMLHD will experience a much higher growth in the older population than NSW, with 134% growth in the 70 years and over population in NBMLHD compared to 104% in NSW by 2036.



Significant growth in health care demand

- Significant increases are projected in health care activity in the NBMLHD across all services and across all age groups to 2021/22 and beyond to 2026/27.
- A 23% increase in inpatient acute and sub-acute health care separations in the NBMLHD is projected to 2021/22, with an additional 198 acute and sub-acute bed equivalents projected to 2021/22 and a further 96 bed equivalents from 2021/22 to 2026/2027.
- A 33% increase in Emergency Department presentations in the NBMLHD is projected to 2022 along with increases in mental health care, particularly rehabilitation and recovery, cancer care including chemotherapy and radiation oncology, operating theatres and renal dialysis (satellite and in-centre dialysis).



	2011	2017	2022	2027
Adult Acute	41,945	46,399	51,509	56,727
Subacute	1,697	2,048	2,498	2,982
Paediatrics	4,157	4,643	4,886	5,074
Neonates	1,498	1,585	1,673	1,743

Other challenges and drivers

- Large Aboriginal population, comprising 2.7% of the NBMLHD population. Also the Aboriginal population is younger than the NBMLHD community, with 57% of the Aboriginal population aged less than 25 years.
- Small but diverse population born in non-English speaking countries (10%) in the NBMLHD, with increasing numbers of refugees settling in Penrith (nominated as a second settlement site).
- Pockets of disadvantage throughout the NBMLHD.
- A mix of rural, remote, regional and metropolitan localities.
- Capital stock not sufficient with ageing infrastructure, while acknowledging that capital developments, such as Nepean Hospital Stages 3 and 3A Development, will provide capacity for a proportion of the projected health service activity increases required for NBMLHD to 2021/22.
- Lack of private hospital capacity including the recent closure of Lithgow Community Private Hospital overnight inpatient capacity.
- Lower self-sufficiency in health care provision for NBMLHD residents, particularly for Mental Health and paediatric district level care (and potentially planned surgery).
- Uncertainty regarding the volume and type of future service provision from Hawkesbury Hospital following the completion of the contract with Hawkesbury District Health Service in 2016.
- Meeting the key performance indicators particularly National Emergency Access Target, National Elective Surgery Target and mental health indicators.
- Ensuring appropriate resources for the NBMLHD which reflect population needs.
- Continuing to strengthen collaboration with the NBM Medicare Local with the aim of developing new models of care that can mitigate against rising hospital demand.
- Potential to identify and implement new models of care including telehealth initiatives that can also mitigate against rising hospital inpatient demand, while recognising that further capital developments in the NBMLHD will also be required.
- Potential for one new hospital in the Blue Mountains to replace the older Blue Mountains District ANZAC Memorial Hospital, which would not be economic to expand, and Springwood Hospital, that is inadequate for the delivery of contemporary models of care.
- Potential to identify and devolve health care delivery within the NBMLHD through networked service delivery arrangements, such as devolving projected increase of sub-acute care activity from Nepean Hospital to district level hospitals.

Services in the Nepean Blue Mountains Local Health District

Nepean Hospital provides tertiary level care, and is supported by the Nepean Blue Mountains Local Health District (NBMLHD) district level hospitals comprising the Blue Mountains District ANZAC Memorial, Lithgow and Hawkesbury Hospitals with sub and non-acute care provided at Springwood Hospital and Portland Tabulam Health Centre. Nepean Hospital will continue to provide higher level tertiary services for the residents of the NBMLHD and beyond, as part of statewide network of high complexity tertiary level services, while recognising that quaternary level services, such as for burns, spinal injuries and transplants are provided outside the NBMLHD.

Community based services in the NBMLHD of Community Health, Mental Health, Drug and Alcohol, Oral Health have an integral role in supporting hospital acute and sub-acute care, continuity of care and hospital avoidance. Community Health Centres are located throughout the NBMLHD.

Population health services in the NBMLHD of Health Promotion, Public Health, Aboriginal Health, Multicultural Health and HIV and Related Programs focus on improving the health status of the community and stemming the demand for facility based health care services.

Services across the NBMLHD collaborate with partner organisations to deliver comprehensive health care. This includes the Nepean Blue Mountains Medicare Local, general practitioners, nursing homes, community pharmacists, community transport, non-government organisations and private hospitals and practitioners including allied health practitioners, and in consultation with consumers and their carers to ensure the delivery of patient centred care.

Priorities for Service Developments in Nepean Blue Mountains Local Health District

The priorities for service developments across the Nepean Blue Mountains Local Health District are summarised below.

Nepean Hospital

- New Ambulatory Medical models of care supporting emergency department avoidance strategies.
- New and enhanced Short Stay models of care (Acute Medical, Paediatric, Cardiology, Aged Care).
- New Comprehensive Clinical Centre models (Cardiology, Renal, Respiratory with Sleep Laboratory, Aged Care, Neurosciences, Gastroenterology).
- Enhance Comprehensive Cancer Centre with Chemotherapy, Radiation oncology, Palliative Care.
- Enhance Obstetrics and Gynaecology (Birthing, Inpatient, Assessment Areas, Clinics, Close Observation) and Paediatric care (surgery and medicine in collaboration with Children's Hospital Network).
- Enhance Emergency Department models including Waiting Room Assessment Care and Fast Track.
- Enhance Sub-Acute care (Rehabilitation, Aged and Palliative/ Hospice Care).
- New and enhanced Mental Health care (Acute and Rehabilitation and Recovery on and off campus).
- Enhance Endoscopy Procedure Centre and Surgery (Operating Theatres, Special Imaging Suite, Robotic surgery, Bariatric surgery, Surgical Discharge Lounge).
- Enhance Critical Care including Trauma role.
- New and enhanced Allied Health Therapy models and capacity.
- New Research Institute with links to the Nepean Clinical School.
- Enhance ICT (Infrastructure, Telehealth and electronic Medical Records).
- Enhance Medical Imaging and Pathology and enhance Mortuary with bariatric capacity.
- Develop innovative strategies to better manage patients waiting for guardianship and nursing home placement and those who require a period of non-weight bearing.
- Explore Medi-Hotel model of care.

Blue Mountains District ANZAC Memorial Hospital

- New and strengthened Aged Care (including secure Dementia area) and Rehabilitation focus, Transitional Care, Palliative and hospice care.
- New Satellite Renal Dialysis service.
- Revise Mental Health models of care across hospital, including new Mental Health Rehabilitation and Recovery service and new Safe Assessment Room model, mental health care in the community and across age groups.
- Establish satellite chemotherapy service.
- Continue surgery and birthing for low complexity patients with links to Nepean Hospital.
- Establish paediatric short stay and ambulatory care models.

- Reconfigure Emergency Department service delivery including revised Outpatients and Consultation model complementary to Emergency Department operations.
- Develop innovative strategies to better manage patients waiting for guardianship and nursing home placement and those who require a period of non-weight bearing.
- Enhance ICT with Telehealth capacity and expand Mortuary with bariatric capacity.

Springwood Hospital

- New and enhanced Rehabilitation, Aged Care (with Dementia Secure Area) and Palliative/ Hospice Care with new Rehabilitation Therapy model.
- Develop innovative strategies to better manage patients waiting for guardianship and nursing home placement and those who require a period of non-weight bearing.
- New Outpatient/ Consultation model with Telehealth capacity, potential for New High Volume Day Procedure Centre, potentially including Ophthalmology and Endoscopy (low risk).

One New Hospital in the Blue Mountains

There is much to recommend the amalgamation of Springwood and Blue Mountains District ANZAC Memorial Hospitals on to a single site in the mid Blue Mountains. The rationale is that both facilities are ageing and require considerable capital input to be at a standard fit for purpose for delivering contemporary models of care, benefits achieved from improved economies of scale and efficiencies in rationalising operations (services and administration). There is also potential for co-location of the Lawson Community Health Centre.

Lithgow Hospital

Lithgow Community Private Hospital closed their overnight inpatient capacity in late 2012. This will impact on Lithgow Hospital in terms of health care activity and physical capacity. Private patients requiring inpatient admission are now being transferred to Lithgow Hospital.

- Incorporate private patients resulting from change of service provision by Lithgow Community Private Hospital.
- Revise Mental Health models of care across hospital and community and across age groups.
- Enhance paediatric service, with a focus on short stay and ambulatory care.
- Continue to provide Aged Care and enhance Rehabilitation, Transitional care with capacity for Dementia secure models.
- Continue birthing and surgery for low complexity patients.
- Enhance capacity for Telehealth services and continue to strengthen links with University of Notre Dame.

Portland Tabulam Health Centre

- Continue as is, providing residential aged care services and sub-acute care with co-located Health Centre, Aged Day Care program and general practice unit.

Hawkesbury Hospital

Public services at Hawkesbury Hospital are delivered under contract with Hawkesbury District Health Service to 2016. The contract was developed in such a way, that essentially, service delivery has been capped since its inception in the mid 1990s. Currently, future service delivery models and management of Hawkesbury Hospital are uncertain. The actual impact of projected population growth in the north- west corridor on Hawkesbury Hospital demand is also uncertain. If future health care needs of Hawkesbury residents are not met by Hawkesbury Hospital, increased service delivery models will be required at Nepean Hospital and potentially Springwood Hospital.

- Enhanced Emergency Department models including new Fast Track.
- New Ambulatory Procedures Centre with Day Only and Extended Day Only models.
- New sub-acute Rehabilitation service (inpatient beds and therapy unit), Aged Care and Palliative/ hospice Care.
- Revise Mental Health models of care across hospital and community and across age groups.
- Potential for satellite chemotherapy service.
- Enhance ICT including Telehealth capacity.
- Strengthen links with University of Notre Dame, with establishment of the new Clinical School.

Community Based Services

The priorities for community based service developments across the Nepean Blue Mountains Local Health District are summarised below.

Drug and Alcohol Services

- Continue to deliver drug and alcohol services comprising population based strategies to prevent substance abuse to outpatient programs and inpatient detoxification services for those with severe dependence issues, focusing on providing equitable services to all of the community including marginalised groups.
- Establish outpatient withdrawal management model of care.
- Strengthen integration with primary health care providers and residential aged care facilities and enhance consumer participation.
- Establish shared care models of treatment specific to the Opioid Treatment Program (OTP).

Mental Health Services

- Continue delivery of mental health services and revise models of care across hospital and community settings and across age groups, with a focus on person centred recovery.
- Continue shared specialty services and projects with Western Sydney Local Health District including Rupertswood (Specialised Mental Health Services for Older People), Redbank Family Program (Child and Adolescent Mental Health Service), Training and Supervision for child, adolescent and older people's mental health.
- Develop and implement Telephone Access Line/ Triage 1800 and a 24/7 Assessment Centre as an emergency department avoidance strategy.

- Establish non-acute services including inpatient step-down, rehabilitation and a community partnership recovery program.
- Develop and implement assertive acute response teams and care coordination and case management teams.
- Establish Perinatal and Infant Mental Health Care.
- Strengthen access and services for Aboriginal people.

Oral Health Services

- Continue delivery of Oral Health services across the NBMLHD in a hub and spoke arrangement, with the Nepean Oral Health Centre as the central hub and satellite Oral Health services across the District co-located with Community Health services at Springwood, Lithgow and Hawkesbury and at Blue Mountains Hospital.
- Enhance Oral Health services to full capacity at the new Nepean Oral Health Centre.
- Continue and strengthen capacity in satellite Oral Health services.
- Enhance capacity to further support Oral Health workforce training requirements and strengthen research.
- Continue to implement initiatives that support and enhance Oral Health care for early childhood, Aboriginal population and culturally and linguistically diverse populations.

Primary Care and Community Health

- Continue delivery of Primary Care and Community Health in service streams of Child and Family Health, Complex, Chronic and Aged Care and Integrated Violence Prevention and Response, focusing on preventing inappropriate hospital admissions and readmissions and the delivery of ante and post natal care.
- Strengthen the interface between community health services and acute facilities.
- Enhance hours of service delivery to seven days and after hours, strengthen targeted services for minority groups.
- Strengthen partnerships with NBM Medicare Local, non-government organisations and private allied health providers and collaboratively map services and identify opportunities for co-location of services.
- Implement HealthOne and Connecting Care programs with the Nepean Blue Mountains Medicare Local.
- Expand the use of technology including telehealth for self-monitoring, shared information systems for care planning and apps to enhance health care delivery.

Satellite Renal Dialysis Services

- Establish the Katoomba Community Dialysis Centre.
- Enhance capacity at Penrith Community Dialysis Centre (Governor Phillip campus).
- Establish new Community Dialysis Service in the North West Growth corridor.

Population Health Services

The priorities for population health service developments across the Nepean Blue Mountains Local Health District are summarised below.

Aboriginal Health

- The Aboriginal Health Unit will continue to provide leadership in health policy, service and program development to assist staff in the NBMLHD to build capacity to address the health needs of Aboriginal population.
- Continue to identify, implement and strengthen initiatives that engage and improve health outcomes of the Aboriginal community.
- Continue to implement the Aboriginal Connecting Care program and evaluate the Mootang Tarimi Living Longer program.
- Progress the implementation of the Aboriginal Maternal and Infant Health Service (AMIHS) and Building Strong Foundation (BSF) program.
- Identify and engage external agencies to foster productive partnerships including the Western Sydney Aboriginal Medical Service and Nepean Blue Mountains Medicare Local.
- Monitor staff participation in Respecting the Difference training.
- Improve identification of Aboriginality upon presentation at all health services including Emergency Departments.

Health Promotion

- Health promotion services will continue to promote the health of the Nepean Blue Mountains Local Health District population targeting key risk behaviours.
- Future service priorities for health promotion services are tied to national and state programs targeting healthy weight, tobacco control and falls injury prevention.

HIV and Related Programs (HARP)

- HIV and Related Program services aim to reduce the impact of blood-borne viruses (specifically HIV and Hepatitis C) and Sexually Transmissible Infections on the health and wellbeing of the population. Services are guided by the NSW Strategic Plans for HIV, Sexually Transmissible Infections and Hepatitis C and deliver a program-based response to priority populations.
- Service priorities include HIV/AIDS, sexual health and hepatitis health promotion, Needle and Syringe program, dedicated programs to improve sexual health and to increase access to hepatitis C services among Aboriginal people and increase access to HIV/ Sexual health services for priority populations.

Multicultural Health

- The Multicultural Health Unit will continue to provide leadership in health policy, service and program development to assist staff in the Nepean Blue Mountains Local Health District to build capacity to address the health needs of people from culturally and linguistically diverse backgrounds.

- Continue to implement and strengthen initiatives aimed at engaging and supporting the multicultural community in health care including in chronic illness.
- Build and maintain strong partnerships with local non-government organisations to address culturally and linguistically diverse community health needs.

Public Health Services

- Public Health services will continue to protect the health of the population of the Nepean Blue Mountains Local Health District by responding to public health aspects of communicable diseases, environmental health and bio-preparedness for major incidents or disasters in the Nepean Blue Mountains Local Health District.
- Functions cover the provision of public health services including immunisations, monitoring public health, identifying adverse trends and evaluating the impact of public health services.

Next Steps: Future Service Delivery for the Nepean Blue Mountains Local Health District

- Collaboration with Nepean Blue Mountains Medicare Local
- New Models of Care for Projected Health Care Increases in NBMLHD
- Asset Implications in *NBMLHD Asset Strategic Plan 2013*
- Hawkesbury LGA and Hawkesbury Hospital
- Lithgow LGA, Lithgow Hospital and Lithgow Community Private Hospital
- Sub-Acute Care Service Growth and Placement off Nepean Hospital Campus
- Palliative Care and Hospice Care
- Mental Health Care
- Flow Reversals for Paediatric Care with Children's Hospital
- NBMLHD Epidemiological Profile and LGA Specific Profiles
- Nepean Medical Research Institute and Clinical Schools in NBMLHD
- One Hospital in the Blue Mountains

The next steps for Nepean Blue Mountains Local Health District (NBMLHD) are summarised below:

1. Collaborate with the Nepean Blue Mountains Medicare Local in strengthening integrated and coordinated care for the residents of the NBMLHD
2. Identify and implement new models of care to address the rising trajectory of health care demand in the NBMLHD to 2021/22, including a focus on health care for older people
3. Identify the asset implications arising from the significant projected growth in NBMLHD health care demands to 2022 and beyond and document these in the revised *NBMLHD Asset Strategic Plan 2013*
4. Identify specific health care requirements for the Hawkesbury LGA and clarify service delivery arrangements that will continue from Hawkesbury Hospital
5. Identify the full impact of the closure of overnight acute inpatient care at Lithgow Community Private Hospital on Lithgow Hospital
6. Further explore sub-acute care service delivery growth and placement off the Nepean Hospital campus, potentially at Hawkesbury Hospital or at the new one hospital in the Blue Mountains
7. Continue to strengthen and identify options for palliative care and hospice care with partner organisations
8. Continue to strengthen mental health care including flow reversals, opening and enhancing service delivery at the new Mental Health Centre, Nepean Hospital, addressing the lack of non-acute mental health capacity, perinatal mental health care, adolescent mental health inpatient care, mental health service delivery in the Lithgow LGA and Lithgow Hospital and the Hawkesbury LGA and Hawkesbury Hospital
9. Address flow reversals for Paediatric district level care in collaboration with the Children's Hospital Network, noting the need for capital enhancements to Nepean Hospital if full flow reversals occur
10. Develop the NBMLHD Epidemiological Profile and LGA Specific Profiles
11. Strengthen research across the NBMLHD including the establishment of the Nepean Medical Research Institute and continue collaborations with University partners including the Clinical Schools at Nepean, Lithgow and Hawkesbury Hospitals
12. Investigate potential for one hospital in the Blue Mountains to replace the older hospitals of Blue Mountains District ANZAC Memorial Hospital and Springwood Hospital including the collocation of Lawson Community Health Centre.

1. Introduction

1. Introduction

Together, achieving better health

Nepean Blue Mountains Local Health District will drive innovation and excellence in health service delivery that provides safe, equitable, high quality, accessible, timely and efficient services that are responsive to the needs of patients and the community.

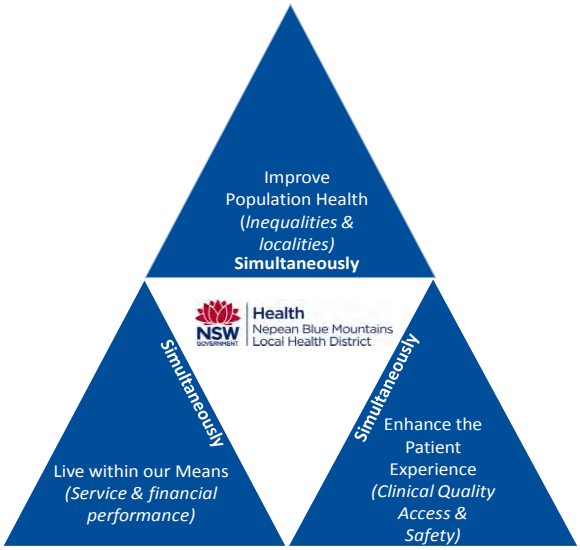
Patients and the community of the Nepean Blue Mountains Local Health District (NBMLHD) have the right to expect the highest quality of health care from the services and facilities of the NBMLHD. Providing care that is responsive to the needs of patients and the community, that is accessible, safe, efficient and provided in a timely manner is integral.

The NSW Minister of Health's values for the NSW public health system of CORE - Collaboration, Openness, Respect, Empowerment, are supplemented by NBMLHD specific values of SAFE - Safety, Agility, Fairness and Excellence, which underpin all service delivery across the NBMLHD.

The NBMLHD organisational goals provide the context in which the NBMLHD services are delivered. Noting that no one goal is more important than another and that all three must be worked on simultaneously (refer to Figure 1):

- Improving population health (inequalities and localities)
- Enhancing the patient experience (clinical quality, access and safety)
- Living within our means (service and financial performance).

Figure 1.1 Strategic Directions of the Nepean Blue Mountains Local Health District



The NBMLHD is one of 19 Local Health Districts and Specialty Health Networks in NSW. NBMLHD provides primary, secondary and tertiary level health care for people living in the Blue Mountains, Hawkesbury, Lithgow and Penrith local government areas (LGAs) and tertiary care to residents of the Greater Western Region. The main hospitals are Nepean Hospital, Blue Mountains District ANZAC Memorial Hospital, Hawkesbury Hospital, Lithgow Hospital and Springwood Hospital complemented by a multipurpose centre and community based health services delivered in nine centres throughout the NBMLHD.

The NBMLHD is located approximately 60 kilometres west from Sydney spanning from St Marys in the east to Portland in the west and covering almost 9,179 square kilometres. The NBMLHD consists of urban, semi-rural and rural areas and the M4, Great Western Highway and the Northern Road provide key infrastructure support and access across the NBMLHD. Penrith is the main regional city. Other major towns include Katoomba, Lithgow and Windsor/ Richmond. There are four local government areas (LGAs) within the NBMLHD Penrith, Blue Mountains, Lithgow and Hawkesbury. Further information on the Local Government Areas is provided in the Appendix.

Approximately 340,000 people resided in the NBMLHD in 2011. The population of the NBMLHD is projected to increase by 11% to nearly 400,000 people by 2021 and by 28% to nearly 450,000 people by 2036. There are increases in the population across all age groups to 2021, with the greatest proportionate increase in the older populations, especially those aged 70 years and over. NBMLHD is also one of only three LHDs in NSW projected to experience growth in its younger population. There is also a large Aboriginal population residing in the NBMLHD, as well as a culturally and linguistically diverse population.

Health services activity in the NBMLHD is expected to increase significantly over the next 10 years. The escalation will largely be driven by population increases, ageing of the population, increasing chronicity and complexity of illness and high and increasing levels of unhealthy lifestyle behaviours.

Context

The *Nepean Blue Mountains Local Health District Healthcare Services Plan 2012-2022* has been developed in the context of local, state and national health and other government initiatives and reforms. At the local level the *Nepean Blue Mountains Local Health District Strategic Plan 2012*-2017, *Nepean Blue Mountains Local Health District Asset Strategic Plan to 2021* and a series of Clinical Services Strategic Plans provide the context. At the Commonwealth level, the context is provided by the Commonwealth of Australian Government (COAG) Health Reform Agenda with the drivers of restoring accountability, better service delivery and renovating infrastructure and is documented in a series of Agreements with the States and Territories. At the state level, the context is provided through *NSW 2021: A Plan to make NSW Number One* outlining the major directions for NSW government over the next 10 years. For health services the focus is on:

- Goal 11 Keeping People Healthy and Out of Hospital
- Goal 12 Providing World Class Clinical Services with Timely Access and Effective Infrastructure.

Purpose and Scope

The purpose of the *Nepean Blue Mountains Local Health District Healthcare Services Plan 2012-2022* is to guide health service developments across the Local Health District to 2022 to meet the health care service challenges to 2022. The Plan also highlights projected health service activity, patient flows and the drivers for health care service delivery to 2022.

The scope of the *Nepean Blue Mountains Healthcare Services Plan 2012-2022* includes all services delivered by NBMLHD across hospitals at tertiary through to district and community levels including acute, sub-acute and outpatient care through community based health services and population health programs and initiatives. Collaboration with partners in health service delivery, including the Medicare Local and non-government organisations is also outlined.

Developing the Plan

A comprehensive process has been undertaken to develop the *Nepean Blue Mountains Local Health District Healthcare Services Plan 2012 - 2022*. This has involved the establishment of a Steering Committee chaired by the Chief Executive of the NBMLHD and a Reference Group co-chaired by Dr Rod Bishop and Vittorio Cintio. There have been extensive consultations with over 100 clinicians, community members and organisations (refer to Appendix) that have also guided the development of the Plan. Community forums have been held in localities across the NBMLHD in collaboration with the NBM Medicare Local to identify service strengths, issues and gaps. An Aboriginal Health Impact Statement is in development and will be completed in 2013. Information presented in the *Nepean Blue Mountains Healthcare Services Plan 2012 – 2022* is consistent with the planning principles of the Ministry of Health and relevant statewide policies and plans (refer to Appendix).

Overview of the Plan

The *Nepean Blue Mountains Local Health District Healthcare Services Plan 2012-2022* provides an overview of the Local Health District including its population (Chapter 2), outlines the major drivers for health care service delivery in the NBMLHD to 2022 (Chapter 3), describes the hospitals and services available in the NBMLHD and their activity (Chapter 4), describes patient inflows and outflows from NBMLHD to other hospitals (Chapter 5), outlines projected service activity in the NBMLHD (Chapter 6), describes strategic service developments and directions needed for NBMLHD services to be poised to meet service challenges by 2022 (Chapter 7) and concluding comments and next steps (Chapter 8). In each chapter, a summary is initially provided, to highlight key issues raised with an emphasis on implications for health care service delivery to 2022. The methodology guiding the data presented in the *Nepean Blue Mountains Local Health District Healthcare Services Plan 2012 to 2022* is outlined in the relevant chapters and Appendices. A more detailed Reference Data Book is available that provides all of the detailed information used to inform the *Nepean Blue Mountains Local Health District Healthcare Services Plan 2012 to 2022*.

Audience of the Plan

The audience for the *Nepean Blue Mountains Local Health District Healthcare Services Plan 2012-2022* includes the population of the NBMLHD, clinicians and managers working within the service and partner organisations working with NBMLHD services and facilities, Ministry of Health, NSW Health Minister and Premier and others interested in health care in the NBMLHD.

2. Characteristics of the Population

Contents

2. Characteristics of the Population

Summary

Population

- There were 336,920 people residing in the Nepean Blue Mountains Local Health District (NBMLHD) in 2011.
- NBMLHD overall has a younger population than NSW. The largest proportions of pre-school aged children (less than 5 years) in the NBMLHD in 2011 were in the Penrith (7.6%) and Hawkesbury LGAs (6.8%).
- NBMLHD also has an older population than NSW in the Lithgow and Blue Mountains LGAs, with 12.1% and 10.4%, respectively, of the population aged 70 years and over.
- There is a large Aboriginal community residing in the NBMLHD. The Aboriginal community comprised 2.7% of the total NBMLHD population, with the largest Indigenous community residing in Penrith.
- The Indigenous population is younger than the NBMLHD community, with 57% of the Aboriginal population aged less than 25 years. The NBMLHD Aboriginal population had poorer health status than the NBMLHD non-Aboriginal population.
- In the NBMLHD 18% of the population were born overseas, including 10% who were born in non-English speaking countries. In 2010, NBMLHD received 503 migrants with most (79%) settling in the Penrith LGA.
- In terms of socio-economic status, NBMLHD has areas of disadvantage as well as areas that are more advantaged.

Health Behaviours and Risk Factors

- NBMLHD is significantly below NSW targets for mammography and cervical screening.
- Immunisation for meningococcal, influenza (all ages and over 65 years) and pneumococcal (over 65 years) were below desired levels.
- More than half of the NBMLHD population is overweight or obese, with obesity levels increasing.
- A large proportion of the population did not get adequate physical activity or consume the recommended amount of fruit per day.
- Only 8% of the NBMLHD population consume recommended servings of vegetables per day.
- 12% of NBMLHD population reported having high to very high levels of psychological distress, higher than that reported for NSW.
- Although smoking levels have decreased, 16% of the NBMLHD population smoke, which is higher than NSW levels.
- One third of NBMLHD population consumed more than 2 drinks of alcohol daily.

Maternal and Infant Health

- Crude birth rates steadily decreased in NBMLHD and NSW, with the difference to NSW also decreasing.
- Perinatal mortality rates had a downward trend to 2010.

- The proportion of low birth weight babies increased to 2009 and then markedly decreased in 2010.
- Women attending the first antenatal visit within the first 14 weeks' gestation increased from 2005 to 2010.
- Smoking in pregnancy steadily decreased from 1996 to 2010, however, in NBMLHD the proportion of women smoking during pregnancy was significantly above NSW levels.

Hospitalisations

- Hospitalisation rates increased for NBMLHD and NSW residents for all causes (for public and private and for NBMLHD hospitals and hospitals elsewhere) from 2000/01 to 2010/11.
- For cardiovascular disease, hospitalisation rates for NBMLHD residents (for public and private) decreased to 2010/11.
- For respiratory diseases, overall hospitalisation rates for NBMLHD residents (for public and private) decreased to 2010/11.
- For injury and poisoning (including falls in older people), hospitalisation rates for NBMLHD residents (for public and private) increased to 2010/11.
- For cancer, hospitalisation rates (for public and private) for NBMLHD residents remained steady to 2010/11.
- Hospitalisation rates for potentially preventable causes fluctuated, and increased from 2006/07.

Mortality

- The leading causes of death in NBMLHD to 2007 were cardiovascular disease, cancer, respiratory diseases, injury and poisoning.
- Male mortality rates in NBMLHD were not significantly different to NSW.
- Female mortality rates in NBMLHD, however, were significantly higher than for NSW females overall. This pattern was repeated for specific diseases including cardiovascular disease, respiratory diseases and premature mortality.
- Mortality rates in NBMLHD and NSW decreased for both males and females for all causes and for the leading causes of death (cardiovascular diseases, cancer, male respiratory deaths and injury and poisoning) to 2007.
- Mortality rates from potentially avoidable causes decreased.

The following tables summarise information relating to the health status, hospitalisations and mortality of the NBMLHD population.

Health Behaviours and Risk Factors – Overview

Indicator	Time period	NBMLHD compared with NSW	Males compared with females	Trends in NBMLHD
Screening and immunisation				
Breast screening in women aged 50 to 69 years	2003 to 2010	3rd lowest LHD in NSW	n/a	↓ Decreasing since 2007
Cervical screening	2003 to 2010	↓ Significantly lower than NSW	n/a	Significant increases in 2003/04 to 2007/08 then decreased 2008/9 to 2009/10
Pneumococcal immunisation	2001 to 2011	Not significantly different	n/a	Fluctuated
Influenza immunisation	2001 to 2011	Not significantly different	n/a	Fluctuated
Prevalence and impact of major risk factors in 16 years and over				
Overweight and obesity				
Prevalence of overweight and obesity	2002 to 2011	↑ Significantly higher percentage of population obese than NSW	↑ Males significantly above females	↑ Increasing % of obese ↓ Decreasing % of overweight
High body mass attributable deaths	1997 to 2007			Steady. From 2010, diabetes coding changes affected rates
High body mass attributable hospitalisations	1998 to 2011	Not significantly different	↑ Males significantly above females	Steady. Decrease in recent years mostly associated with diabetes coding changes
Smoking				
Prevalence of smoking 16+	1997 to 2011	Not significantly different in 2011	↑ Males significantly above females	↓ Decrease in smoking prevalence
Smoking attributable deaths	1997 to 2007	Not significantly different	↑ Males significantly above females	↓ Decrease in male rates. No significant change in female rates
Smoking attributable hospitalisations	1998/99 to 2010/11	Not significantly different	↑ Males significantly above females	↓ Decrease in male rates. No change in female rates
Alcohol				
Prevalence of risky drinking	2002 to 2011	Not significantly different		Steady since 2004
Alcohol attributable deaths	1998 to 2011	Not significantly different	↑ Males significantly above females	↓ Decrease
Alcohol attributable hospitalisations	1998/99 to 2010/11	Not significantly different	↑ Males significantly above females	Increased in 2010/11
Mental Health				
Psychological distress	2011	Not significantly different		↓Decrease in last 5 years

Notes: ↑ denotes increase in negative way for NBMLHD. ↓ denotes decrease in positive way for NBMLHD.

Maternal and Infant Health - Overview

Indicators	Time period	NBMLHD compared with NSW	Trends in NBMLHD
Birth outcomes			
Low birth weight births	2000 to 2010	No significant difference	↓ Decrease
Perinatal mortality	1994 to 2010	No significant difference	↓ Decrease
Birth rates			
Crude birth rate	1994 to 2010	No significant difference in recent years	↓ Overall decrease
Total fertility rate	1994 to 2010	↑ Significantly higher than NSW	Fluctuations
Maternal risk behaviours			
Smoking in pregnancy	2000 to 2010	↑ Significantly above NSW	↓ Decreased 2005 to 2010
Antenatal visit before 14 weeks gestation	2004 to 2010	↑ Significantly above NSW	↑ Increase

Notes: ↑ denotes increase in negative way for NBMLHD. ↑denotes increase in positive way for NBMLHD, ↓ denotes decrease in positive way for NBMLHD.

Mortality and Hospitalisation - Overview

Indicator	Time period	NBMLHD compared with NSW	Males compared with females	Trends in NBMLHD
Life expectancy				
Life expectancy at birth	Based on 2003 to 2007 death rates	Similar to NSW	Higher female life expectancy	↑ Increasing
Life expectancy at 65 years	Based on 2003 to 2007 death rates	Similar to NSW	Higher female life expectancy	↑ Increasing
Deaths				
All causes deaths	2003 to 2007	↑ Females significantly higher than NSW females	↑ Males significantly above females	↓ Decreasing since 1986
Premature mortality (under 75 years)	2003 to 2007	↑ Females significantly higher than NSW females	Higher male death rates	↓ Decreasing
Hospitalisations				
All causes hospitalisation	2000/01 to 2010/11 2010/11	↓ Male and female rates significantly lower than NSW males and females	↑ Females significantly above males	↑ Increasing
Potentially preventable hospitalisation	1991/92 to 1999/00 and 2000/01 to 2010/11	↑ Females significantly above NSW females	Not significant	↑ Increasing, especially since 2006/7

Notes: ↑ denotes increase in negative way for NBMLHD. ↑denotes increase in positive way for NBMLHD. ↓ denotes decrease in positive way for NBMLHD.

Mortality and Hospitalisation Leading Causes – Overview

Indicator	Time period	NBMLHD compared with NSW	Males compared with females	Trends in NBMLHD
Leading causes of deaths and hospitalisations				
Cardiovascular disease				
Cardiovascular disease deaths	2003 to 2007	↑ Females significantly higher than NSW females	↑ Males significantly above females	↓ Decreasing
Cardiovascular hospitalisations	1991/92 to 2010/11	↑ Females significantly above NSW females	↑ Significantly higher male rates	↓ Decreasing
Coronary heart disease	1991/92 to 2010/11	No significant difference	↑ Significantly higher male rates	↓ Decreasing
Cancer				
Cancer deaths	2003 to 2007	No significant difference		↓ Decreasing
Cancer hospitalisations	1998/99 to 2010/11	No significant difference	↑Significantly higher male rates	Steady
Respiratory diseases				
Respiratory deaths	2003 to 2007	↑ Females significantly above NSW females	↑ Males significantly above females	↓ Decreasing male rates
Respiratory diseases hospitalisations	1998/10 to 2009/10	No significant difference	No significant difference	Fluctuating
Asthma	1998/00 to 2009/10 2010/11 prevalence	↑ Significantly above NSW rate all ages	Not significantly different	Increased prevalence but hospitalisation rate fluctuated
Chronic obstructive pulmonary disease deaths	2003 to 2007	↑ Females significantly above NSW females	Not significantly different	↓ Decreasing
Injury and poisoning				
Injury and poisoning deaths	2003 to 2007	No significant difference	↑ Males significantly above female	↓ Decreasing
Injury and poisoning hospitalisations	2010/11	↑ Significantly above NSW in recent years	Higher male hospitalisation rates	↑Increasing
Falls in 65+ hospitalisations (overnight stay)	2003/4 to 2010/11	↑ Significantly above both NSW males and females	↑ Significantly higher female rates	↑ Increasing since 1991/92. Large increase in male rates since 2004/05
Diabetes				
Prevalence of diabetes	2002/2011	Not significant y different		Fluctuated. Significant increase in NSW
Diabetes hospitalisations	2000/01 to 2010/11	↑ Males significantly above NSW males	↑ Significantly higher male rates	↑ Increasing. Large increase in 2010/11 due to coding change
Dialysis	1998/99 to 2010/11	↓Significantly below both NSW males and females	↑ Significantly higher male rates	↑ Increasing

Notes: ↑ denotes increase in negative way for NBMLHD. ↓ denotes decrease in positive way for NBMLHD**.**

Indicator	Time period	NBMLHD compared with NSW	Males compared with females	Trends in NBMLHD
Mental health				
Suicide	2003 to 2007	↑ Males significantly above NSW males	↑ Males significantly above females	↓Decreasing
Self Harm hospitalisations	1991/92 to 2003/04 and 2004/05 to 2010/11	↑ Females aged 15 to 24 years significantly above NSW females 15 to 24 years	↑ Females aged 15 to 24 years significantly above males 15 to 24 years.	↑ From 2004/05 sharp increase in females 15 to 24 years. Rates then fluctuated with downward trend. No change in males 15 to 24 years.
Mental and behavioural disorders hospitalisations	2010/11	↑ Significantly above NSW males and females	↑ Males significantly above females	↑ Increasing overall. Spike in 2006/08 was not maintained.

Notes: ↑ denotes increase in negative way for NBMLHD. ↓ denotes decrease in positive way for NBMLHD**.**

Introduction

The demography and epidemiology of a population directly and indirectly influences the health care requirements of that population. This chapter focuses on the characteristics of the population residing in the Nepean Blue Mountains Local Health District (NBMLHD) including the demographic composition of the population (age, sex, Aboriginal population, Culturally and Linguistically Diverse population and socio-economic status), as well as its health characteristics (health behaviours, morbidity and mortality).

The NBMLHD is located in outer western Sydney (approximately 60 kilometres west of Sydney GPO) covering the area from St Marys in the east, the Blue Mountains and over the Great Dividing Range to Lithgow and Portland in the west. The NBMLHD covers almost 9,179 square kilometres and comprises urban, semi-rural and rural areas. Penrith is the main regional city. Other major towns include Katoomba, Lithgow, Windsor and Richmond. There are four local government areas (LGAs) within the NBMLHD: Penrith, Blue Mountains, Lithgow and Hawkesbury. The M4, Great Western Highway and the Northern Road provide key infrastructure support and access across the NBMLHD.

Initially an overview of the demography of the population of the NBMLHD is provided. (Population projections are presented in Chapter 3.) This is followed by the demography of the Aboriginal and Culturally and Linguistically Diverse populations residing in the NBMLHD and health issues impacting on these populations. The levels of socio-economic disadvantage in the NBMLHD are also provided. The health behaviours of the residents of the NBMLHD are then outlined, followed by information on hospitalisations, potentially avoidable hospitalisations and mortality, including premature mortality, of the residents of the NBMLHD.

Population

The estimated resident population of the NBMLHD in 2011 was 336,920 (refer to Table 2.1).

There is a large Aboriginal community in the NBMLHD, representing 2.7% of the total NBMLHD population. The Darug, Gundungarra and Wiradjuri people are the acknowledged traditional owners of the land covered by the NBMLHD. The number of people identifying as Indigenous in the Census has been increasing in recent years and estimated to be 9,211 in 2011, although this is widely regarded as an underestimate. The largest Indigenous community resides in Penrith. The Indigenous population is younger than the wider NBMLHD community with 57% of the Aboriginal population aged less than 25 years.

NBMLHD has a younger population compared to NSW. The largest proportions of pre-school aged children (less than 5 years) in 2011 were in the Penrith (7.6%) and Hawkesbury LGAs (6.8%).

The NBMLHD also has an older population compared to NSW. The LGAs of Lithgow (12.1%) and Blue Mountains (10.4%) had the highest proportions of older residents aged 70 years and over, above NSW figures.

In 2010, there were 4,811 live births to residents with the highest total fertility rate occurring in Lithgow (2.2 births per woman) followed by Blue Mountains, Penrith and Hawkesbury with 2.1 births per woman.

A greater density of dwellings in older areas of the NBMLHD and new arrivals of refugees and other migrants contributed to population growth. In 2010, NBMLHD received 503 migrants, 79% of whom settled in the Penrith LGA.

The 2011 Census showed that 17.7% of the NBMLHD population reported being born overseas and 77.2% stated that they were born in Australia. For 5.1% of the NBMLHD population, the country of birth was not stated.

Life expectancy at birth is 82.4 years for females and 77.9 years for males residing in the NBMLHD, based on 2003 to 2007 death rates. In the NBMLHD LGAs, life expectancy ranges from 76.7 to 78.9 years for males and 81.8 to 83.3 years for females. The increasing populations of older people foreshadow new and unique challenges in health care planning, service delivery and access to specialised care.

Based on the Socio-Economic Indexes for Area (SEIFA) 2006, NBMLHD had LGAs at both ends of the spectrum. Among the most disadvantaged areas in NSW, scoring below the 1,000 average, was Lithgow (937), characterised by low income and educational attainment and high levels of unemployment. At the opposite end scoring over 1,000, which suggests more advantage, were the LGAs of the Blue Mountains (1,051), Hawkesbury (1,033) and Penrith (1006).

Table 2.1 Demographics of Residents in NBMLHD, 2011 and 2006

Area	2011 Census % of total population					2006 Census
	2011 Census population by usual residence	% Aged<5 years	% Aged>=70 years	% Indigenous	% born overseas	[2]IRSD
Penrith	178,466	7.6%	6.2%	3.0%	20.9%	1,006
Hawkesbury	62,353	6.8%	7.6%	2.6%	12.6%	1,033
Blue Mountains	75,941	6.2%	10.4%	1.7%	16.5%	1,051
Lithgow	20,161	6.3%	12.1%	4.5%	9.0%	937
NBMLHD	336,920	7.1%	7.7%	2.7%	17.7%	
NSW	6,917,660	6.6%	10.3%	2.5%	25.7%	Not avail

Source: 2011 Census, ABS data used with permission from the Australian Bureau of Statistics (http://www.abs.gov.au/). Table compiled form data from Epidemiology, Western Sydney Local Health District
Notes: Indigenous persons comprised of Aboriginal, Torres Strait Islanders and both Aboriginal and Torres Strait Islanders. IRSD= Index of Relative Socio-economic Disadvantage.

Large Aboriginal Population

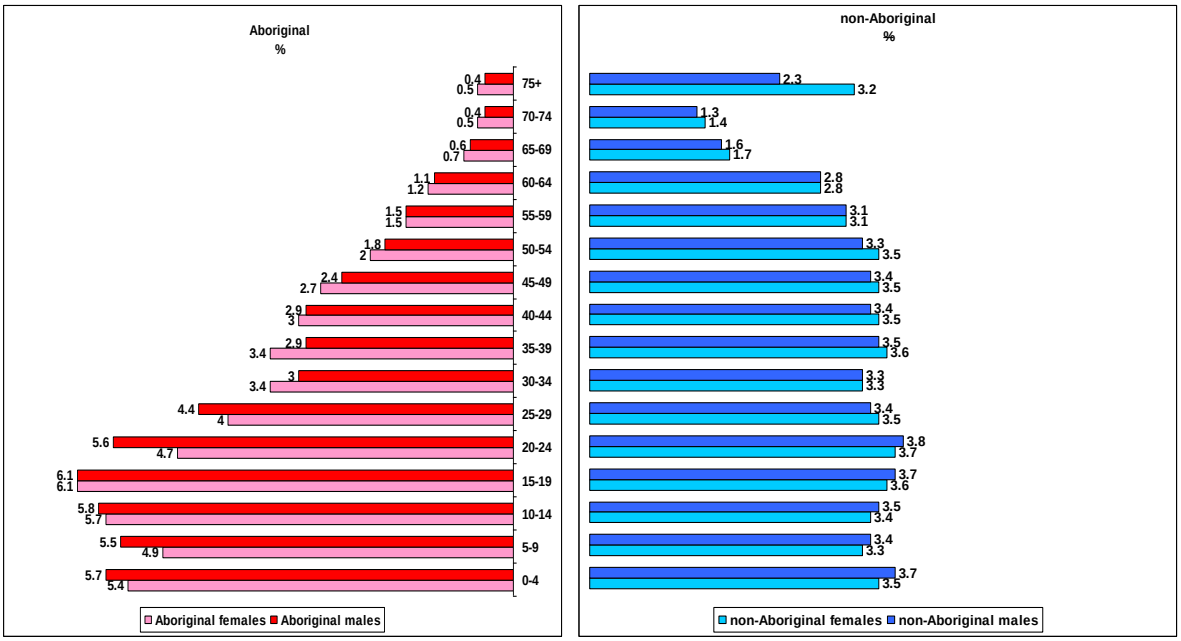
There were 9,211 Aboriginal people residing in the NBMLHD in 2011, which comprised 2.7% of the population. Overall, the number of Aboriginal residents in 2011 is widely regarded as being underestimated, although the number of people identifying as Aboriginal in the Census has increased in recent years.

The Aboriginal population in the NBMLHD was younger than the non-Aboriginal population with 57% of the population aged less than 25 years (refer to Figure 2.1).

In the NBMLHD, the largest number of Aboriginal people resided in the Penrith LGA (5,385 Aboriginal residents), which comprised 3% of the LGA population. Lithgow LGA (900 Aboriginal residents) had the highest proportion of the population who were Aboriginal (4.5%).

There remains a disparity between the Aboriginal and non-Aboriginal population on several health related indices. For example, the life expectancy of the Aboriginal population is estimated to be 7 to 9 years lower than for the general population for both males and females.

Figure 2.1 Age and Sex Distribution by Aboriginality, NBMLHD, 2011



Source: ABS Mortality data and population estimates (HOIST), Centre for Epidemiology and Research, NSW Ministry of Health

Health Status of the Aboriginal Population

The health of the Aboriginal population compared with the non-Aboriginal population in the NBMLHD differs on several key factors:

- Higher levels of selected health risk factors including lower rates of immunisation of children aged 12 to 15 months, higher rates of maternal risk factors of smoking in pregnancy and teenage pregnancy and delayed access to the first antenatal visit before 14 weeks gestation. The Aboriginal population also have higher rates in smoking attributable hospitalisations and alcohol attributable hospitalisations
- Poorer health status as measured by higher rates of premature births, low birth weight births, perinatal mortality and lower life expectancy
- Poorer quality of inpatient care as measured by higher proportions of hospitalisations with unplanned hospital readmissions and patients leaving hospital against medical advice
- Inequitable access to health services as measured by a lower proportion of coronary heart revascularisation procedures as a proportion of all coronary heart disease hospitalisations, lower age standardised rates of surgery for cataracts and total knee and hip replacements and lower age standardised rates of inpatient rehabilitation episodes of care.

Refer to Table 2.2 for an overview of health indicators for the Aboriginal and non-Aboriginal populations in the NBMLHD.

The Aboriginal population in the NBMLHD experience significant health issues that will further drive health service delivery in NBMLHD. Meeting these health service requirements must involve providing health services that are engaging to the Aboriginal community, as well as working in close collaboration with partner agencies including Aboriginal Medical Service at Western Sydney and NBM Medicare Local. Continuing to implement programs and services specifically targeting the Aboriginal community is important.

Table 2.2 Summary Indicators, Aboriginal Population, NBMLHD Compared with Non-Aboriginal Population

Positive (desired)	*Negative (not desired)*
RISK FACTOR INDICATORS **Socioeconomic disadvantage**	
	↑ Live in disadvantaged collection districts (% of Aboriginal NBMLHD population)
Risk health behaviours and chronic conditions	
	↑ Smoking attributable hospitalisations rate ↑ Alcohol attributable hospitalisations rate ↑ Children aged 12 to 15 months who are not immunised (% of children)
Maternal risk factors	
	↑ First antenatal visit occurred at or after 14 weeks gestation (% of confinements) ↑ Mother aged less than 20 years (% of confinements) ↑ Smoking in pregnancy (% of confinements)
HEALTH INDICATORS **Adverse infant health outcomes**	
	↑ Perinatal mortality rate (deaths per 1,000 live births) ↑ Preterm births (% of births) ↑ Low birth weight births (% of births)
Deaths	
	↓ Life expectancy (available at NSW level)
Hospitalisation by causes of hospitalisation **Age standardised separation rates**	
↓ **Malignant neoplasms rate** ↓ **Other neoplasms rate** ↓ **Factors influencing health (other factors) rate**	↑ Potentially preventable hospitalisations rate ↑ Mental and behavioural disorders rate ↑ Respiratory diseases rate ↑ Factors influencing health (dialysis) rate.
Quality of inpatient care **Percentage of hospitalisations**	
↓ **Unplanned hospital readmissions**	↑ Patients left against medical advice
Access to health services **Age standardised surgery rates**	
	↓Revascularisation procedures ↓Cataract surgeries ↓Total knee and hip replacements

Source: Information compiled during June 2012 by NBMLHD Epidemiology from data contained in this report.
Notes: ↑ denotes that the Aboriginal rate or proportion is higher than the Non-Aboriginal rate or proportion in a negative way. ↓denotes that the Aboriginal rate or proportion is lower than the Non-Aboriginal rate or proportion in a negative way. ↓ denotes that the Aboriginal rate or proportion is lower than the Non-Aboriginal rate or proportion in a positive way. Positive indicators are the desired indicators. Negative indicators are undesired as they indicate higher levels of health risk factors, higher hospitalisation and death rates as health indicators, higher hospitalisations with unplanned readmissions and patients leaving against advice as indicators of quality of inpatient care and lower rates of treatment surgeries as indicators of access to health services.

Culturally and Linguistically Diverse Population

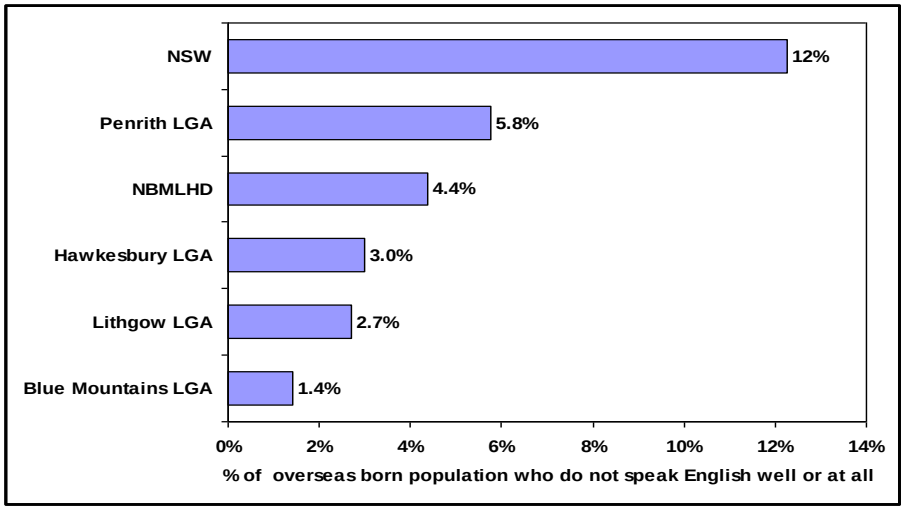
The 2011 Census showed that 17.7% (17,158 people) of the NBMLHD population reported being born overseas and 77.2% stated that they were born in Australia.[1] The proportion of the NBMLHD population born overseas has remained relatively constant since 2006 (18.5% of the NBMLHD population).

In the 2011 Census data, there were 33,249 residents (9.9%) who were born overseas in non-English speaking countries. This is a slight increase from 2006, where there were 29,889 or 9.23% NBMLHD residents who were born overseas in non-English speaking countries.

In the NBMLHD LGAs, the proportion of the population born overseas ranged from 9% in Lithgow LGA to 20.9% in Penrith LGA). Penrith has only recently been recognised as a second settlement site for refugee populations. The most frequently reported countries of birth, after Australia, were United Kingdom (5.1%), New Zealand (1.6%), Philippines (1%), India (0.8%), Germany (0.6%) and Malta (0.5%).

The 2011 Census showed that a higher proportion of NBMLHD residents born overseas (60%) reported that they speak English only compared with 38% of NSW residents born overseas. In the NBMLHD overseas born population 4.4% reported that they did not speak English very well or at all compared with 12% in NSW. These figures may be under-reported and there may be a larger proportion of the NBMLHD and NSW populations who do not speak English very well. There was variation among the LGAs with 5.8% of the Penrith LGA population who stated that they did not speak English very well or at all compared with 3% in Hawkesbury LGA, 2.7% in the Lithgow LGA and 1.4% in the Blue Mountains LGA (Figure 2.2).

Figure 2.2 English Proficiency of Overseas Born Residents in NBMLHD, 2011



Source: 2011 Census, ABS data used with permission from the Australian Bureau of Statistics (http://www.abs.gov.au/). Table compiled from data from Epidemiology, Western Sydney Local Health District

[1] In 5.1% of responses the country of birth was not stated.

Health Status of the Culturally and Linguistically Diverse Population

Country of birth is an important variable in explaining differentials in health behaviours and health status as there is wide variation among the countries of birth. NSW data are provided for culturally and linguistically diverse populations, where necessary, as the number of people surveyed is small at Local Health District level when examined by country of birth.

Overweight by Country of Birth in NSW

In 2006/2009, 51.9 % of NSW adults were overweight or obese, with a Body Mass Index of 25 or over.

NSW Males

Australian born males ranked 8th highest among the 17 most common countries of birth in the proportion of overweight or obese males in the population, in the NSW male population surveyed during 2006 to 2009. Of these, males born in Lebanon (80.9%) had a significantly higher proportion of overweight and obesity than Australian born males (61.6%). Males born in the United Kingdom (57.6%), India (36.4%), Vietnam (28.6%), Hong Kong (28.3%) and China (26.7%) had significantly lower proportions of the population who were overweight or obese.

NSW Females

Australian born females ranked 7th highest among the 17 most common countries of birth in the proportion of overweight or obese females in the population, of the NSW female population surveyed during 2006 to 2009. Of these, females born in Italy (72.6%), Lebanon (63.2%) and Greece (60.2%) had significantly higher proportions of overweight and obesity than Australian born females (47%). Females born in India (36.3%), South Africa (33.8%), China (12.3%) and Vietnam (10.5%) had significantly lower proportions of the population who were overweight or obese.

Hospitalisations in NBMLHD

People who Speak a Language Other than English

- The most common languages spoken at home in the population admitted to NBMLHD hospitals were Arabic, Samoan, Turkish, Tongan, Serbian, Greek, Italian and Spanish.

People Born Overseas

- The most common countries of birth in the population admitted to the NBMLHD hospitals were England, New Zealand, Malta, Samoa, Italy, Scotland, Philippines and Poland.

From 2010/11 to 2011/12, there were a higher proportion of hospital readmissions for people born overseas in non-English speaking countries compared with Australian born patients admitted to NBMLHD hospitals. (Further information is included in the Appendix.)

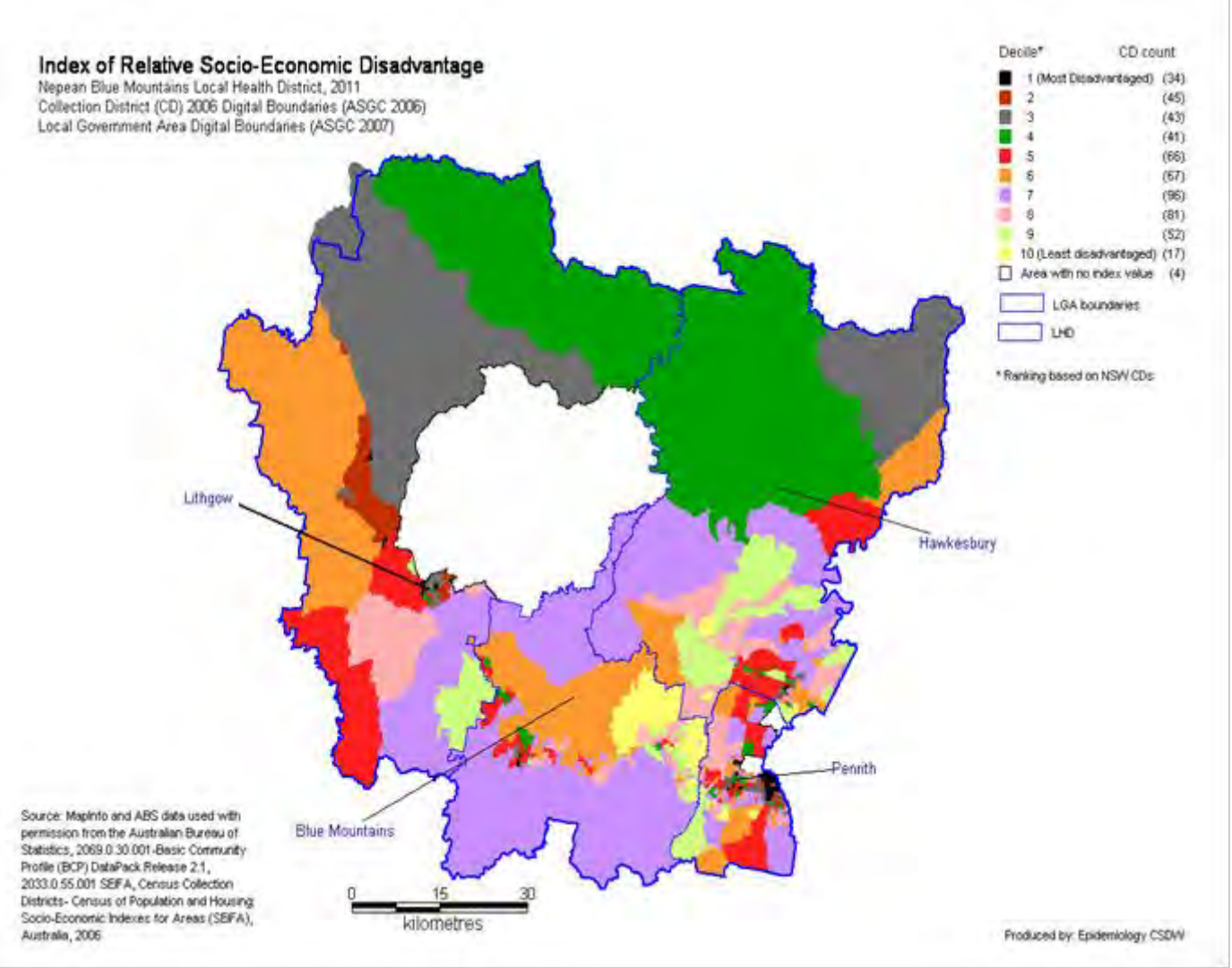
Mortality by Country of Birth in NSW

From 2005 to 2007, age standardised death rates for Australian born males (769.2 deaths per 100,000 population) and females (511.3 deaths per 100,000 population) were higher than death rates of people born overseas. People born in Hong Kong had the lowest death rates (734.1 for males and 205.5 for females). These differences were statistically significant.

Pockets of Disadvantage

Based on the Socio-Economic Indexes for Area (SEIFA) 2006, NBMLHD has LGAs at both ends of the spectrum. Among the most disadvantaged areas in NSW, scoring well below the 1,000 average, was Lithgow (937), characterised by low income and educational attainment and high levels of unemployment. At the opposite end scoring over 1,000, which suggests higher levels of advantage, were the LGAs of the Blue Mountains (1,051), Hawkesbury (1,033) and Penrith (1,006). Figure 2.3 shows the unequal distribution of disadvantage among the areas in the NBMLHD.

Figure 2.3 Index of Relative Socio-Economic Disadvantage for Nepean Blue Mountains Local Health District



Levels of Unhealthy Lifestyle Behaviours

Residents of the NBMLHD have high and increasing levels of unhealthy lifestyle behaviours. Increases in unhealthy lifestyle behaviours within the NBMLHD population will have an impact on levels and complexity of disease among the community, increasing hospital admissions, length of hospital stay and mortality now and in future years. Increases in unhealthy lifestyle behaviours will also prompt the need for the development and implementation of initiatives aimed at identifying and intervening to improve these lifestyle behaviours in the future.

For 2006 to 2010

NBMLHD was significantly lower than NSW in the proportion of the population who were vaccinated against the following (as drawn from the aggregated Health Survey data for the period 2006 to 2010):

- Meningococcal in the last 5 years
- Influenza in the last 12 months for all ages combined
- Influenza in the 65 years and over age group.

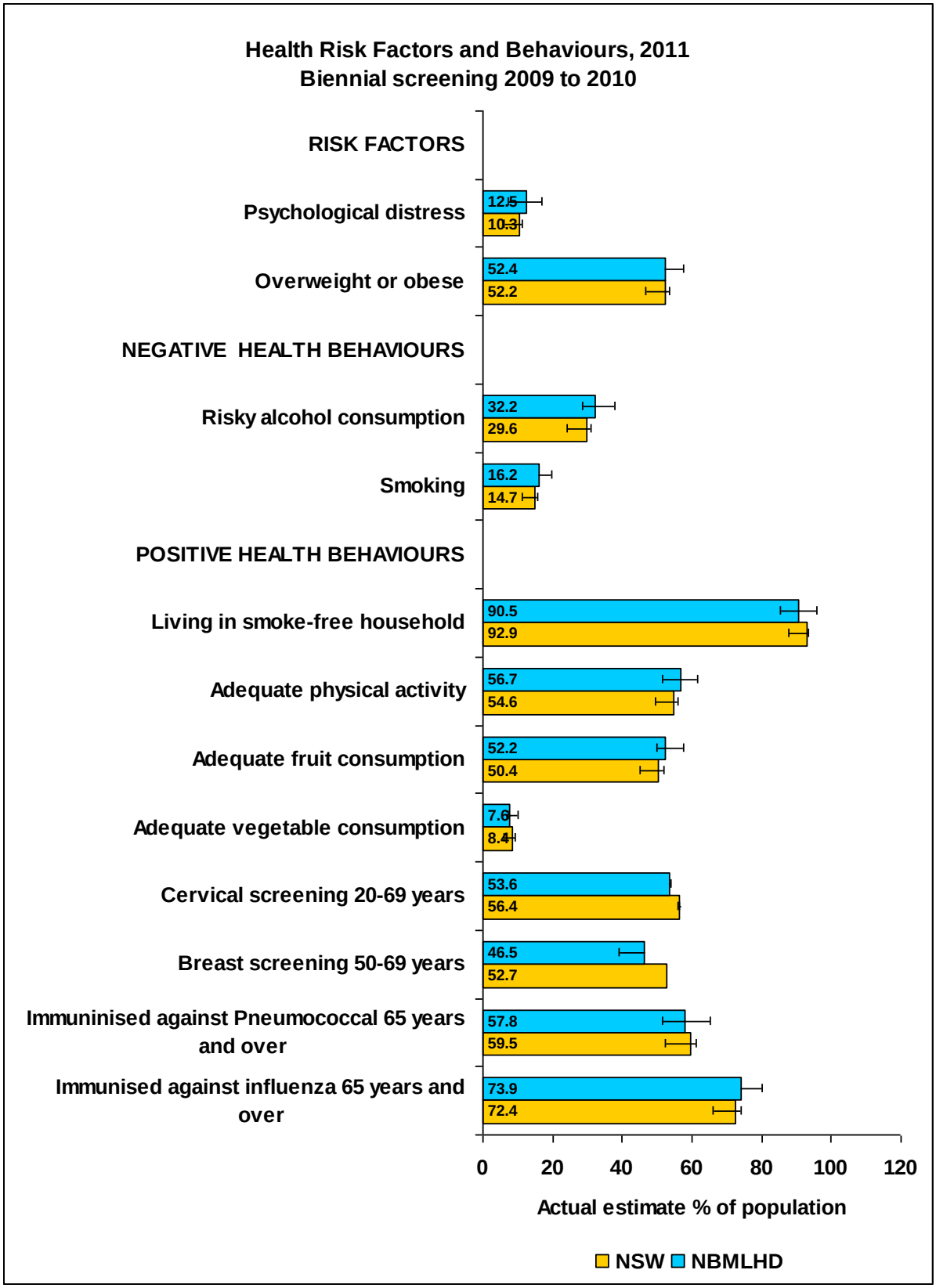
For 2009-2010, NBMLHD was significantly below NSW in the targeted proportion of the female population for biennial screening for cervical cancer and breast cancer.

For 2011

Most health behaviours of NBMLHD residents in 2011 were not significantly different compared with NSW residents (refer to Figure 2.4), however:

- The majority of residents were overweight or obese (52.4%)
- Nearly a third of NBMLHD residents consumed alcohol at risky levels of 2 or more standard drinks a day
- 16.2% of NBMLHD residents smoked cigarettes
- A large proportion of NBMLHD residents did not get adequate physical activity or consume the recommended amount of fruit per day.
- Most notably, only 7.6% of the NBMLHD population consumed the recommended amounts of 5 or more servings of vegetables per day.
- Immunisation for influenza and pneumococcal were below desired levels of coverage within the population for those aged 65 years and over.

Figure 2.4 Overview of Screening, Immunisation, Unhealthy and Healthy Behaviours



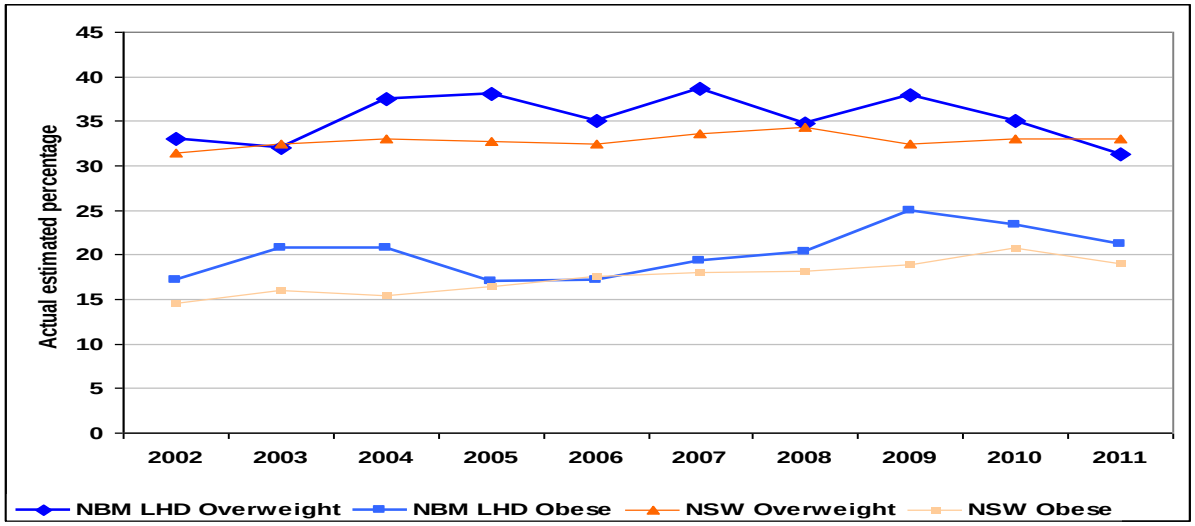
Sources: NSW Adult Population Health Survey (SAPHaRI). BreastScreen NSW and ABS population estimates. Cervical Screening Program, the NSW Pap Test Register and ABS population estimates (SAPHaRI). Centre for Epidemiology and Evidence, NSW Ministry of Health

Increasing Levels of Obesity

There has been an increase in obesity levels across the NSW population, including in the NBMLHD. Obesity is a risk factor in the developmental trajectory of illness, as well as increasing the complexity for the management of illness. Having systems in place in collaboration with general practice will be critical to assist with the management of obesity in future years.

- More than half of the NBMLHD population (52.4%) were overweight or obese in 2011.
- NBMLHD residents were not significantly different to NSW in the percentage of the population who were overweight (31%) or obese (21.9%) compared with NSW (33% and 19%, respectively) in 2011.
- The percentage of residents who are overweight in NBMLHD remains high, with over one third of the population overweight. From 2002 to 2011, the percentage of overweight residents did not significantly change in either the NBMLHD or NSW populations.
- Overall there was an increase in the percentage of the population who were obese in NBMLHD and NSW populations from 2002 to 2009. The prevalence of obesity in the NBMLHD population decreased, however, in 2010 (23.3%) and in 2011 (21.2%).

Figure 2.5 Prevalence of Overweight and Obesity, NBMLHD and NSW, 2002 to 2011



Sources: NSW Adult Population Health Survey (SAPHaRI). Centre for Epidemiology and Evidence, NSW Ministry of Health
Notes: Smoothed estimates are shown in the graph. Both the smoothed and actual estimates are shown in the table. Self-reported data collected through Computer Assisted Telephone Interviewing (CATI). Estimates weighted to adjust for differences in the probability of selection among respondents and benchmarked to the estimated residential population using the latest available Australian Bureau of Statistics mid/year population estimates.

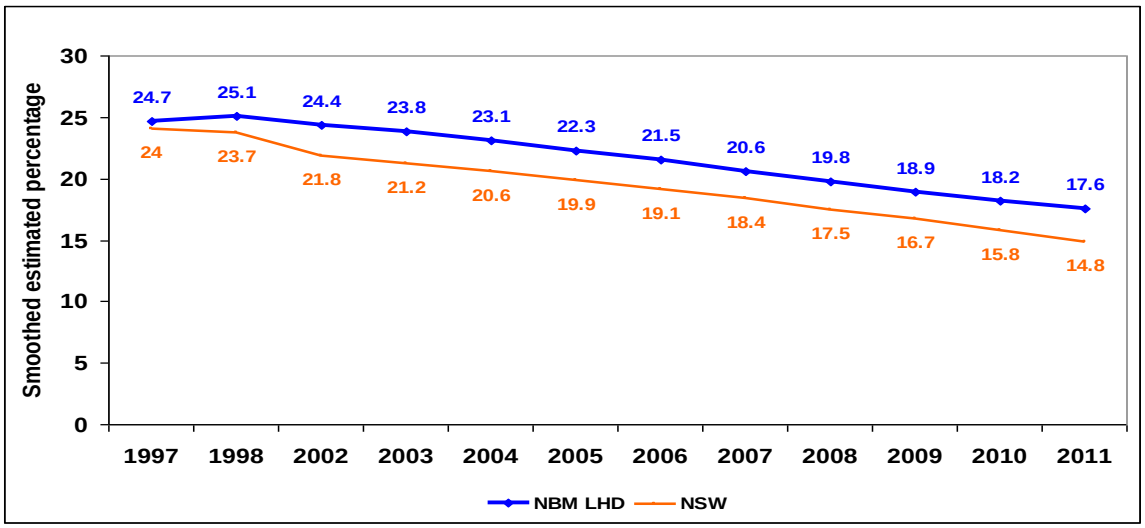
Mortality and Hospitalisations Attributable to High Body Mass

- In mortality attributable to high body mass (based on body mass index), the NBMLHD age standardised mortality rates decreased during 1997 to 2007.
- NBMLHD hospitalisations attributable to high body mass fluctuated during this period.

Smoking

- In the NBMLHD for people aged 16 years and over, 17.6% of the population smoked tobacco in 2011.
- The percentage of people who smoke significantly decreased from 1997 to 2011 in both the NBMLHD and NSW populations (Figure 2.6). Overall, for this period NBMLHD was significantly above NSW, except in 2011.
- Living in a smoke-free household increased steadily from 2002 to 2010 to 90.5% of households estimated to be smoke-free. This was not significantly different to NSW.

Figure 2.6 Prevalence of Smoking in NBMLHD and NSW Residents 16 Years and Over, 1997 to 2011



Sources: NSW Adult Population Health Survey (SAPHaRI). Centre for Epidemiology and Evidence, NSW Ministry of Health
Notes: Smoothed estimates are shown in the graph. Both the smoothed and actual estimates are shown in the table. The actual estimates have been statistically adjusted to minimise random variation from year to year and provide more stable smoothed estimates for population health planning and monitoring. Self-reported data collected through Computer Assisted Telephone Interviewing (CATI). Estimates weighted to adjust for differences in the probability of selection among respondents and benchmarked to the estimated residential population using the latest available Australian Bureau of Statistics mid/year population estimates.

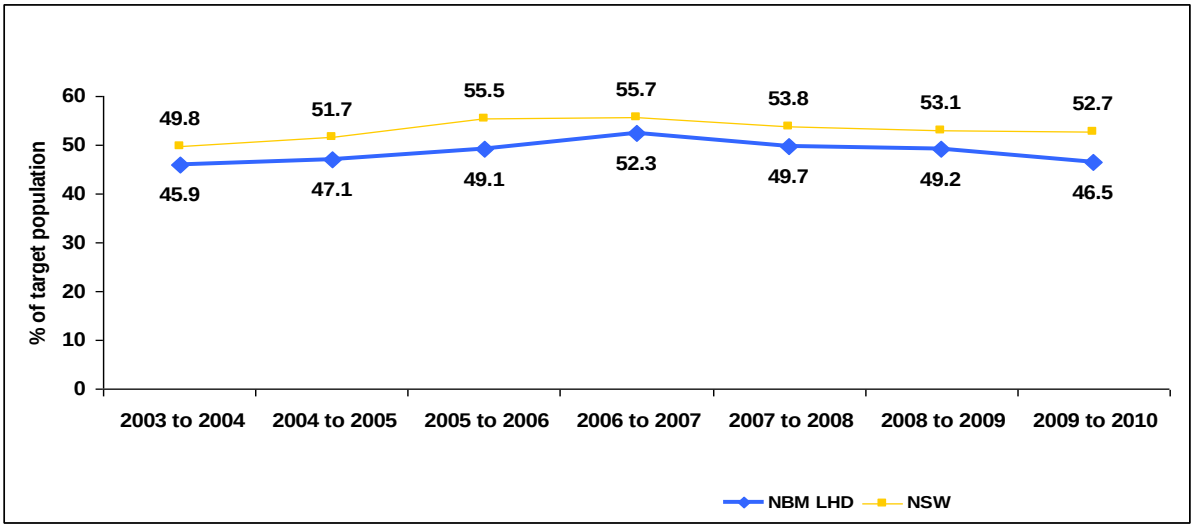
Mortality and Hospitalisations Attributable to Smoking

- The NBMLHD male age standardised smoking attributable mortality rate significantly decreased from 2003 to 2007, whereas for females the NBMLHD female age standardised smoking attributable death rate did not significantly change from 2003 to 2007.
- For hospitalisations attributed to smoking, males were significantly higher than females. NBMLHD smoking attributable male hospitalisation rate was significantly above the female NBMLHD smoking attributable hospitalisation rate from 1998/99 to 2010/11.
- For NBMLHD males, hospitalisations attributed to smoking decreased, however for females, they remained steady. NBMLHD smoking attributable male hospitalisation rates decreased from 1998/99 to 2010/11. NBMLHD smoking attributable female hospitalisation rates remained steady during 1998/99 to 2010/11.

Breast Screening

- For 2009-2010, NBMLHD was significantly below NSW in the targeted proportion of the female population for biennial screening for breast cancer.
- There was an upward trend in the target group of NBMLHD women aged 50 to 69 years for breast screening from 2003 to 2007. This was not maintained from 2007 to 2010.
- The difference in the proportion of women who were breast screened between NSW and NBMLHD widened in 2009 to 2010.

Figure 2.7 Biennial Breast Screening of Women aged 50 to 69 years, NBMLHD and NSW, 2003/04 to 2009/10



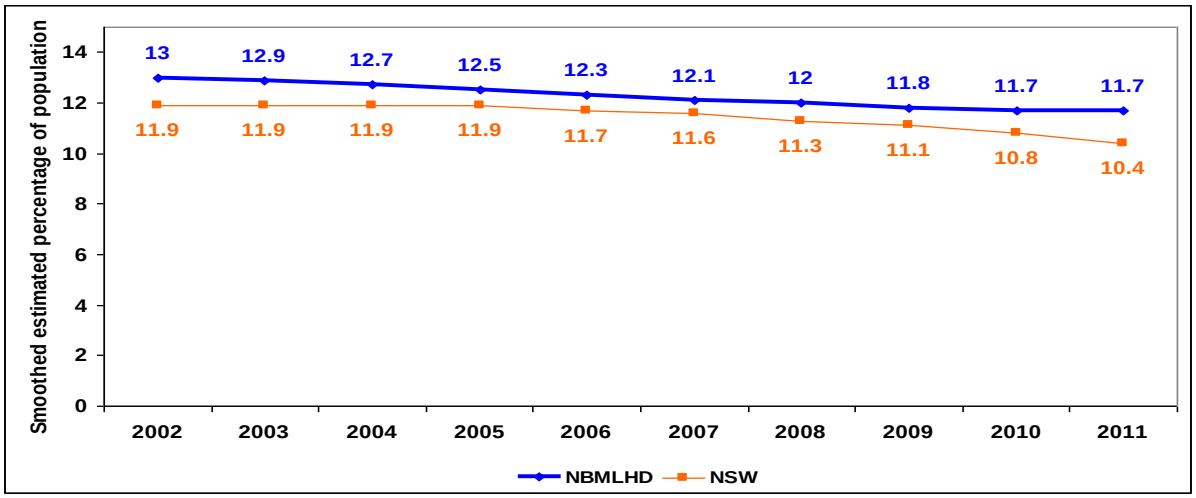
Sources: BreastScreen NSW and ABS population estimates. Centre for Epidemiology and Evidence, NSW Ministry of Health
Notes: The biennial screening rate was calculated by BreastScreen NSW from the number of women, aged 50-69 years, who had undergone mammography screening at least once during a two-year reporting period, as a percentage of the target population of eligible NSW women residents aged 50-69 years. The target population was derived from the Estimated Resident Female Population of NSW by taking an average of the populations across relevant age groups in the two-year period.

Psychological Distress

Psychological distress was estimated by telephone interview and using the Kessler 10 categories.

- In 2011 in NSW, approximately 11% of adults (9.0% of male and 11.7% of female, smoothed estimates) reported high or very high levels of psychological distress. This included approximately 3% of adults in NSW who reported very high levels of psychological distress.
- Overall adults reduce their activities by almost 1 day per month, on average, due to psychological distress.
- From 2002 to 2007, there was a significant decrease in the proportion of the NBMLHD population who reported high, or very high, psychological distress, from 13% to 11.7%.
- Overall NBMLHD had a higher percentage of the population who reported high or very high psychological distress compared to NSW, however, this was not statistically significant.

Figure 2.8 High or Very High Psychological Distress, Persons aged 16 years and over, NSW, 2002 to 2011



Sources: NSW Adult Population Health Survey (SAPHaRI). Centre for Epidemiology and Evidence, NSW Ministry of Health
Notes: Smoothed estimates are shown in the graph. Both the smoothed and actual estimates are shown in the table. The actual estimates have been statistically adjusted to minimise random variation from year to year and provide more stable smoothed estimates for population health planning and monitoring. Self-reported data collected through Computer Assisted Telephone Interviewing (CATI). Estimates weighted to adjust for differences in the probability of selection among respondents and benchmarked to the estimated residential population using the latest available Australian Bureau of Statistics mid-year population estimates.

Alcohol Use and Impact

- Nearly a third of NBMLHD residents consumed alcohol at risky levels of 2 or more standard drinks a day.
- The prevalence of risky drinking by NBMLHD residents was not significantly different to NSW from 2002 to 2011. Prevalence of risky drinking has been steady since 2004 for NBMLHD and NSW.
- NBMLHD had a similar pattern to NSW in mortality attributed to alcohol from 1998 to 2011.
- Overall, there was a decrease in mortality attributed to alcohol in NBMLHD and NSW.
- NBMLHD males experienced higher levels of mortality attributed to alcohol than NBMLHD females from 1998 to 2011.

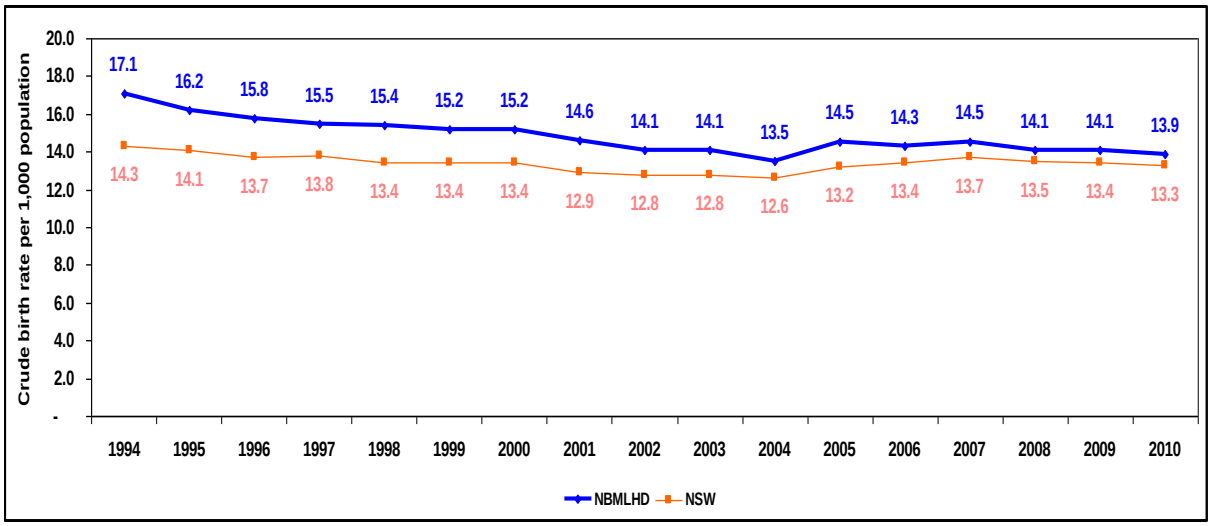
Maternal and Infant Health Indicators

Crude Birth Rate

The crude birth rate is the number of live births occurring among the population in a particular locality during a particular year per 1,000 mid-year total population.

- Crude birth rates in the NBMLHD decreased steadily from 1994 to 2004 and then fluctuated, with the lowest crude birth rate in 2010 (13.9 births per 1,000 population).
- NBMLHD crude birth rates were significantly above NSW from 1994 to 2002, with the difference decreasing after this time and not significantly different in 2010.

Figure 2.9 Crude Birth Rate, NBMLHD and NSW 1994 to 2010



Sources: NSW Perinatal Data Collection (SAPHaRI). Centre for Epidemiology and Evidence, NSW Ministry of Health

Perinatal Mortality

- Overall there was a downward trend in the NBMLHD perinatal mortality rates from 1994 to 2010. Over this period, the NBMLHD perinatal mortality rate was not significantly different to NSW.

Low Birth Weight Births

Low birth weight is defined as a birth weight of lower than 2.5 kilograms or 2,500 grams.

- The proportion of low birth weight babies increased in both NBMLHD and NSW from 1991 to 1999. From 2000 to 2010, there was a significant decrease in the proportion of low birth weight babies in NSW and, particularly, in the NBMLHD population.
- From 1991 to 2010, the proportion of low birth weight babies for NBMLHD residents was not significantly different to NSW.

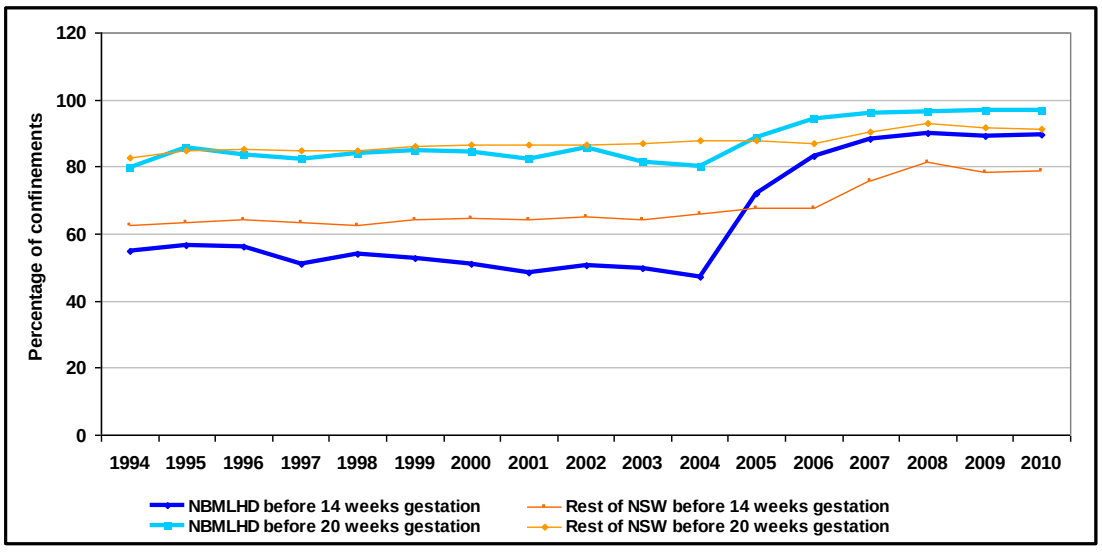
Antenatal Care

Antenatal care involves assessment and appropriate advice and treatment during pregnancy. Antenatal care is important for monitoring the health of mothers and babies and identifying complications in pregnancy early so that appropriate treatment can be provided.

- NBMLHD mothers had higher levels for attending antenatal care before 14 and 20 weeks' gestation from 2005 and 2010, compared to NSW.
- In 2010, 90% of NBMLHD mothers attended antenatal care before 14 weeks' gestation, compared with 79% in NSW. Further, 97% of NBMLHD mothers attended antenatal care before 20 weeks' gestation, compared with 92% in NSW.

It should be noted that there are some issues with the accuracy of this data, relating to inconsistencies in data collection for the 'antenatal care variable'. Staff education and the introduction of a new data collection form in 2006, with additional variables related to antenatal care, possibly impacted on data collection for this variable. This reason may account for the decrease in first antenatal visits in 2004/2005 as shown in Figure 2.10.

Figure 2.10 First Antenatal Visit before 14 and 20 Weeks' Gestation, NBMLHD and NSW, 1994 to 2010



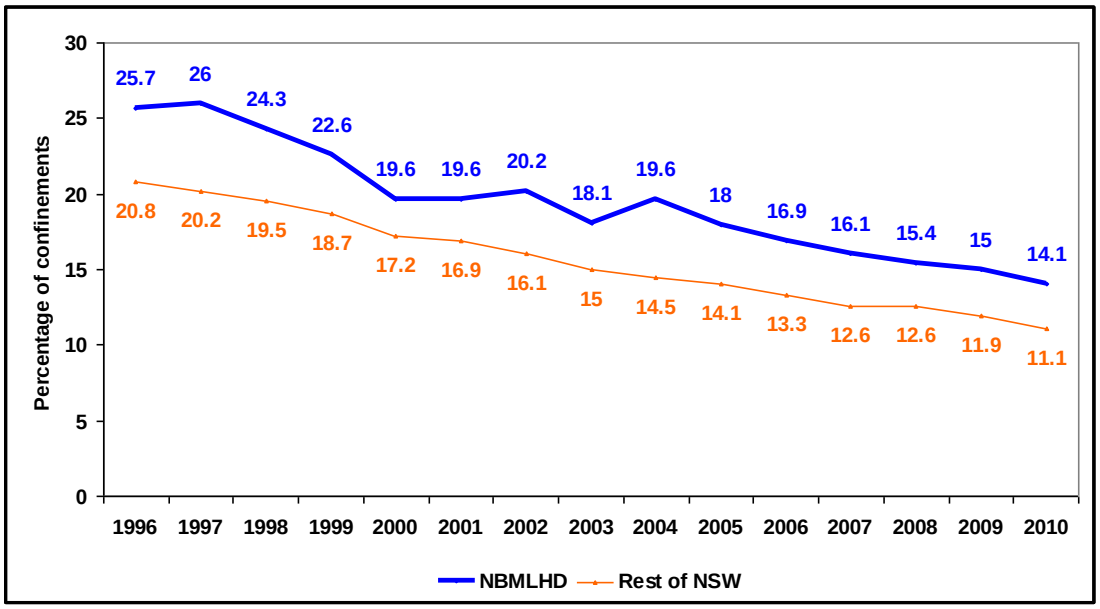
Sources: NSW Perinatal Data Collection (SAPHaRI). Centre for Epidemiology and Evidence, NSW Ministry of Health
Notes: There are some issues with the accuracy and the reliability of data collection before the introduction of the new form in 2006. The time periods are cross-over periods of time.

Smoking in Pregnancy

Smoking during pregnancy doubles the risk of having a low birth weight baby and significantly increases the risk of perinatal mortality, sudden infant death syndrome and other adverse pregnancy outcomes.

- The percentage of women who reported smoking during pregnancy decreased significantly from 1996 to 2010. However, NBMLHD (14.1%) remained significantly above NSW in the percentage of women who reported smoking during pregnancy (11.1%).

Figure 2.11 Smoking in Pregnancy, NBMLHD and NSW, 1996 to 2010



Sources: NSW Perinatal Data Collection (SAPHaRI). Centre for Epidemiology and Evidence, NSW Ministry of Health
Notes: Any smoking during pregnancy is included. Bayesian smoothing used to calculate the smoothed percentages and prevalence ratios.

Hospitalisations

Hospitalisations presented in this section include all episodes of hospital care provided to NBMLHD residents comprising public and private hospital care provided in NBMLHD hospitals and hospitals located elsewhere, including interstate hospitals. The principal diagnoses used are drawn from ICD10 chapters.

The rate of hospitalisations is influenced by the age and sex structure of the population, incidence of acute disease and injury in the population, availability of health services, and availability of treatment options for diseases and injuries outside hospitals. Female all-cause hospitalisation rates include hospitalisations when giving birth.

- Overall, residents in the NBMLHD had significantly lower hospitalisation rates (for all causes combined) than NSW, for both males and females, in 2010/11. However, for selected causes, NBMLHD residents experienced higher hospitalisation rates than NSW residents.

By Sex

Males

- Overall, NBMLHD males experienced lower levels of hospitalisation than NSW males. However, for specific causes, NBMLHD males experienced significantly higher hospitalisation rates than NSW males.
- In 2010/11, the age standardised hospitalisation rate for all causes for NBMLHD male residents was significantly lower than for NSW males (33,043 CI 32,756- 33,332 hospitalisations per 100,000 male population compared to 34,959 CI 34,899- 35,020, respectively).
- Age standardised hospital separation rates by specific causes for NBMLHD males, were significantly above NSW male rates.

Females

- Overall, NBMLHD females experienced lower levels of hospitalisation than NSW females. However, for specific causes, NBMLHD females experienced significantly higher hospitalisation rates than NSW females.
- In 2010/11, the age standardised hospitalisation rate for NBMLHD females was significantly lower than the NSW female rate (34,764 CI 34,485 - 35,045 hospitalisations per 100,000 female population compared to 35,433 CI 35,390- 35,476 hospitalisations respectively).
- Age standardised hospital separation rates by specific causes for NBMLHD females, were significantly above NSW female rates.

Causes of Hospitalisation

In 2010/2011, the major causes of hospitalisation for NBMLHD residents (public and private and all hospitals) were for:

- Injury and poisoning (14,983 separations, 13.2% of all separations)
- Digestive system diseases (11,624 separations, 10.2% of all separations)
- Other factors influencing health status (11,602 separations, 10.17% of all separations)
- Maternal, neonatal and congenital conditions (10,345 separations, 9.1% of all separations)
- Symptoms and abnormal findings (8,667 separations, 7.6% of all separations)
- Dialysis (8,641 separations, 7.6% of all separations) (refer to Table 2.3).

Table 2.3 Hospitalisations by Category of Cause, NBMLHD and NSW, 2010/11

Principal diagnosis by ICD10 chapter	Number of hosp.	Rate	LCI	UCI	% of all hoso.	Statistically significantly different to NSW
Injury and poisoning	14,983	4,484.9	4,412.6	4,558.2	13.2%	↑
Digestive system diseases	11,624	3,384.9	3,322.9	3,447.7	10.2%	=
Factors influencing health: other	11,602	3,333.7	3,272.5	3,395.7	10.2%	↓
Maternal, neonatal and congenital causes	10,345	3,037.3	2,978.8	3,096.6	9.1%	↑
Symptoms, signs and abnormal findings	8,667	2,539.3	2,485.4	2,593.9	7.6%	↑
Factors influencing health: dialysis	8,641	2,644.3	2,587.8	2,701.6	7.6%	↓
Nervous system and sense organ disorders	6,432	1,962.7	1,914.3	2,012.1	5.6%	↓
Respiratory diseases	6,103	1,781.4	1,736.5	1,827.1	5.4%	↑
Mental and behavioural disorders	6,039	1,769.4	1,724.6	1,815.0	5.3%	↑
Musculoskeletal and connective tissue diseases	5,955	1,747.7	1,703.0	1,793.3	5.2%	↑
Genitourinary diseases	5,405	1,595.3	1,552.6	1,638.8	4.7%	↓
Cardiovascular diseases	5,398	1,633.3	1,589.3	1,678.2	4.7%	↓
Malignant neoplasms= cancers	4,085	1,216.7	1,179.1	1,255.3	3.6%	=
Other neoplasms	2,392	705.9	677.5	735.2	2.1%	=
Certain infectious and parasitic diseases	2,041	588.3	562.8	614.6	1.8%	↑
Skin and subcutaneous tissue diseases	1,838	540.1	515.4	565.6	1.6%	↑
Endocrine diseases	1,259	370.3	349.9	391.6	1.1%	=
Blood and immune system diseases	1,071	326.8	307.2	347.2	0.9%	↓
All causes	113,880	33,693	33,496	33,892	33,693	↓

Sources: NSW Admitted Patient Data Collection and ABS population estimates (SAPHaRI). Centre for Epidemiology and Evidence, NSW Ministry of Health

Notes: Hospital separations are classified using ICD-10-AM classification and distributed according to ICD-10-AM chapters. Chapters on diseases of nervous system, eye and ear and chapters on conditions relating to pregnancy, perinatal period and congenital diseases are combined into one category in analysis. ICD10-AM chapter *Factors influencing health* is divided into two categories: *Dialysis and Other factors influencing health*. Numbers for two latest years include estimate of small number of hospitalisations of NSW residents in interstate public hospitals, unavailable at time of production. LL/UL 95%CI = lower and upper limits of 95% confidence interval for point estimate. Hospitalisations are based on separation after episode of care. Separations refer to residents of NBMLHD regardless of health facility attended.

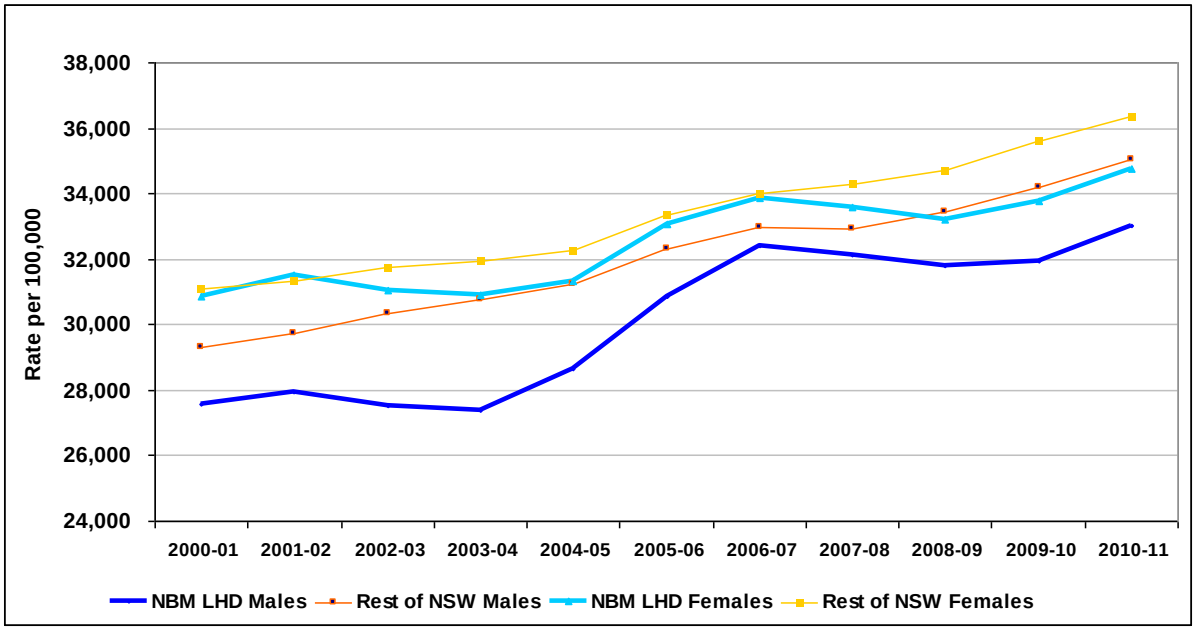
↑ NBMLHD rate is statistically significantly above NSW rate ↓ NBMLHD rate is statistically significantly below NSW

= NBMLHD rate is not statistically significantly different to NSW rate.

Trends in Hospitalisations

- From 2000/01 to 2010/11, there were on average 46,385 separations for males and 54,451 separations for females residing in NBMLHD. In 2010/11, the number of separations increased in the NBMLHD (53,395 for males and 60,576 for females) and in the age sex standardised separation rates (33,041 per 100,000 males and 34,762 per 100,000 females).
- In NBMLHD, males experienced lower rates of hospitalisation than females. NBMLHD male age standardised hospitalisation rates were significantly lower than NBMLHD female rates for every year from 2000/01 to 2010/11.
- Generally, NBMLHD males and females experienced lower rates of hospitalisation than their NSW counterparts.
- NBMLHD age standardised hospitalisation male rates were significantly lower than NSW male rates for every year from 2000/01 to 2010/11.
- NBMLHD age standardised female hospitalisation rates were significantly lower than NSW female rates from 2007/08 to 2010/11. Prior to this, overall NBMLHD females were significantly lower than NSW females. There were, however, annual fluctuations where NBMLHD females were not significantly different to NSW female rates.

Figure 2.12 Hospitalisations from All Causes Combined, NBMLHD and NSW, 2000/01 to 2010/11



Sources: NSW Admitted Patient Data Collection and ABS population estimates (SAPHaRI). Centre for Epidemiology and Evidence, NSW Ministry of Health
Notes: Hospital separations were classified using ICD-9-CM up to 1997/98 and ICD-10-AM from 1998/99 onwards. Rates were age-adjusted using the Australian population as at 30 June 2001. Numbers for the two latest years include an estimate of the small number of hospitalisations of NSW residents in interstate public hospitals, data for which were unavailable at the time of production.

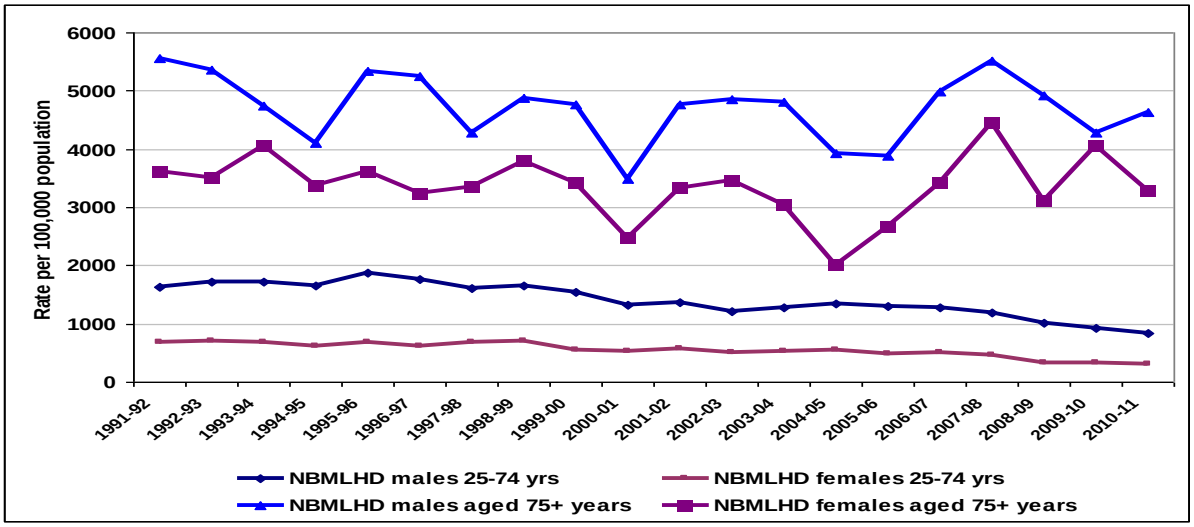
Cardiovascular Disease

Cardiovascular disease is the leading cause of deaths in NBMLHD and NSW. The main conditions within cardiovascular disease are coronary heart disease and stroke.

From 1991/92 to 2010/11 in the NBMLHD population:

- Coronary heart disease hospitalisations comprised one third of cardiovascular disease hospitalisations
- There was a significant decrease in coronary heart disease age standardised hospitalisation rates for NBMLHD males and females aged 25 to 74 years. Rates fluctuated in the 75 years and over age group
- NBMLHD males experienced higher levels of hospitalisation for coronary heart disease than NBMLHD females. NBMLHD male age standardised coronary heart disease hospitalisation rates in the 25 to 74 years and the 75 years and over age groups were significantly above NBMLHD female age standardised coronary heart disease hospitalisation rates for this period.

Figure 2.13 Coronary Heart Disease Hospitalisations by Age and Sex, 1991/92 to 2010/11



Sources: NSW Admitted Patient Data Collection and ABS population estimates (SAPHaRI). Centre for Epidemiology and Evidence, NSW Ministry of Health

Cancer

- Cancer is the second leading cause of deaths in the NBMLHD and contributed 4,085 hospitalisations (4% of hospitalisations) in 2010/11. While cancer deaths are projected to further decrease, the identifications of new cases of cancer are projected to increase.
- NBMLHD males and females experienced similar patterns of mortality from cancer to NSW males and females. NBMLHD male and female age standardised mortality rates for cancer were not significantly different to NSW male and female mortality rates for all cancers combined, female breast cancer, male prostate cancer, lung cancer and colorectal cancer from 2003 to 2007.
- Hospitalisations for cancer in NBMLHD remained steady from 1998/99 to 2010/11. The NBMLHD age standardised hospitalisation rate for cancer (1,217 CI 1,179-1,255) was not significantly different to NSW.

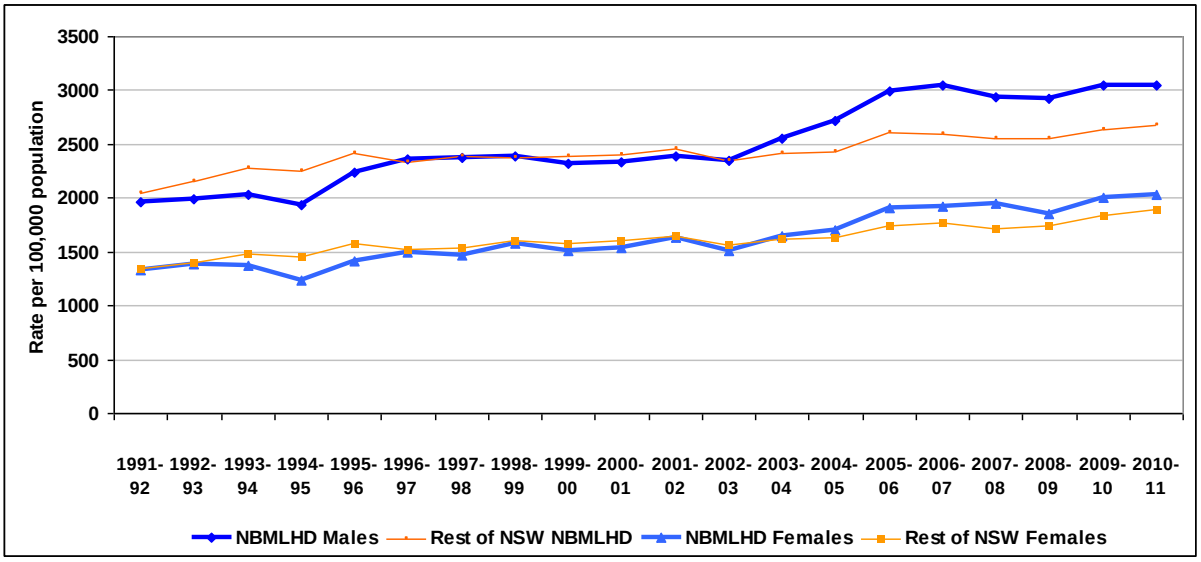
Respiratory Diseases

- Respiratory diseases are the third leading cause of death in the NBMLHD and contributed 6,103 hospitalisations in 2010/11.
- Hospitalisations for respiratory diseases in the NBMLHD fluctuated from 2000/01 to 2010/11.
- In 2011, asthma prevalence in NBMLHD population of all ages combined was significantly above NSW asthma prevalence. Although, asthma prevalence increased from 2002 to 2011, hospitalisation rates for asthma remained steady and mortality from asthma decreased.
- During 2010/11, the NBMLHD asthma hospital separation rate for all ages combined (191.5 hospitalisations per 100,000 population CI 177.3-206.5) was significantly above the NSW rate (169.5, CI 166.5-172.6).

Injury and Poisoning

- Injury and poisoning was the leading cause of hospitalisations in NBMLHD in 2010/11, contributing 14,983 separations and was the fourth leading cause of deaths in the NBMLHD (to 2005).
- The leading causes of hospitalisations for injury and poisoning hospitalisations for NBMLHD residents in 2009/10 were falls (35%), exposure to unspecified factor (14%), motor vehicle transport (9.3%), other injury and poisoning (9.1%), struck by or against (unintentional) (6%) and self-harm (5.9%).
- Hospitalisations for injury and poisoning increased among NBMLHD residents to 2010/11, with significant increases in age standardised rates from 1991/92 to 2001/02, and in hospitalisation rates from 2001/02 to 2010/11.
- NBMLHD males experienced higher levels of hospitalisations for injury and poisoning than NBMLHD females, with the difference increasing from 2004. NBMLHD male age standardised injury and poisoning hospitalisation rates were significantly above NBMLHD female rates.
- NBMLHD males and females experienced higher levels of hospitalisations for injury and poisoning than NSW males and females.
- In 2010/11, NBMLHD males experienced 4,975 hospitalisations for injury and poisoning. The age standardised hospitalisation rate of 3,051.4 (CI 2,965.5- 3,139) was significantly higher than the NSW male rate of 2,692.3 (CI 2,675-2,709.4).
- In 2010/11, NBMLHD females experienced 3,631 hospitalisations for injury and poisoning. The female age standardised hospitalisation rate of 2,037.2 (CI 1,970.7-2,105.3) was significantly above the NSW female rate of 1,896.5 (CI 1,882.9- 1910.1).

Figure 2.14 Injury and Poisoning Hospitalisations by Sex, NSW, NBMLHD, 1991/92 to 2010/11



Sources: NSW Admitted Patient Data Collection and ABS population estimates (SAPHaRI). Centre for Epidemiology and Evidence, NSW Ministry of Health

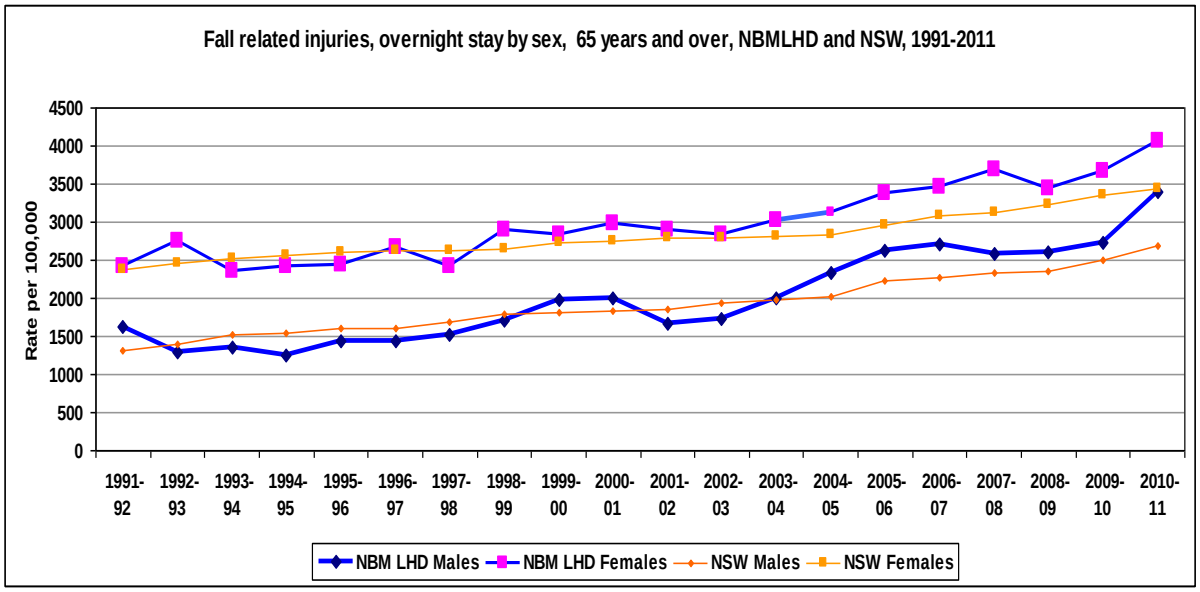
Notes: Hospital separations were classified using ICD-9-CM up to 1997/98 and ICD-10-AM from 1998/99 onwards. Rates were age-adjusted using the Australian population as at 30 June 2001. Numbers for the two latest years include an estimate of the small number of hospitalisations of NSW residents in interstate public hospitals, data for which were unavailable at the time of production.

Falls in People Aged 65 years and Older

With the ageing of the population there has been increasing numbers of older people hospitalised for falls. Often falls result in hospitalization for broken limbs or hips and are generally associated with longer lengths of hospital stay. The focus needs be on the prevention of falls in the older population. There will also be an increasing need for aged care, acute and sub-acute rehabilitation inpatient care and for community-based services.

- There has been a significant increase in hospitalisations for injuries in the NBMLHD and the NSW populations for both males and females, aged 65 years and over, from 1991/92 to 2010/11, particularly from 2003/04 (refer to Figure 2.15).
- NBMLHD males and females aged 65 years and over experienced higher hospitalisation levels for injuries than their NSW counterparts. NBMLHD male and female age standardised separation rates in the 65 years and over age group that required an overnight stay were significantly above NSW male and female rates.
- NBMLHD females experienced higher levels of hospitalisation for injuries than NBMLHD males. NBMLHD female age standardised separation rates in the 65 years and over age group that required an overnight stay were significantly above NBMLHD male rates.
- In 2010/11, there were 1,444 separations for falls in the 65 years and over age group that required an overnight stay. Of these, 925 were females and 519 males.

Figure 2.15 Falls in 65 Years and Older in NBMLHD to 2011



Sources: NSW Admitted Patient Data Collection and ABS population estimates (SAPHaRI). Centre for Epidemiology and Evidence, NSW Ministry of Health

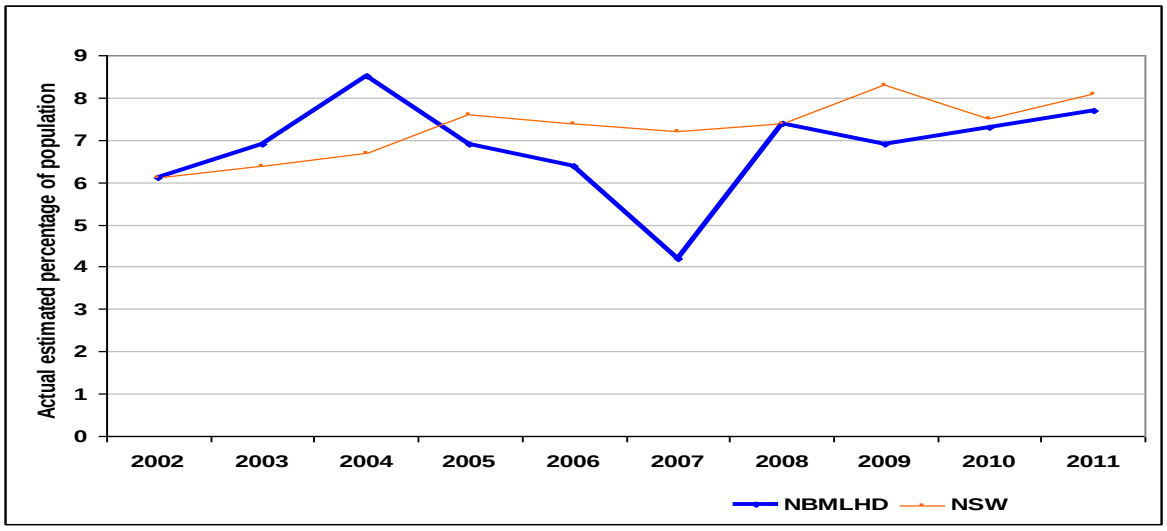
Notes: Includes fall in the first external code field. Records relating to same day stays, statistical discharge and hospital transfer (based on Source of Referral) were excluded. Refer to Codes tab for more information. Hospital separations were classified using ICD-9-CM up to 1997/98 and ICD-10-AM from 1998/99 onwards. Rates were age-adjusted using the Australian population as at 30 June 2001. Numbers for the two latest years include an estimate of the small number of hospitalisations of NSW residents in interstate public hospitals, data for which were unavailable at the time of production. LL/UL 95%CI = lower and upper limits of the 95% confidence interval for the point estimate.

Diabetes

Diabetes is a major contributor to preventable hospitalisations. The continued increase in diabetes, particularly Type 2 diabetes, will be a major influence on health and health service delivery in NBMLHD in future years. Diabetes is often a comorbid illness with other chronic or acute illnesses. This can add to the complexity of the presenting illness and treatment required. Further, many in the population are not aware that they have diabetes. The rising prevalence of diabetes and hospitalisation for diabetes necessitate having services in place in hospitals and community based services in the NBMLHD, working in collaboration with general practice, to provide for the early identification and ongoing management of diabetes.

- The prevalence of diabetes significantly increased in NSW during 2002 to 2011 according to the NSW Health Surveys in this period.
- The prevalence of diabetes fluctuated in the NBMLHD population, although this trend is influenced by the smaller numbers surveyed (Figure 2.16).
- In 2011, the prevalence of diabetes in the NBMLHD was 7.7% (CI 5.9%-9.6%), which was not significantly different to NSW (8.1% CI 7.4%-8.7%).

Figure 2.16 Diabetes or High Blood Glucose, Persons Aged 16 Years and Over, NSW, 2002 to 2011

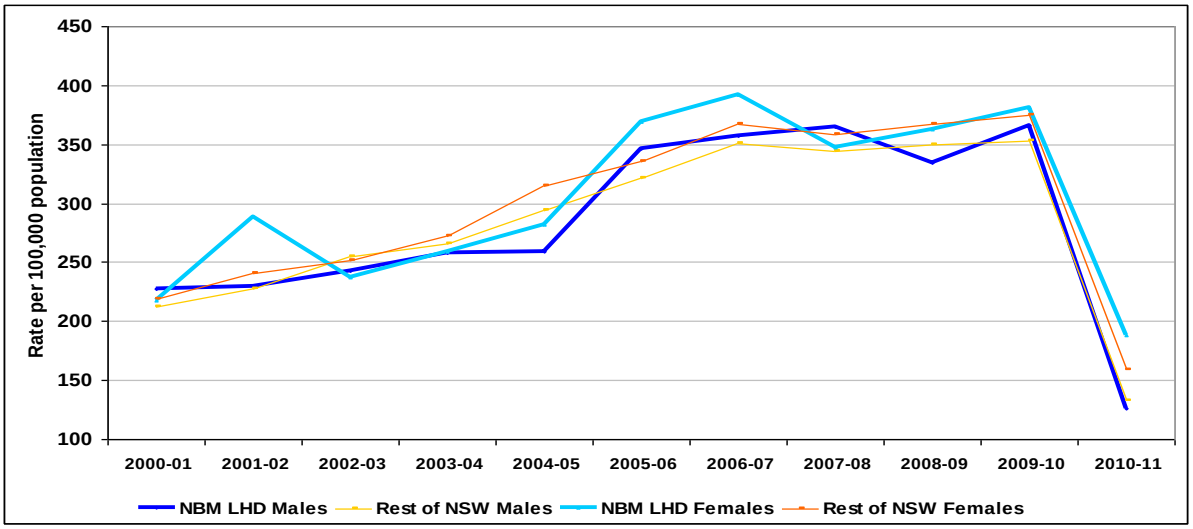


Sources: NSW Adult Population Health Survey (SAPHaRI). Centre for Epidemiology and Evidence, NSW Ministry

Hospitalisation for Diabetes

- Hospitalisations for diabetes increased significantly in NBMLHD and NSW from 2002 to 2007, with a sharp decline from 2008.
- The dramatic decline in hospitalisations for diabetes since 2008 is largely due to coding changes in that year.
- In 2010/11, among NBMLHD residents, there were 295 male hospitalisations for diabetes and 220 female hospitalisations.
- NBMLHD males had higher levels of hospitalisations for diabetes than NBMLHD females. The NBMLHD male rate (188.4 CI 167-211.7) was significantly above the NBMLHD female rate (126.3 CI 110-144.3).
- NBMLHD males had higher levels of hospitalisations than NSW males. The NBMLHD male rate (188.4 CI 167-211.7) was significantly above the NSW male rate (160.5 CI 156.4-164.7).
- Overall, NBMLHD hospitalisation rates for diabetes were not significantly different to NSW rates (refer to Figure 2.17).

Figure 2.17 Diabetes Hospitalisation by Sex, NBMLHD and NSW, 2000/01 to 2010/11



Sources: NSW Admitted Patient Data Collection and ABS population estimates (SAPHaRI). Centre for Epidemiology and Evidence, NSW Ministry of Health

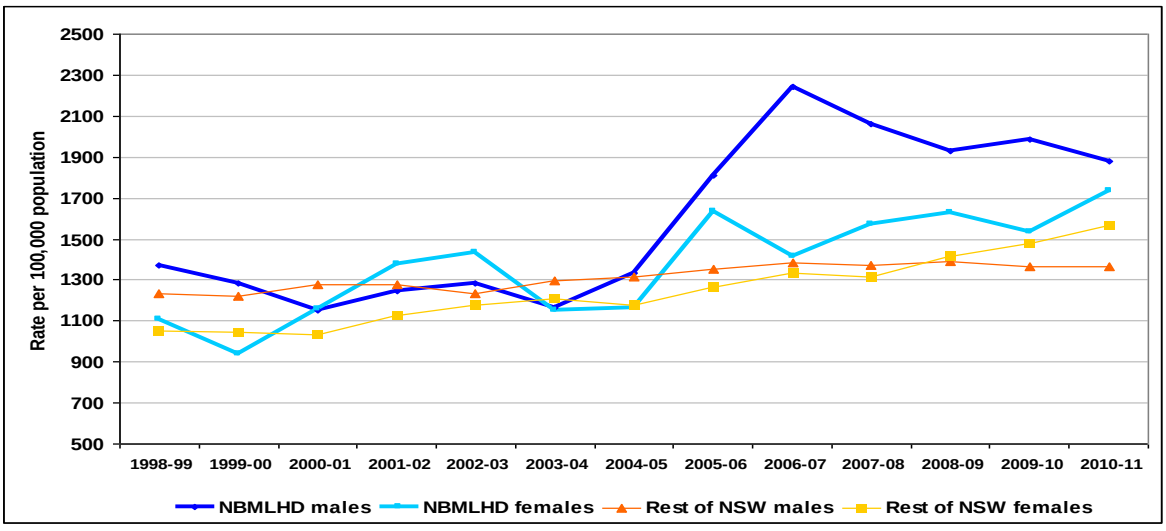
Notes: Hospitalisations include diabetes as a principal and comorbid condition. Diabetes was the principal reason for hospitalisation when it was coded in the first diagnosis field; it was a comorbidity when it was coded in the 2nd/20th diagnosis field and was not the principal diagnosis. Gestational and diabetes in pregnancy are included. Rates were age-adjusted using the Australian population as at 30 June 2001. In July 2010 the Australian Coding Standard for diabetes was revised resulting in a major change affecting the coding of diabetes as a principal diagnosis or an additional diagnosis (or comorbidity) in the hospital data. This change is responsible for the dramatic decrease in the number and rate of hospitalisation for diabetes as a principal diagnosis in NSW between 2009/10 and 2010/11 (around a 60% drop).

Hospitalisations for Mental Health and Behavioural Conditions

Mental health disorders relate to behaviours and conditions that interfere with social functioning and capacity to negotiate daily life. Mental health problems are also associated with higher rates of health risk factors, poorer physical health and higher rates of death from many causes including suicide (AIHW Cat. no. AUS 99 2008).

- In 2010/11, hospitalisations for NBMLHD residents for mental and behavioural disorders accounted for 3,022 hospitalisations for males (5.7% of male hospitalisations) and 3,017 hospitalisations for females (5% of female hospitalisations).
- NBMLHD males and females experienced higher levels of hospitalisations for mental and behavioural disorders than NSW males and females. NBMLHD males experienced higher levels of hospitalisations than NBMLHD females.
- In 2010/11, the male age standardised hospitalisation rate for mental and behavioural disorders (1,880 CI 1,812-1,950) was significantly above the NSW male rate (1,389 CI 1,376-1,401).
- In 2010/11, the female age standardised hospitalisation rate for mental and behavioural disorders (1,733 CI 1,671-1,796) was significantly above the NSW female rate (1,575 CI 1,562-1,588), however the number of hospitalisations was similar.
- The NBMLHD male rate was significantly above the NBMLHD female rate.
- Overall, there were significant increases in the male and female age standardised hospitalisation rates for mental and behavioural disorders from 1998/00 to 2010/11. During 2006/8 there were large increases in the rates that were not maintained at that level.
- NSW males and females did not experience the same increase in rates to the extent of NBMLHD males and females.

Figure 2.18 Mental Disorders Hospitalisations by Sex, NBMLHD and NSW, 1998/99 to 2010/11



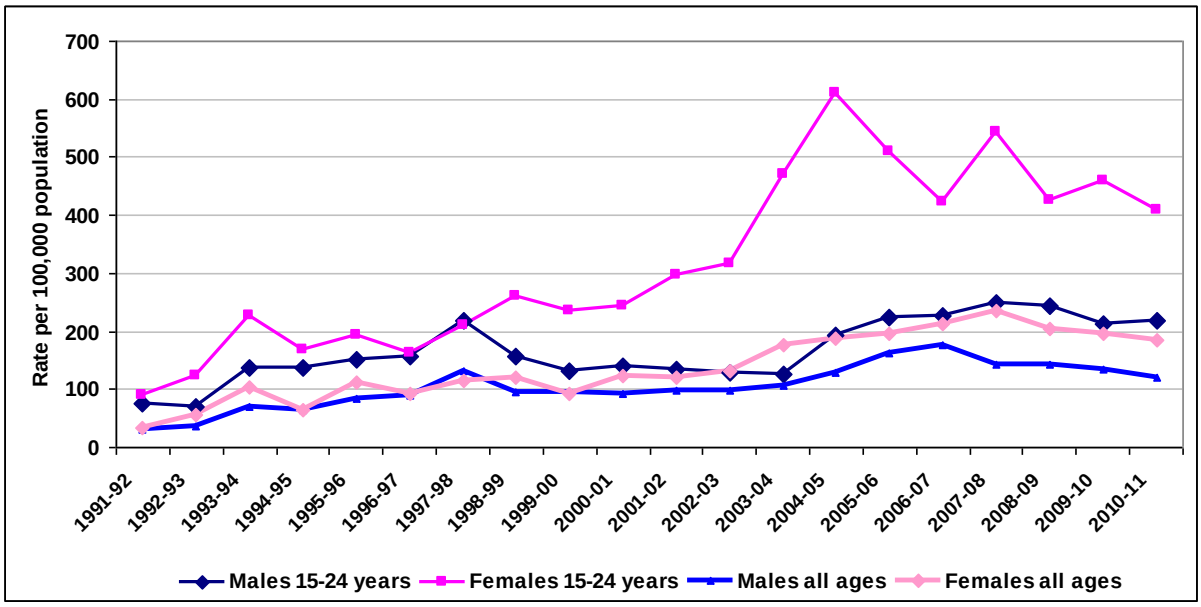
Sources: NSW Admitted Patient Data Collection and ABS population estimates (SAPHaRI). Centre for Epidemiology and Evidence, NSW Ministry of Health
Notes: Mental disorder hospital separations are classified using ICD-10-AM classification and chapter. Numbers for the two latest years include an estimate of the small number of hospitalisations of NSW residents in interstate public hospitals, data for which were unavailable at the time of production.

Self-Harm Hospitalisations

Hospitalisations for intentional self-harm refer to suicide (attempted) and purposely self-inflicted poisoning or injury and are categorised under the ICD10 chapter of injuries and poisoning.

- The age standardised hospitalisation rate for NBMLHD females aged 15 to 24 years was significantly above NBMLHD males and females of all ages and males aged 15 to 24 years.
- Hospitalisations for self-harm significantly increased from 1991/91 to 2010/11. From 2004/05, there was a sharp increase in the female self-harm hospitalisation rate in the 15 to 24 years age group and then rates fluctuated and showed a downward trend.

Figure 2.19 Intentional Self-Harm Hospitalisations by Sex, Persons of All Ages and 15-24 years, NBMLHD, 1991/92 to 2010/11



Sources: NSW Admitted Patient Data Collection and ABS population estimates (SAPHaRI). Centre for Epidemiology and Evidence, NSW Ministry of Health
Notes: Hospital separations were classified using ICD-9-CM up to 1997/98 and ICD-10-AM from 1998/99 onwards. Rates were age-adjusted using the Australian population as at 30 June 2001. Numbers for the two latest years include an estimate of the small number of hospitalisations of NSW residents in interstate public hospitals, data for which were unavailable at the time of production.

Potentially Preventable Hospitalisations

Potentially preventable hospitalisations or ambulatory care sensitive conditions are those for which hospitalisation is considered potentially avoidable through preventive care and early disease management, usually delivered in an ambulatory setting such as primary health care (for example, by general practitioners or community health centres).

Rates for potentially preventable hospitalisations or ambulatory care sensitive conditions are used as an indicator of access to, and quality of, primary health care. Other factors that influence these rates include disease prevalence in the community, hospital admission and coding practices, and personal choices about seeking health care.

After July 2010, there was a significant change in coding standards for diabetes, which is a substantial contributor to chronic and total preventable hospitalisations. This change caused a decrease in the number of hospitalisations where diabetes with complications was coded in the principal diagnosis. In NSW, there was a 60% decrease in 2010/11 and the rates of hospitalisation for all potentially preventable hospitalisations decreased by about 7% between 2009-10 and 2010-11.

Rates for potentially preventable hospitalisations escalate with increasing geographic remoteness. The relative differences between areas are much greater than between the rates for all other hospitalisations.

In NSW, rates for potentially preventable hospitalisations in the lowest socio-economic status group increased significantly in the last decade. Since the rates have been stable in other groups, both the relative and absolute gaps in rates between the lowest socio-economic status group and the rest of the population have increased over this period.

NBMLHD Population

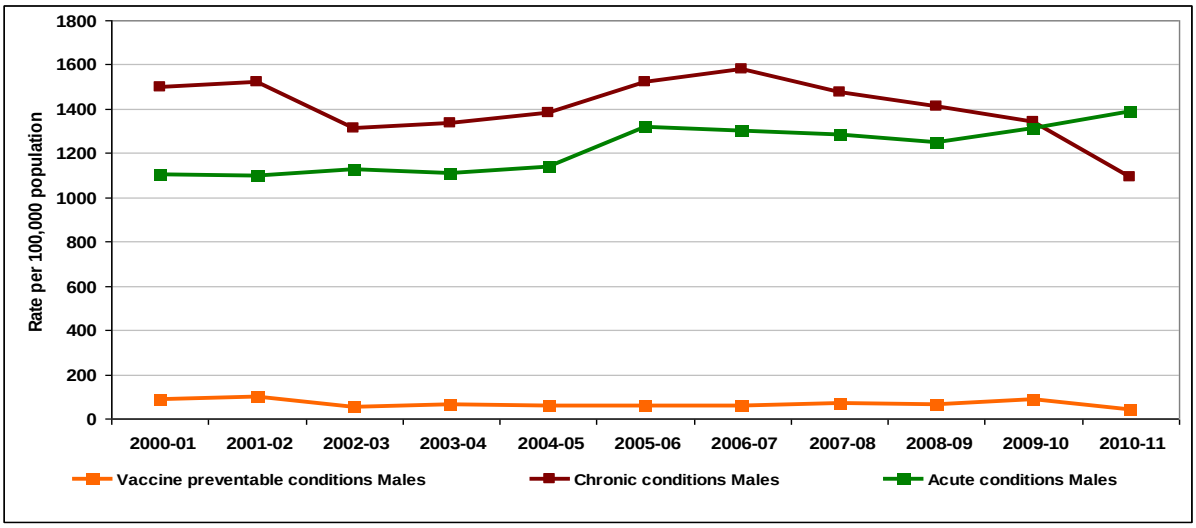
- In 2010/11, there were 8,388 hospital separations that were potentially preventable for NBMLHD residents (4,000 male separations and 4,388 female separations).
- NBMLHD females experienced higher levels of potentially preventable hospitalisations compared to NSW females. However, NBMLHD males experienced similar levels to NSW males.
- The NBMLHD female age standardised hospitalisation rate for potentially preventable hospitalisations was significantly higher than the NSW female rate.
- The NBMLHD male age standardised rate for potentially preventable hospitalisations was not significantly different to the NSW male rate.

Potentially Preventable Hospitalisations by Condition

Ambulatory care sensitive conditions are categorised as vaccine preventable conditions, acute conditions and chronic conditions (refer to Figures 2.20 and 2.21).

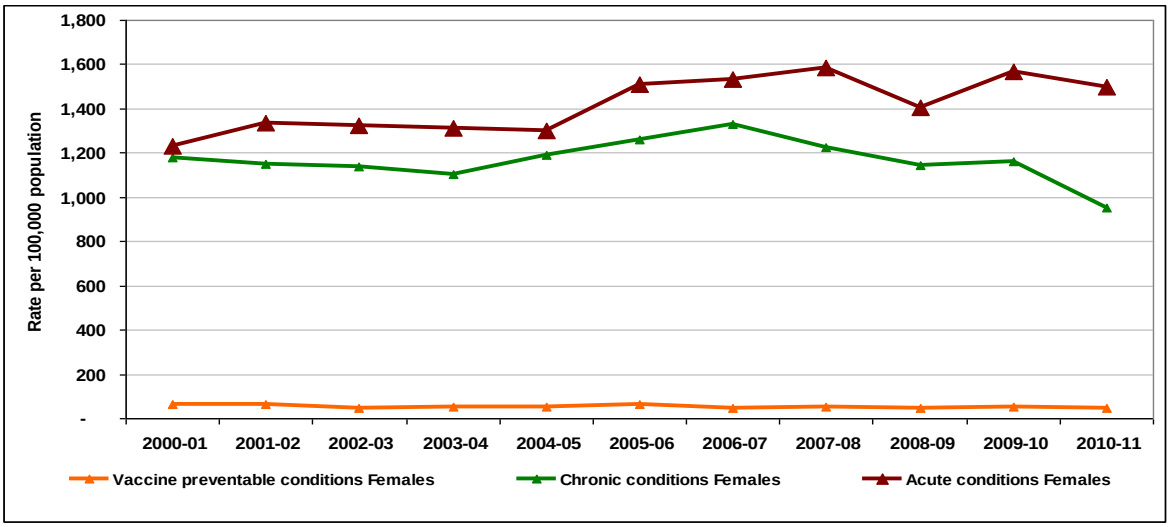
- There was a significant decrease in potentially preventable age standardised hospitalisation rates for NBMLHD males and females for chronic conditions and vaccine preventable conditions from 2000/01 to 2010/11.
- However, there was a significant increase for both NBMLHD male and female rates for potentially preventable acute conditions.

Figure 2.20 Potentially Preventable Hospitalisations by Category of Cause, Males, 2000/01 to 2010/11



Sources: NSW Admitted Patient Data Collection and ABS population estimates (SAPHaRI). Centre for Epidemiology and Evidence, NSW Ministry of Health

Figure 2.21 Potentially Preventable Hospitalisations by Category of Cause, Females, 2000/01 to 2010/11



Sources: NSW Admitted Patient Data Collection and ABS population estimates (SAPHaRI). Centre for Epidemiology and Evidence, NSW Ministry of Health.

Mortality

- Residents in the NBMLHD had higher mortality rates than those experienced in NSW. From 2003 to 2007, the age standardised death rate for all causes of death combined was significantly above the NSW rate.
- Generally NBMLHD males experienced higher levels of mortality than NBMLHD females. NBMLHD males had similar mortality rates to NSW males. However, NBMLHD females experienced higher levels of mortality than NSW females.
- NBMLHD males experienced similar levels of premature mortality (death before 75 years of age) to NSW males, whereas NBMLHD females experienced higher levels than NSW females.

Males

- The age standardised death rate for males in the NBMLHD (782 deaths per 100,000 male population: CI 752-813) was not significantly different to the NSW male rate (750 deaths per 100,000 population: CI 744-756).
- In premature deaths of males the age-standardised premature death rate for NBMLHD males was not significantly different to the NSW male premature death rate (318 premature deaths per 100,000 population compared to 312 respectively).

Females

- From 2003 to 2007, the age standardised death rate among females in NBMLHD (537 deaths per 100,000 female population: CI 516-590) was significantly higher than the NSW female rate (502 deaths per 100,000 population: CI 498-506).
- The premature mortality rate for females in the NBMLHD was also significantly above the NSW female premature death rate (199 premature deaths per 100,000 population compared to 181 deaths respectively).

Trends in Mortality

- There was a significant decrease in mortality rates for both NBMLHD and NSW males and females from 1986 to 2007. During this time, there were also significant decreases in premature deaths (that is deaths of people aged less than 75 years) for both males and females.

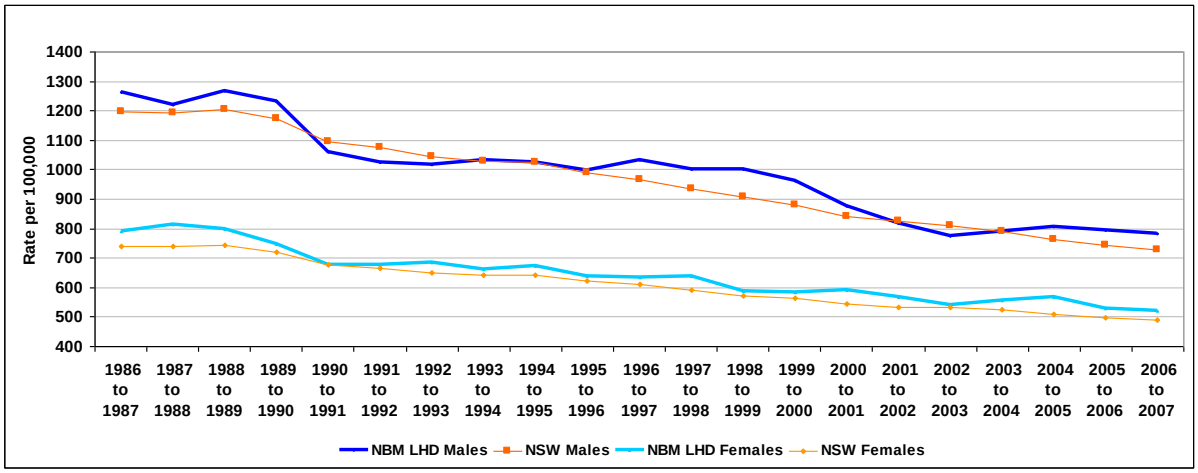
Males

- Overall, NBMLHD males experienced higher levels of mortality to NSW males in 2005 to 2007 and similar patterns from 2000 to 2005. NBMLHD male mortality rates were not significantly different to NSW male rates from 2000 to 2005, and in 2005/06 to 2006/07, NBMLHD male mortality rates were significantly above NSW male rates.
- NBMLHD male rates for premature deaths were not significantly different to NSW male rates.

Females

- From 2000 to 2007, NBMLHD female mortality rates were significantly above NSW female rates every year. However, overall, NBMLHD female premature death rates were not significantly different to NSW female rates.

Figure 2.22 Deaths From All Causes, NBMLHD and NSW, 1972 to 2007



Sources: ABS mortality data and population estimates (SAPHaRI). Centre for Epidemiology and Evidence, NSW Ministry of Health

Notes: Deaths were classified using ICD-9 up to 1998 and ICD-10 from 1999 onwards. Rates were age-adjusted using the Australian population as at 30 June 2001. Numbers for the latest year of data include an estimate of the small numbers of deaths that were registered in the subsequent year, data for which were unavailable at the time of production.

Causes of Mortality

The leading causes of mortality in the NBMLHD from 1999 to 2007 were:

- Cardiovascular diseases
- Cancer
- Respiratory diseases
- Injury and poisoning.

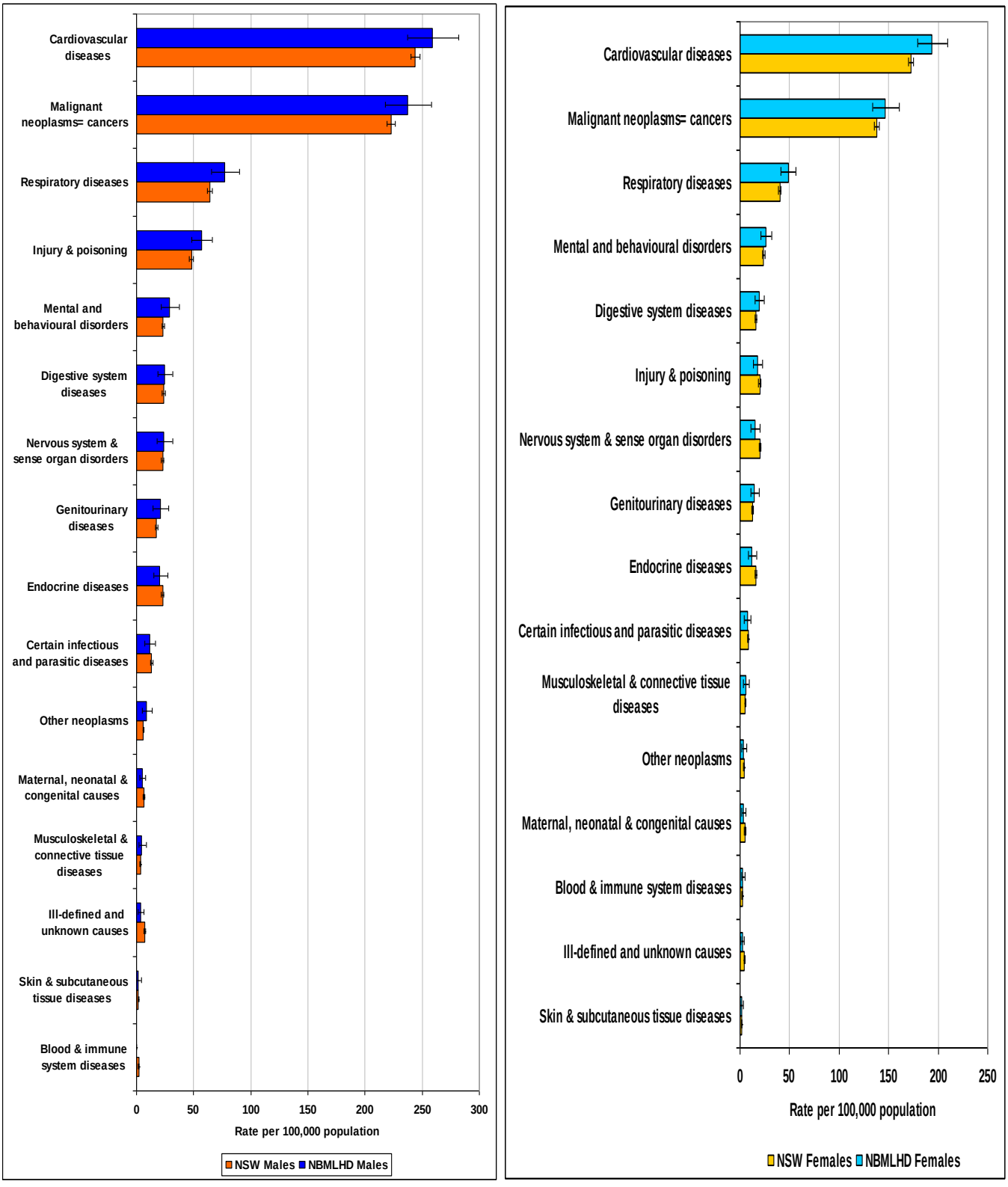
In the period 1999 to 2005 the numbers of deaths among NBMLHD residents for the leading causes of death were:

- Cardiovascular diseases (5,270 deaths per year)
- Cancer (4,009 deaths per year)
- Respiratory diseases (1,260 deaths per year)
- Injury and poisoning (916 deaths per year).

Mortality experienced by NBMLHD residents in 2006 to 2007 follows (refer to Figure 2.23):

- NBMLHD males experienced higher levels of mortality than NBMLHD females. NBMLHD females experienced higher levels of mortality for specific causes than NSW females.
- NBMLHD male age standardised mortality rates were significantly higher than female rates for the leading causes of death
- NBMLHD female age standardised mortality rates were significantly above NSW female rates for deaths from cardiovascular diseases and respiratory diseases.
- A further break down of ICD10 chapters showed that there were some specific causes of death significantly above NSW from 2003 to 2007.

Figure 2.23 Male Death Rates and Female Death Rates, NBMLHD and NSW, 2006 to 2007



Sources: ABS mortality data and population estimates (SAPHaRI). Centre for Epidemiology and Evidence, NSW Ministry of Health

Notes: Deaths were classified using ICD-9 up to 1998 and ICD-10 from 1999 onwards. Rates were age-adjusted using the Australian population as at 30 June 2001. Numbers for the latest year of data include an estimate of the small numbers of deaths that were registered in the subsequent year, data for which were unavailable at the time of production.

Cardiovascular Disease

Cardiovascular disease is the leading cause of death in NBMLHD and NSW. The main conditions within cardiovascular disease are coronary heart disease, stroke, heart failure and peripheral vascular disease.

- NBMLHD male cardiovascular death rates were significantly higher than NBMLHD female rates.
- NBMLHD female cardiovascular death rates were significantly higher than NSW female rates.
- NBMLHD male rates were not significantly different to NSW male rates.
- Over the past twenty years there has been a significant decrease in mortality from cardiovascular disease in NBMLHD and NSW populations.

Cancer

Cancer is the second leading cause of death in NBMLHD and NSW. The main cancer sites are breast cancer in women, prostate cancer in men, lung cancer and colorectal cancer.

- In 2007, in the NBMLHD population, there were 520 deaths from cancer (273 male deaths and 247 female deaths). The five leading types of cancer deaths were lung and bronchus (15% of cancer deaths), colorectal (10.8%), breast (7.7% of cancer deaths), pancreatic (6.3% of cancer deaths) and prostate (5.6% of cancer deaths).
- Overall, survival rates for cancer increased, however, the rate of new cases of cancer has also increased.

Respiratory Disease

- During 2003 to 2007, deaths from respiratory diseases decreased.
- NBMLD females experienced higher levels of mortality from respiratory disease compared to NSW females, whereas there was no significant difference between NBMLHD and NSW males. NBMLHD female respiratory mortality rates were significantly higher than NSW female rates, however, male rates were not significantly different.
- NBMLHD females also experienced significantly higher levels of mortality from chronic obstructive pulmonary disease than their NSW counterparts, however, male rates were not significantly different.

Injury and Poisoning

- During 2003 to 2007 there were on average 111 deaths per year (79 male deaths and 32 female deaths) for injury and poisoning in the NBMLHD. The NBMLHD total male and female rates were not significantly different to NSW total, male and female rates, respectively.
- Deaths from injury and poisoning decreased, however, rates of hospitalisation increased.
- NBMLHD male and female mortality rates from injury and poisoning were not significantly different to NSW male and female rates.

Suicide

Suicide is classified under the ICD10 chapter of injuries and poisoning.

- During 2003 to 2006, the NBMLHD male age standardised suicide death rate was significantly above the NSW male rate, whereas, the NBMLHD female rate was not significantly different to NSW female rate.

Table 2.4 Summary of Age Standardised Hospitalisation Rates (2010-11) and Mortality Rates (2003-2007) by ICD10 chapter causes for NBMLHD significantly different to NSW

Males

Hospitalisation rates significantly above NSW male rates
- ↑ Injury and poisoning
- ↑ Symptoms and abnormal findings
- ↑ Respiratory diseases
- ↑ Mental disorders
- ↑ Maternal, neonatal and congenital conditions
- ↑ Musculoskeltal diseases
- ↑ Diabetes

Hospitalisation rates significantly below NSW male rates
- ↓ All causes
- ↓ Other factors influencing health
- ↓ Dialysis
- ↓ Cardiovascular diseases
- ↓ Nervous system disorders
- ↓ Skin diseases
- ↓ Blood and immune diseases

Death rates significantly above NSW male rates
- ↑ Suicide

Females

Hospitalisation rates significantly above NSW female rates
- ↑ Musculoskeletal
- ↑ Mental and behavioural disorders
- ↑ Respiratory diseases
- ↑ Maternal, neonatal and congenital conditions

Hospitalisations significantly below NSW
- ↓ All causes
- ↓ Dialysis
- ↓ Other factors influencing health
- ↓ Other

Death rates significantly above NSW female rates
- ↑ All causes
- ↑ Premature mortality
- ↑ Cardiovascular diseases
- ↑ Coronary heart disease
- ↑ Respiratory diseases
- ↑ Chronic obstructive pulmonary disease

Sources: NSW Admitted Patient Data Collection and ABS population estimates (SAPHaRI). Centre for Epidemiology and Evidence, NSW Ministry of Health
Notes: ↑ NBMLHD rate is statistically significantly above NSW rate ↓ NBMLHD rate is statistically significantly below NSW.

3. Drivers

Contents

3. Drivers

Summary

There are significant issues that will continue to have an impact on health service delivery in the NBMLHD over the next 10 years. The main drivers of health service development in the NBMLHD are contained in the following pages. These drivers are grouped under the following headings and are explored further within this chapter:

1. Growing population that is both ageing and, unlike the majority of NSW Local Health Districts, also has a larger proportion of children and young people
2. Increasing illness and injury
3. Increasing health service activity in hospital and community based services and pressures to meet shortfalls in delivery caused by redesign within other agencies and community expectations
4. Pressures to meet National Targets and NSW Key Performance Indicators, while still delivering safe, effective, efficient, appropriate, accessible and quality health care
5. Managing workforce, including an ageing workforce with the need to undertake succession planning, compensate for skills shortages and differing skill mixes
6. Lack of private hospital capacity within the NBMLHD which severely hampers opportunities to develop partnerships to provide capacity for health care delivery or innovative models of care across sectors
7. Improvements in diagnoses and management of illnesses
8. Opportunities for, and provided by, research, telehealth, education and training, ICT and other technology.

Growing Population

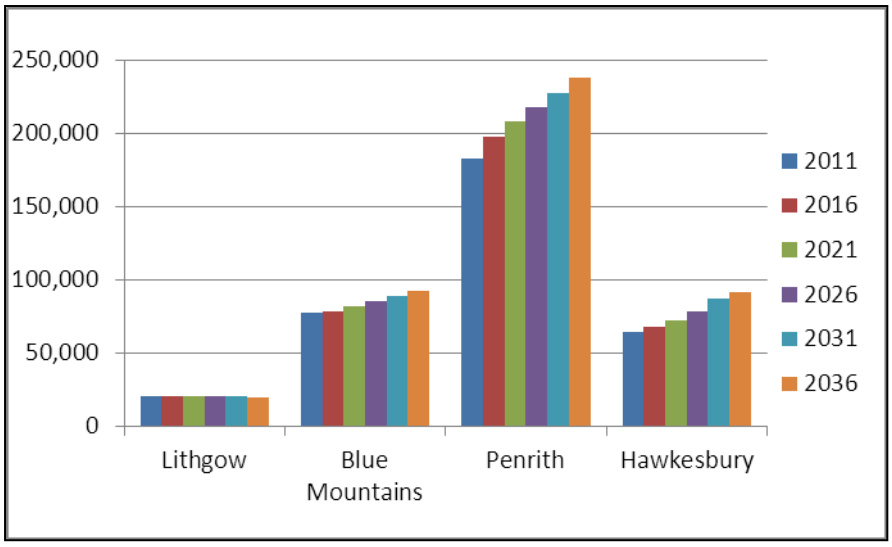
There is projected to be a 28% increase in the population of the NBMLHD from 2011 to 2036 (refer Table 3.1). This growth is from 345,628 in 2011 to 441,465 by 2036 (an increase of 95,837 people). This represents an average annual growth rate of 1% over this period.

Three of the four LGAs in the NBMLHD will experience population growth, with Hawkesbury LGA experiencing the highest level of growth at 1.4% average annual growth rate, followed by Penrith LGA at 1.1% average annual growth to 2036. Within NBMLHD, the Penrith LGA will also experience the largest numerical increase of the population to 2036 (from 182,596 in 2011 to 237,819 by 2036, an increase of 55,223 people). Both Penrith and Hawkesbury LGAs abut the North West Growth Corridor and the effects of population growth in this settlement area on health care service demand for NMBLHD are not yet clear.

The exception is Lithgow LGA, predicted to experience a decline in the population of approximately 4.5% to 2036 (or a decline of 0.2% average annual growth rate). This is a decrease of 923 in population numbers in Lithgow LGA by the year 2036.

The population projections for the NBMLHD by LGA, in five-year increments from 2011 to 2036, are shown in Figure 3.1 and Table 3.1. Refer to the Appendix and Reference Data Book for specifics.

Figure 3.1 Population Projections for NBMLHD from 2011 to 2036, All Ages by LGA by Year



Source: NSW Health Population Projection Series 1, 2009

Table 3.1 Population Projections for NBMLHD from 2011 to 2036, All Ages by LGA

LGAs	2011	2016	2021	2026	2031	2036	Change	%Change	AAGR
Penrith	182,596	197,707	208,313	217,631	227,508	237,819	55,223	30.2%	1.1%
Hawkesbury	64,826	67,636	72,470	78,789	87,277	91,433	26,608	41.0%	1.4%
Blue Mountains	77,517	78,144	81,944	85,239	88,758	92,447	14,930	19.3%	0.7%
Lithgow	20,689	20,714	20,654	20,485	20,194	19,766	-923	-4.5%	-0.2%
NBMLHD	345,628	364,200	383,381	402,144	423,736	441,465	95,837	27.7%	1.0%

Source: NSW Health Population Projection Series 1, 2009 **Note:** AAGR: Average Annual Growth Rate.

Increasing Younger Population (0 to 14 years)

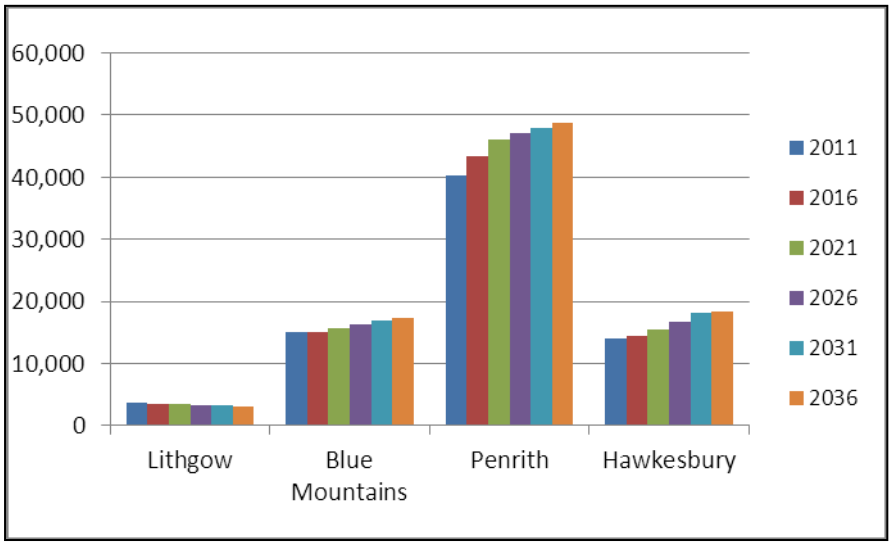
NBMLHD has a younger population compared to other LHDs in NSW. There is projected to be a 20% increase in the 0-14 year old population in NBMLHD from 2011 to 2036 (refer Table 3.2). This growth is from 73,064 for 0-14 year olds in 2011 to 87,424 by 2036 (an increase of 14,359 in the 0-14 year old age group). This represents an average annual growth rate of 0.7% over this period.

Three of the four LGAs in the NBMLHD will experience a growth in the 0-14 year old population. The exception is Lithgow LGA, predicted to experience a decline in the 0-14 year old population of approximately 19% to 2036 (or a decline of 0.8% average annual growth rate). This is a decrease of 689 in the 0-14 year old population in the Lithgow LGA by the year 2036.

The Penrith LGA will experience the largest increase in the number of 0-14 year old age group in the NBMLHD to 2036 (from 40,176 in 2011 to 48,649 by 2036, an increase of 8,473). The Hawkesbury LGA is predicted to have the highest percentage increase of approximately 31% by 2036, although the numbers are smaller (an increase of 4,351 0-14 year olds).

The population projections for 0-14 year olds in the NBMLHD by LGA in five-year increments from 2011 to 2036 are shown in Figure 3.2.

Figure 3.2 Population Projections 0-14 years for NBMLHD from 2011 to 2036



Source: NSW Health Population Projection Series 1, 2009 Source: NSW Health Population Projection Series 1, 2009 Note: AAGR: Average Annual Growth Rate.

Table 3.2 NBMLHD Population Projections - 0-14 Years, 2011 to 2036

LGAs	2011	2016	2021	2026	2031	2036	Change	%Change	AAGR
Lithgow	3,700	3,523	3,445	3,320	3,179	3,011	-689	-18.6%	-0.8%
Blue Mountains	15,097	15,004	15,733	16,293	16,887	17,321	2,224	14.7%	0.6%
Penrith	40,176	43,393	45,972	47,013	47,881	48,649	8,473	21.1%	0.8%
Hawkesbury	14,092	14,377	15,540	16,671	18,188	18,443	4,351	30.9%	1.1%
NBMLHD	73,064	76,298	80,690	83,298	86,135	87,424	14,359	19.7%	0.7%

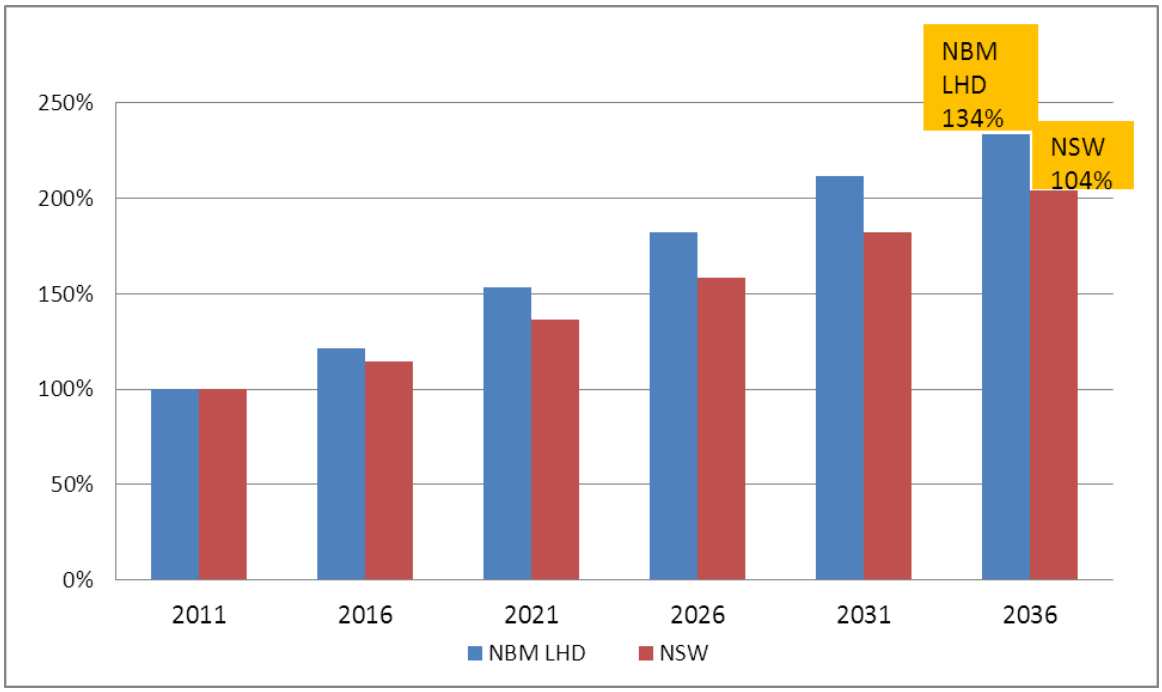
Source: NSW Health Population Projection Series 1, 2009 **Note:** AAGR: Average Annual Growth Rate.

Increasing Ageing Population

NBMLHD will experience a much higher rate of growth in the ageing population when compared to the rest of NSW to 2036, with 134% growth in the NBMLHD compared to 104% for NSW (refer to Figure 3.3).

Penrith and Hawkesbury LGAs will experience significantly higher increases in the proportion of the population aged 70 years and over from 2011 to 2036, 149% and 173% respectively. Blue Mountains and Lithgow LGAs will also experience increases in the number of older people.

Figure 3.3 Comparison of Population Projections for NBMLHD to NSW for over 70 Year Population from 2011 to 2036



Source: NSW Health Population Projection Series 1, 2009

Increasing Illness and Injury

The increasing prevalence and incidence of specific illnesses and types of injuries will have an impact upon future health service delivery in NBMLHD. Due to their potentially significant impact on health service delivery in the NBMLHD in future years, selected illnesses and injuries are outlined below.

Increasing Prevalence of Chronic Illness

There is a worldwide trend amongst developed countries, including Australia, toward an increase in prevalence of chronic disease. The ageing of the population has played a key role in the development of this trend.

In the National Health Survey 2007-08, nearly all people aged 65 years and over reported having at least one long-term condition and more than 80% reported having three or more long-term conditions. This compares with only 27% of children having this same experience.

In addition to the ageing of the population, the increasing prevalence of chronic disease can also be partially attributed to early detection and improved treatments for diseases that previously would have caused premature death. Lifestyle factors, such as smoking or poor diet and physical inactivity, further increase the risk of developing chronic disease. Chronic illness usually has multiple causal factors, rarely a single cause. In 2010, chronic diseases were the leading causes of death in Australia with the most common causes including cardiovascular disease, cancer, chronic lower respiratory diseases and diabetes.

The increasing trend in the prevalence of chronic illness is reflected in the shift occurring in the burden of disease from acute to chronic illness. Our current health system was designed in the 1950s with a focus on acute care delivered through hospitals on an episodic basis. The shift to chronic illness will place pressures on the current health system to address the need for coordinated and integrated patient care across diverse health care settings. Traditionally, the design of health systems was around the institutions that delivered services rather than the populations they served. Currently, and more so in the future, a range of services will need to be provided both inside and outside of hospitals, involving multidisciplinary models of care, delivered by a variety of health professionals.

One important implication of the increase in chronic illness is the need to collaborate with general practice to identify and manage these illnesses effectively. There is also an increasing need for the development of palliative care services, across a range of illnesses, in the future.

Diabetes

Overall, diabetes rates in NSW increased by approximately 100% in the seven years to June 2007. The rates of diabetes are increasing among men faster than for women. The increase is largely due to type 2 diabetes (140% increase), with type 1 diabetes having increased by approximately 9% over the same period.[1]

[1] Diabetes prevalence was estimated from National Diabetes Service Scheme, rather than NSW Health Survey, using people registered for subsidized testing strips, free insulin syringes and pen-needles and subsidized insulin pump consumables.

The ability to ensure appropriate services are in place in hospitals and the community to provide for the early identification, and ongoing management, of diabetes in the NBMLHD, in collaboration with general practice and the Medicare Local, will be critical to successful patient outcomes.

Potential impacts of climate change on future disease patterns

Historically, changes in climate have been responsible for alteration in disease patterns. Recent reports draw attention to the continuing influence of climate change on health in future years. There is a growing body of global evidence that changes in climate will have an impact upon disease patterns in Australia. These may take a number of forms. The two most likely are increases in mosquito-borne diseases such as Dengue Fever and Ross River Virus (through general warming and greater humidity it is anticipated that Dengue Fever will spread from the north wet tropics as far south as NSW within coming decades) and an increase in the prevalence of water-borne bacteria, parasites and viruses. This latter phenomenon has the potential to increase the risk of food and water contamination, leading to increased levels of illness.

The Climate Commission also warns of escalating chronicity in non-communicable diseases. These diseases may relate to the effect of extremes of temperature, e.g. heatstroke or dehydration, especially in cities where there is an 'urban heat island effect' where annual air temperature averages range between 1 to 3 degrees higher than in surrounding green areas. It is posited that people will be at risk from more frequent events such as severe fires and floods and more vulnerable to the secondary effects of weather, such as increasing psychiatric morbidity and raised social tensions leading to episodes of violence. Such tensions tend to rise as a response to external stimuli (climate extremes), but may also be aggravated by civil, economic and social impacts on people's quality of life. These may include processes such as population displacement or changes in employment availability, form and productivity.

Projected Increases and Pressures in Health Service Activity

Health service activity in the NBMLHD is projected to increase over the next 10 years. The increases are projected for acute and sub-acute hospital inpatient care, deliveries, Emergency Department presentations, mental health inpatient care, community based health services and outpatient activity to 2021/22. The projected increases in service activity in the NBMLHD are detailed in Chapter 6. A summary of that chapter is provided below. The challenge for the NBMLHD will be addressing the rising tide of hospital inpatient demand and establishing models of care that incorporate shifts from overnight inpatient care to day only inpatient care, from day only care to ambulatory care and from hospital based to community based care. The role of partners including the NBM Medicare Local, general practice and non-government agencies are acknowledged in supporting these changes in models of care, as is the role of telehealth.

Summary of Projected Health Service Activity in the NBMLHD to 2021/22

Acute and sub-acute inpatient care: There is expected to be a 23% increase in acute and sub-acute inpatient separations, all ages, in NBMLHD hospitals from 2010/11 to 2021/22, a 28% increase in bed days and a 27% increase in bed equivalents. This equates to an additional 198 acute inpatient bed equivalents required by the NBMLHD to 2021/22 and a further 96 bed equivalents to 2026/27.

Mental health acute and non-acute care: There is anticipated to be 125 mental health acute and non-acute beds required in the NBMLHD by 2021 (at 80% of MHCCP). There are no non-acute mental health beds in the NBMLHD currently.

Emergency Department presentations: There is anticipated to be a 33% increase in Emergency Department presentations across NBMLHD hospitals from 2010/11 to 2021/22 to 143,860 presentations.

Operating theatres: An additional 2 to 6 theatres are estimated to be required at Nepean Hospital by 2022.

Renal Services: There is anticipated to be a 50% increase in in-centre haemodialysis to 2021 to 12 spaces and a 127% increase in satellite renal dialysis to 2021 to 34 spaces. An additional 22 spaces for satellite renal dialysis are also projected for the north-west growth corridor (in either NBMLHD or Western Sydney Local Health District).

Cancer Care: There is projected to be a 30% increase in cancer incidence in the NBMLHD to 2021 with additional chemotherapy spaces required and linear accelerator for radiation oncology.

Sub-Acute Care Options

Enhancing sub-acute care services is important across the NBMLHD. Enhancements through the Commonwealth of Australian Governments Sub-acute Care program are acknowledged, notably at Nepean Hospital. Increasing demand for the provision of sub-acute care is proportional to the increasing and ageing of the NBMLHD population. Springwood Hospital is a small, older hospital and is poorly suited to adaptation for provision of care consistent with contemporary models. Springwood Hospital would require significant capital expenditure to render it fit for this purpose into the future to 2022. Paucity of supply of sub-acute, hospice and palliative care beds, particularly within the Penrith LGA, impacts adversely on Nepean Hospital's ability to overcome bed block or meet key performance indicators in relation to patient flow, emergency targets and 28-day hospital readmissions. There is also potential for the growth of sub-acute care services at Hawkesbury Hospital to address these challenges.

Implications for NBMLHD Service Delivery Resulting from Changes in Service Provision by Other Agencies

NSW Health is not the only agency experiencing changes in service delivery. Departments such as the Department of Family and Community Services are also changing their business models and devolving many services to other agencies and NGO's for delivery. These changes adversely affect service provision by Primary Care and Community Health and Mental Health Services within NBMLHD, with the community expectation that the LHD and its staff will meet shortfalls in helath and associated services. This includes transfers from central agency to NGO service provision and a shift to a brokering role rather than delivery of the service required. The consequences of these changes are an increasing workload for Primary Care and Community Health and Mental Health, a related increase in waiting lists for services and an inevitable increase in Emergency Department presentations.

Increasing Community Expectations about Health Care and Health Literacy

Local communities across the NBMLHD have an active interest in health care provision within their Local Government Area. This interest covers all services and facilities from tertiary level Nepean Hospital to the district level services at Blue Mountains District ANZAC Memorial, Lithgow and Hawkesbury Hospitals and sub-acute services at Springwood Hospital and Portland Tabulam Health Centre, as well as the community based health services. Interested members of the community include local councils, local community groups, patients, their families and carers. Engaging with, educating and informing communities about the provision of health care, health promotion, the changing models of disease management, the challenges to be faced in health service provision now and into the future, as well as engaging with patients in their diagnoses and care is integral to the delivery of quality, responsive, agile health care.

One of the drivers for NBMLHD is to create a community of informed and educated health system users, who access services appropriate to their needs, at the appropriate time, in the most appropriate way.

Pressure to meet National Targets and NSW Key Performance Indicators

Capacity to meet National Emergency Access Target

The introduction of the four hour National Emergency Access Target (NEAT) requirement, whereby patients presenting to the emergency department are to be admitted, referred for treatment or discharged within four hours, is placing further pressure on the Emergency Departments in NBMLHD. The need to meet this KPI is driving the development of alternative models of care across the NBMLHD. Examples of new models of care include the creation of Short Stay Units outside of the Emergency Department, such as the proposed development of Acute Medical Assessment Unit for those under the age of 65 years, development of a Paediatric Assessment Unit and the expansion of the Medical Assessment Unit for those over the age of 65 years.

The establishment and enhancement of “drop-in” clinics and booked follow up outpatient appointments post discharge, rather than presentation to the Emergency Department, are also important alternative models of care. In conjunction with these strategies to facilitate Emergency Department avoidance, reconfiguring areas within Emergency such as Fast Track and Waiting Room Assessment Centre (WRAC) enable efficient patient flow through and out of the Emergency Department. These strategies are central to achieving the NEAT performance targets. Ambulatory care models and the development of Comprehensive Clinical Centres will also assist NBMLHD to meet these targets and reduce unplanned readmissions.

Continue Capacity to meet National Elective Surgery Target

The introduction of the National Elective Surgery Target (NEST) has necessitated a re-evaluation of the traditional way that operating suites function and recognition of the need to enhance their efficiency. Strategies to reduce surgical waiting lists have required the devolution of high volume and low risk surgical lists to peripheral and district level hospitals, while Nepean Hospital focuses more on the more complex levels of surgery. Extended Day Only services and the Ambulatory Procedures model will also assist NBMLHD to meet this target.

Capacity to meet NSW Key Performance Indicators

Overall NBMLHD is performing well on the NSW Health Key Performance Indicators. There are, however, certain indicators that are proving challenging to achieve. Examples include the Mental Health key performance indicators.

Mental Health

Increasing mental health presentations within NBMLHD intensify the pressure to both improve access to services for this client group and increase the level and range of mental health services available within the LHD. The ability of NBMLHD to improve performance in response to these pressures will enable the LHD to achieve critical mental health key performance indicators.

There are various issues affecting the delivery of mental health services within NBMLHD. Not least of these is the volume of mental health patients presenting to the Emergency Departments within the NBMLHD facilities and their timely flow from these departments. These presentations directly relate

to the capacity of NBMLHD to provide community based mental health care linked to crisis response, capacity to provide telephone triage services, acute care, care coordination and case management. Further issues relate to the capacity to provide mental health care in district level hospitals without a co-located dedicated mental health inpatient unit, such as Lithgow and Hawkesbury Hospitals while the dedicated mental health acute inpatient units elsewhere within NBMLHD are functioning at capacity.

Notable service gaps relating to step-down, non-acute and rehabilitation mental health services, child, adolescent and young people's mental health care including inpatient and community care, perinatal and infant mental health care, eating disorders and mental health promotion and prevention further impair NBMLHD's capacity to meet the mental health key performance indicators.

Another issue affecting mental health care and performance in the NBMLHD relates to the separation of the mental health service of the former Sydney West Area Health Service into the Local Health Districts of Nepean Blue Mountains and Western Sydney and the resources and processes required to rebuild the mental health service in the NBMLHD. It is acknowledged that there will be opportunities to address some of the above issues with the establishment of the new Mental Health Centre at Nepean Hospital.

Implications for NBMLHD Facilities in Accommodating Patient Flow Reversals

Discussions with the Children's Hospital at Westmead (CHW) have highlighted the increase in the number of NBMLHD resident children presenting at the Children's Hospital, Westmead for district level care that could be provided locally. Reversing these flows will have implications on the capacity of NBMLHD facilities to meet the resulting demand. This is particularly true at Nepean Hospital. Capacity will be required to enable the provision of appropriately designed paediatric spaces in the Emergency Department, surgery and recovery areas, as well as the development and implementation of Short Stay paediatric models.

Other opportunities for flow reversals under investigation include mental health patient flows, highlighted above, and planned surgery. Each reversal will have implications for service developments and funding in NBMLHD, particularly at Nepean Hospital. High-level information regarding patient flows and reversals is outlined in Chapter 5.

National Health Reforms

Activity Based Funding

One of the most significant changes to the NSW Health system is the introduction of Activity Based Funding from 1 July 2012. This will have implications across all areas of clinical and non-clinical service delivery. NBMLHD has undertaken significant steps to prepare the organisation for the introduction of Activity Based Funding. There is good clinician engagement and understanding of the clinical requirements to ensure that activity is recorded appropriately, enabling the NBMLHD to negotiate future volumes commensurate with population need.

Nepean Blue Mountains Medicare Local

Medicare Locals are being formed around Australia in response to the National Health Reforms. The Nepean Blue Mountains Medicare Local commenced operations from 1 January 2012. The Medicare Local will provide the opportunity for health professionals to work together to create a better primary health care service. The Medicare Local covers the Penrith, Blue Mountains, Lithgow and Hawkesbury local government areas and its borders match those of the NBMLHD. The NBM Medicare Local will build on the success of the Divisions of General Practice, set up to support general practitioners to improve the health of their patients.

The NBM Medicare Local will continue to support general practitioners as well as collaborating with other health care professionals and organisations to achieve better health for the local community. With more flexible funding, the NBM Medicare Local will have a greater focus on prevention and health promotion. The term 'Primary Health Care' generally refers to first line health care provided outside the hospital setting. It includes general practitioners, practice nurses, podiatrists, dieticians, physiotherapists, psychologists and other allied health professionals.

The priorities for the NBM Medicare Local include aged care, mental health (including the development and implementation of Headspace), general practice after hours care, child and family strategy, population health and planning, eHealth, elective surgery (preadmission, obesity, etc.) and the creation of a directory of specialists and referral pathways.

Workforce Issues

Ageing of the NBMLHD Workforce

A critical issue facing the NBMLHD and its capacity to provide services is the large proportion of senior staff who may consider retirement in the coming 5 to 10 years. This is a concern across medical, nursing and allied health workforces. For example, almost half of all nursing staff in the NBMLHD are aged 45 years and over (46.4%), with 43 years being the median age of a NBMLHD nurse (refer Table 3.3). The ageing of the workforce potentially introduces significant challenges relating to the capacity of the NBMLHD workforce in future years in terms of seniority and expertise as well as the capacity to replace the number of staff retiring in future years.

Table 3.3 Select Nursing Staff[2] by Age, Numbers Employed and Separations in NBMLHD, 2011-12

Age Group	Number Employed	% of Total	Number of Separations	% of Total
<= 24	106	5.6	7	6.0
25 - 34	425	22.7	25	21.4
35 - 44	474	25.3	25	21.4
45 - 54	512	27.3	26	22.2
55 - 64	334	17.8	30	25.6
65+	24	1.3	4	3.4
Total	**1875**	**100.00**	**117**	**100.00**

Source: Workforce Design Unit, Nepean Blue Mountains Local Health District, 2 November 2012

The median age of the NBMLHD workforce (across all professions) is also 43 years. This is higher than the median age of residents in the NBMLHD at 34.5 years and in Australia at approximately 37 years.[3] These ages are consistent with the national median age for the health sector.[4]

Future retirement intentions of NBMLHD staff are changing, a trend occurring internationally. Retirement intentions are shifting away from historic patterns, varying between industries, and contingent upon broad social, economic and normative conditions. According to the *2010-11 Multi-purpose Household Survey*, almost half of all people aged 45 years and older, currently in the workforce, intend to retire between 65 and 69 years of age and 14% expect to retire at the age of 70 years or older.[5]

It is anticipated that approximately 10% of nurses in the NBMLHD will retire within 5 years. However, recent information suggests that many may delay retirement for another 15 years. Therefore, although the demographics of the NBMLHD workforce suggest an impending workforce crisis, the impacts of ageing may be gradual and manageable. This hypothesis is not yet confirmed and the significance is still to be determined.

[2] Enrolled, clinical and registered nurses (includes midwives, clinical nurse consultant and educators) and comprises 90% of all nursing staff.

[3] Due to younger demographic in Penrith and Hawkesbury LGAs, lowering overall median age. ABS, *Latest National Regional Profiles by Location Name, 2006-10*, at: <http://www.ausstats.abs.gov.au/ausstats/nrpmaps.nsf/NEW+GmapPages/national+regional+profile>, median ages data (as of June 2005, revised) from ABS, *Local Government Area populations and median ages NSW*, <http://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/3218.0Main%20Features62005-06?opendocument&tabname=Summary&prodno=3218.0&issue=2005-06&num=&view>

[4] Australian Government, *SkillsInfo*, DEEWR, 2011, at: <http://www.skillsinfo.gov.au/documents/median-age>

[5] ABS, *6238.0 - Retirement and Retirement Intentions, Australia, July 2010 to June 2011*, at: <http://www.abs.gov.au/ausstats/abs@.nsf/Latestproducts/6238.0Main%20Features3July%202010%20to%20June%202011?opendocument&tabname=Summary&prodno=6238.0&issue=July%202010%20to%20June%202011&num=&view>

New Models of Care and New Roles and Skills Required

Most of the drivers outlined in this chapter will influence the development of the models of care required to deliver health services in the NBMLHD over the next 10 years. These drivers include the ageing of the population, increasing burden of chronic illness, increasing service activity levels, high levels of unhealthy lifestyle behaviours, pressure to meet key performance indicators, national health reforms and emergence of information and communication technology.

The shift of the burden of disease to chronic illness and associated variations in models of care and the need to enhance capacity to meet key performance indicators will influence the development of new workforce roles. In response to these drivers, it is anticipated that there will be a re-emergence of the generalist medical role, working alongside specialty roles, an imperative for the enhancement of the interdisciplinary team model and strengthening of the collaboration between hospitals and community based health services. The roles of the nurse practitioner, assistant in nursing and allied health aide are expected become more critical in future years.

The large Aboriginal population and culturally and linguistically diverse populations also have implications for the type of skills required by health care staff to enable them to provide culturally appropriate care.

Workforce Shortages

There will be shortages in specific health workforce specialties in future years, some of which are already evident. The NSW *Health Professionals Workforce Plan 2012-2022* outlines the range of disciplines in which shortages are anticipated in future years. This has a range of implications, among them the availability of training places within education and training institutions and student placements. For example, the NSW Workforce Plan lists that small but critical workforce groups for expansion include radiopharmaceutical, audiology, sonography, orthotics/ prosthetists and diagnostic imaging medical physicists. For medical specialties, the NSW Workforce Plan identifies general medicine, palliative care, medical oncology, rehabilitation medicine, endocrinology, clinical haematology, nuclear medicine, radiation oncology, paediatric surgery as priorities for future growth.

Limited Private Hospital Capacity to Deliver Health Care

Lack of Availability of Current Private Hospital Providers in NBMLHD and at Capacity

There are three private hospital facilities in NBMLHD, excluding Hawkesbury Hospital. Lithgow Community Private Hospital has recently announced closure of its acute overnight inpatient beds, thereby changing its role and requiring Lithgow Hospital to meet the shortfall in local private demand. Nepean Private Hospital, with 109 beds, provides medical, surgical and obstetric services. St John of God Hospital, with 88 beds, focuses on mental health care (non-gazetted beds) and addiction medicine. This limits the capacity for NBMLHD to engage with the private health sector for the delivery of the projected health care needs to 2021/22 of an additional 198 acute and sub-acute inpatient beds and 51 non-acute mental health beds. There is obviously not the capacity in the private hospital sector in the NBMLHD currently, without a major capital development, to deliver on the projected shortfall.

Nepean Private Hospital has other issues also requiring consideration, including the lack of land for future expansion and the hospital's inability to meet current car parking requirements, a further adverse impact on the Nepean Hospital campus.

In relation to St John of God Hospital, the campus is in a remote location, not easily accessible by public transport. Other limitations include the fact that, although St John of God styles itself as a provider of mental health care, none of its beds are gazetted, limiting the range of patients suitable for transfer to this facility for mental health care. On a prior occasion, the former SWAHS engaged with St John of God Hospital to deliver 10 mental health beds. This proved unsustainable as service delivery models were incompatible with public hospital efficiency KPIs and the partnership terminated. Any future partnership would need to factor in efficiency measures as part of the contractual arrangements.

Low Private Health Care Demand

Private health care demand is low in the NBMLHD, particularly in Penrith, the largest of the four LGAs. Approximately 40% of health care demand by NBMLHD residents is provided by private hospital care and this percentage has been consistent over the past five years. Given the economic circumstances of many residents in the NBMLHD and the Commonwealth changes to private health insurance from 1st July 2012, it is unlikely that this percentage will increase. It is conceivable that it may decline.

Limited Capacity to meet Future Health Demands at Hawkesbury Hospital

Hawkesbury Hospital is a private facility that provides public hospital services under a contract with NBMLHD, as well as providing private hospital services. Public hospital services at Hawkesbury Hospital have been capped since the hospital's inception in the mid-1990s. Therefore, public hospital activity has not kept pace with population increases and local demand for health care. This has created a shortfall in delivery capability and increased demands on Nepean Hospital.

Loss of Revenue to NBMLHD

NBMLHD currently accrues $55 million per annum through patients electing to nominate care through their private health insurance while in a public facility. Encouragement for these patients to seek care in a private facility would mean a substantial loss of revenue to the NBMLHD that would need to be met by increased state funding to maintain levels of service.

Improvements in Diagnosis and Management of Illness

Improvements in the diagnosis and management of illness are constantly emerging. It is critical for optimal patient outcomes that NBMLHD is poised to adopt and incorporate newly emerging best practice into its systems of health care at hospital and community based levels. There are also opportunities for NBMLHD to be a leader in the research guiding these developments. Selected examples of newly emerging diagnoses and treatments are provided below.

Perinatology

Nepean Hospital has been gaining a positive reputation for leading research in the field of perinatology. Research conducted at Nepean Hospital is making a significant national and international contribution to the care of premature babies. A recent research project showed that probiotic supplementation halved the risk of death by necrotising enterocolitis in premature babies. In collaboration with researchers from the University of Western Australia evidence based guidelines were developed for the use of probiotics in premature babies and have since been published in the Journal of BMC (BioMedCentral) Medicine. These findings were also presented at a workshop attended by representatives from 19 neonatal units across Australia and New Zealand.

Another important research initiative was in the area of pre-eclampsia. Researchers from Nepean Hospital identified that the thymus was significantly smaller in foetuses where the mothers went on to develop pre-eclampsia. Pre-eclampsia affects up to 10,000 pregnant Australian women every year, usually developing in the last three months of pregnancy. A prospective study of 1,200 pregnant women is now being conducted to confirm the findings with the long-term prospect of developing a test for pre-eclampsia.

Cure for HIV/AIDS

HIV/AIDS appeared in the latter part of the 20th century, having a significant impact on society, particularly among the homosexual community, people requiring blood transfusions and the drug injecting population. When the syndrome first emerged, it was fatal. The discovery of retroviral medications for the treatment of AIDS shifted its status from fatal to chronic, with patients surviving for much longer periods. Recent breakthroughs in the treatment of HIV/AIDS have now found a possible cure for this disease. This potentially means that HIV/AIDS will no longer be a chronic illness, but one capable of cure. HIV/AIDS will be in effect, a word and not a sentence.

Pancreatic Cancer

Pancreatic cancer is one of the most aggressive cancers. Only 6% of patients with pancreatic cancer in NSW survive 5 years post diagnosis and this statistic has not shifted greatly in the past 50 years. Until recently, the aetiology of pancreatic cancer was not well understood. Researchers at the Institute for Molecular Bioscience, University of Queensland, and the Kinghorn Cancer Centre at the Garvan Institute of Medical Research have recently isolated and mapped the genome of pancreatic cancer and its variations. This significant discovery has provided insight into pancreatic cancer and gone far to explain the difficulties encountered in its treatment. This landmark study has implications for improving the treatment and survival rates of patients diagnosed with pancreatic cancer. This project is one part of the International Cancer Genome Mapping Project. It is expected

that in the future it will be possible to engineer cancer treatment to the specific genome of the patient's cancer.

Genetic research has been and continues to be a growing field of research in Australia and internationally, with potentially wide ranging implications for improving the diagnosis and treatment of illness, associated health outcomes and survival rates. The potential benefits extend far beyond the example given above and include other chronic conditions, such as Parkinson's disease, Multiple Sclerosis and Epilepsy.

Growing Breast Tissue

Stem cell researchers at the O'Brien Institute in Melbourne have been able to re-grow breast tissue successfully following a mastectomy, in a pilot study involving five women. The team contends the viability of patients re-growing breasts after mastectomy, as an alternative to silicone or saline implants, or more complex breast reconstruction surgery. Stem cell research also has a significant role to play in treatment options available for a range of diseases, now and in the future.

Robotic Surgery

Robotic surgical technology has profoundly affected how surgery is performed in hospitals in Australia and overseas. Robotic surgery enables surgeons to perform complex surgeries in a minimally invasive manner. Use of robotic technology facilitates surgical access to parts of the body that are difficult for human hands to reach, as well as providing improved health outcomes such as reduction in blood loss and length of hospital stay. Robotic surgery is relatively new in Australia. Nepean Hospital is the first public hospital in NSW to have introduced the da Vinci robot. Urology patients have been the first to benefit from this new technology at Nepean Hospital. It is anticipated that the range, viability and acceptance of robotic surgery will continue to strengthen in future years. There is further potential to explore the possibility of surgical procedures being executed remotely through technologically assisted link ups between sites and robots, as part of telemedicine technology and practice.

Opportunities for Research and Information and Communication Technology

Enhancing Opportunities for Research, Training and Education

As has been demonstrated above, research is integral to enhancing service provision not just for Nepean Hospital, the major tertiary teaching hospital in the NBMLHD, but for all services and facilities. Research is also a critical strategy for the recruitment of highly experienced senior staff to lead service innovation and delivery. Nepean Hospital remains the only teaching hospital in Sydney without a Research Institute. Teaching and training are also integral to enhancing service provision. Links with Universities including University of Sydney, University of Notre Dame and University of Western Sydney are all important.

NBMLHD recognises the need for an educated and highly skilled workforce to ensure that all patients receive the best possible care. NBMLHD will continue to encourage staff to maintain and enhance their skills and qualifications in order to benefit its patients through the delivery of quality, safe and appropriate health care by a skilled, motivated and valued workforce.

Emerging Technologies

Advances in technology across the board will have significant impacts on all aspects of service provision, not just in health care. The impact of e-commerce and the digital economy is still a largely unexplored area in relation to health care provision. NBMLHD is optimally placed to explore the potential with the current roll out of the National Broadband Network (NBN) in the Penrith LGA. Projects undertaken by Penrith City Council and its partners under the NBN and Commonwealth Government Digital Economy grants scheme will significantly enhance technology literacy amongst the population of the LGA and, eventually, the NBMLHD. Building on the Patient Controlled electronic Health Record (PCeHR), patients will also potentially be able to manage the scheduling of appointments, enable virtual consultations with their medical practitioners and take an active role in monitoring their own health and treatment outcomes.

The emergence of cloud technology means that the potential for storage of data of all kinds will increase in inverse proportion to the size and amount of the hardware required to utilise it. This will also enable secure and protected environments in which virtual consultations can be conducted, unlike technologies currently available and utilised, such as SKYPE. Cloud technology also allows for speedier transfer of large quantities of data in real time, potentiating the viability of, and opportunity for, international consultations and research collaborations.

Access to information banks, such as the Watson supercomputer by IBM technologies, will also enhance the collation of diagnoses and treatment options in real time. Trials are already underway in the USA at Johns Hopkins University and the Harvard Medical School, among other venues.

Electronic Health Records

Implementation of electronic health records has implications that will facilitate the transfer of information including patient information from facilities and services within the NBMLHD to practitioners in the primary care sector. However, differences in software platforms and programs will require intensive input and interagency cooperation to enable the process to work efficiently.

This will include up-skilling of the primary care workforce and underwriting of telehealth initiatives between public and private sectors.

Information and Communication Technology Infrastructure Requirements

The former Sydney West Area Health Service did not have a program for planned information and communication technology (ICT) replacement. This has resulted in NBMLHD inheriting older hardware with sub-optimal integration. For example, there is an unmet demand for digitisation of existing and future patient medical records to facilitate the introduction of electronic medical records. Implementation of this is critical for reducing the physical footprint required for on-site medical record storage. NBMLHD is developing a program but this is not finalised or ready for implementation.

Current software and program licenses are at end of contract and delays in renegotiating ongoing or replacement licenses jeopardise the ability of the NBMLHD to maintain and provide telehealth interventions and solutions into the future.

The ability to harness future technologies in a way that will enhance service delivery relies on the provision of adequate and future-proofed infrastructure capable of proactive development and adoption rather than reactive reconfiguration. Underpinning this is the need to ensure through long term planning that each new package or service module coming on line is compliant with existing platforms and capable of interfacing with current technologies.

Use of Social Media

The inability to harness the potential provided by social media networking in a way that will protect confidentiality of services and patients is a further barrier to enhancing service delivery. Areas where social media potentially could be employed, with benefits accruing to the delivery of patient care, include reminders for attendance at appointments, virtual follow-up care and community consultation.

Potential for Remote Service Provision, including Telehealth

Remote service provision can be enhanced when linked with tertiary referral centres, such as Nepean Hospital, via telehealth technologies. Full integration of these technologies has the potential to assist diagnosis, appropriate treatment, monitoring and follow up care particularly in chronic disease management. It also has potential to aid in acute presentations and emergency department avoidance.

Use of telehealth to its full potential in the community is currently severely restricted by:

- The availability of a broadband network of sufficient speed and coverage to provide digital internet access to all areas within the NBMLHD
- The technical literacy and competency among all populations where such care management would be implemented
- The availability of secure interfaces, accessible to both parties involved in the delivery and receipt of care
- The level of technical support required
- The cost, availability and consistency of appropriate hardware to be deployed in the community.

The roll out of the National Broadband Network, which will have the capacity to support optimal telehealth capacity, is a long-term project. While Penrith City centre will be connected in the current tranche, the rest of Penrith LGA will follow over a protracted period, potentially 10 years. The timeframes for delivery of the network to other sections of the NBMLHD are variable and not consistent across the four LGAs.

4. Services in Nepean Blue Mountains Local Health District

Contents

4. Services in Nepean Blue Mountains Local Health District

Summary

NBMLHD provides a range of health services, comprising acute inpatient care, sub-acute inpatient care, outpatient and outreach services and community based services. Health services in the NBMLHD are provided for people living in the Blue Mountains, Hawkesbury, Lithgow and Penrith local government areas (LGAs) and tertiary care is also available to residents of the Greater Western Region of NSW.

NBMLHD Hospitals

Nepean Hospital provides tertiary level care, and is supported by NBMLHD district level hospitals - Blue Mountains District ANZAC Memorial, Lithgow and Hawkesbury Hospitals with sub and non-acute care provided at Springwood Hospital and Portland Tabulam Health Centre.

NBMLHD hospitals provided 47,600 acute inpatient separations in 2010/11 (excluding dedicated psychiatric, chemotherapy, renal dialysis and unqualified neonates). This level of activity was relatively consistent over the five years to 2010/11. Acute inpatient activity over this period, however, varied by hospital, with Nepean Hospital experiencing the largest increase in volume over this five year period.

Private Hospitals

Demand for private health care services by NBMLHD residents has increased by 16% over the five year period to 2010/11 to 30,845 separations. Although the overall percentage of NBMLHD residents receiving private health care has increased only slightly over this period (to 38% of hospital acute inpatient separations being provided by private hospitals in 2010/11). The top service related groups for private hospital care by NBMLHD residents were orthopaedics, diagnostic GI endoscopy and gastroenterology. Penrith LGA residents of NBMLHD LGAs accounted for most of the private hospital demand (45%).

There are a limited number of private hospitals operating in the NBMLHD. These include Nepean Private and St John of God Hospitals. Hawkesbury Hospital is operated under a contract with NBMLHD to provide the majority of its capacity in public service provision. However, Hawkesbury Hospital still maintains private capacity. In late 2012 the Lithgow Private Hospital announced the closure of their overnight acute inpatient care. The hospital will continue to provide day only and extended day only surgery and specialist consulting suites.

Community Based Health Services

Community based health services (Community Health, Mental Health, Drug and Alcohol and Oral Health services) are collocated and delivered from several Community Health Centres located throughout the NBMLHD. These services support and are linked with hospital based care outlined

above, and work collaboratively with general practice and the Nepean Blue Mountains Medicare Local, non-government organisations and other agencies.

Community Health services provided 65,441 contacts with 92,599 hours of service allocated in 2012 across the streams of care for child and family health, complex, chronic and aged care and integrated violence and prevention response services. Mental Health community-based services provided 77,802 contacts with 76,495 hours of service allocated in 2011/12. Drug and Alcohol services provided 3,455 patients with care and had 102,783 occasions of service in 2011/12. Oral Health services increased their clinical throughput by 11% in 2011/12 compared to 2010/11.

Population Health Services

Population Health services including Health Promotion, Public Health, Breast Screening, HIV and related programs, Aboriginal Health and Multicultural Health also provide services and programs across the NBMLHD.

Population Health services focused on preventing overweight and obesity, tobacco use reduction and prevention of falls among older people. The Public Health Unit provided 91 clinics in 2011/12 vaccinating 1,371 patients and 422 staff, achieved 70% coverage for completion for school vaccination program for the human papilloma virus and 76% uptake for diphtheria-tetanus-pertussis vaccine. For breast screening, 46% of women in the target age group 50 to 69 years in NBMLHD were screened for breast cancer in 2009/10. HIV and Related Programs provided initiatives in HIV/AIDS, sexual health and hepatitis health promotion, the Needle and Syringe Program and dedicated programs to improve sexual health and increase access to hepatitis C services among Aboriginal people. A range of programs were also initiated focusing on Aboriginal people and people from culturally and linguistically diverse populations.

Nepean Blue Mountains Medicare Local

The Nepean Blue Mountains (NBM) Medicare Local provides an important link to collaborating with general practices across the NBMLHD. The priorities of the NBM Medicare Local include aged care, mental health, after hours general practice care, child and family health strategy, population health and planning, eHealth, elective surgery (preadmission and addressing surgical risks), directory of specialists and referral pathways. The NBM Medicare Local is also collaborating with the NBMLHD in the Connecting Care Program and the establishment of the HealthOne initiative.

General practitioners are located throughout the NBMLHD. The numbers of general practitioners are reasonable in the Penrith locality, slightly under-resourced in Lithgow and under-resourced in Hawkesbury and Blue Mountains LGAs.

Non-Government Organisations

Non-government organisations are located throughout the NBMLHD and provide a range of health and support services to residents of the NBMLHD. Partnership arrangements are in place with several of these organisations and the NBMLHD.

Residential Aged Care

Residential aged care facilities are located throughout the NBMLHD. In June 2011 there were 27 residential aged care facilities throughout the NBMLHD providing a total of 2,179 residential aged care places.

Introduction

Health services are provided across the Nepean Blue Mountains Local Health District (NBMLHD) from a range of facilities and include acute and sub-acute inpatient services, that are supported by outpatient and outreach services and community based health services. The NBMLHD provides health services for people living in the Blue Mountains, Hawkesbury, Lithgow and Penrith local government areas (LGAs) and tertiary care to residents of the Greater Western Region.

Hospital services in the NBMLHD range from providing tertiary level care, at Nepean Hospital, through to district level care, at Blue Mountains District ANZAC Memorial, Lithgow and Hawkesbury Hospitals, and sub and non-acute inpatient care at Springwood Hospital and Portland Tabulam Health Centre.

To support acute inpatient based care, community based health services (Community Health, Mental Health, Drug and Alcohol and Oral Health) are collocated and delivered from several Community Health Centres located throughout the NBMLHD.

Population Health services including Health Promotion, Public Health, Breast Screening, HIV and related programs, Aboriginal Health and Multicultural Health also provide services and programs across the NBMLHD. A map of NBMLHD services and their localities is included in Figure 4.1. Further information on the localities of NBMLHD services is provided in the Appendix. Further information on the geography of the local government areas (LGAs) comprising the NBMLHD is also included in the Appendix.

Relationships are in place to support the delivery of health care through a networked arrangement of health services and facilities across the NBMLHD. These relationships are outlined in Figure 4.2. The bed profile for each NBMLHD hospital is included in the Datebook.

This chapter outlines the range of services providing health care in the NBMLHD. Initially an overview of the NBMLHD hospitals is provided and associated activity over the five years to 2010/11. Private hospitals in the NBMLHD are then discussed. Community based health care provided by NBMLHD services is then outlined including Community Health, Mental Health, Drug and Alcohol and Oral Health services. Population health services are then discussed including Health Promotion, Public Health, Breast Screening, HIV and Related Programs, Aboriginal Health and Multicultural Health. The NBM Medicare Local and general practitioners operating in the NBMLHD are then outlined, followed by non-government organisations and residential aged care facilities.

Figure 4.1 Hospitals and Community Health Centres in Nepean Blue Mountains Local Health District

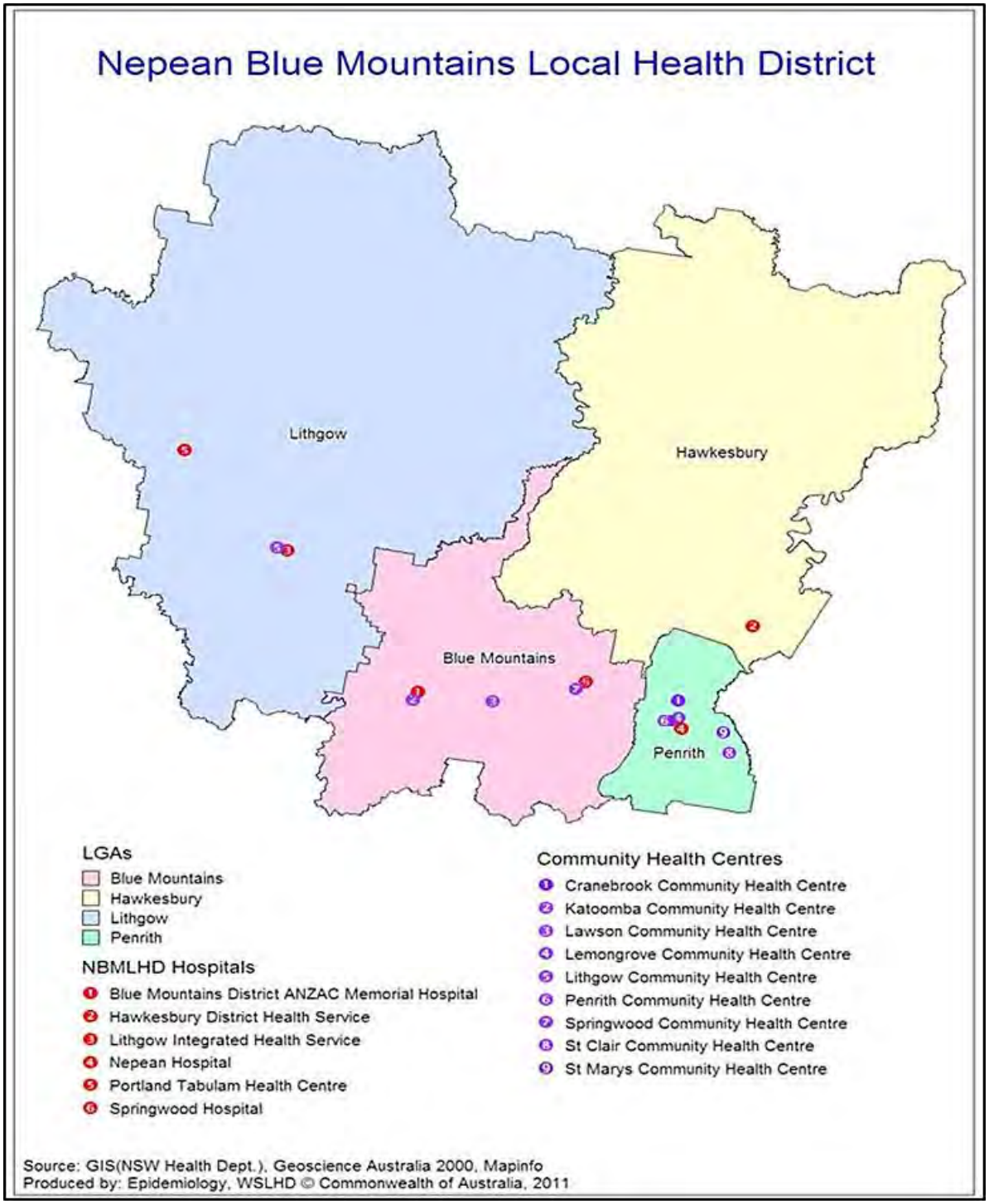
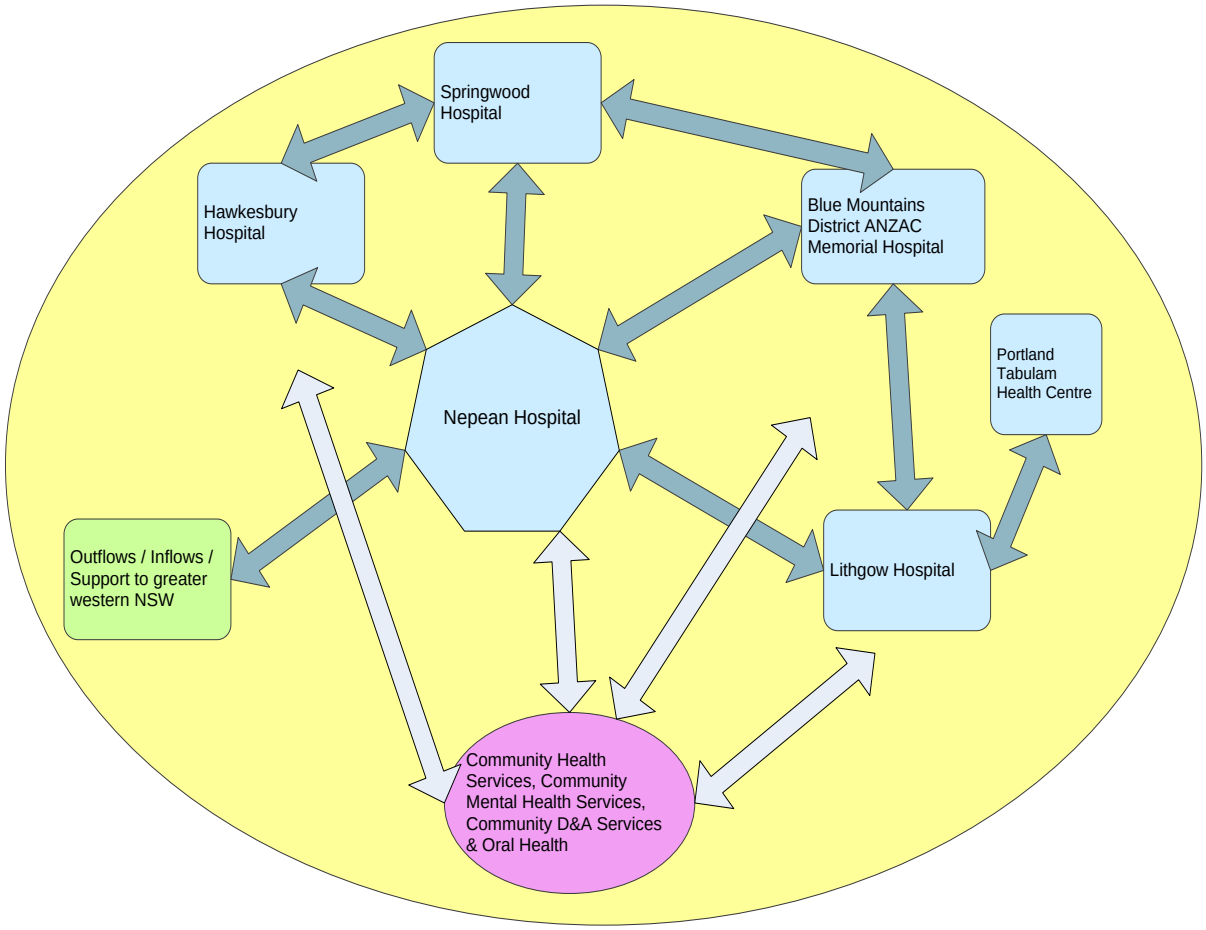


Figure 4.2 Relationships between Nepean Blue Mountains Local Health District Hospitals and Community Health services



Nepean Hospital

Peer Group: A1 Principal Referral

Nepean Hospital is the principal referral hospital for the NBMLHD and is a teaching hospital of the University of Sydney and the University of Western Sydney. Nepean Hospital is situated in Kingswood, within the Penrith Local Government Area.

Nepean Hospital provides high-level inpatient and outpatient care. Inpatient services at Nepean Hospital generally have the capacity to manage high complexity patients who require specialist care. Services provided include Emergency, Critical Care, Acute Medicine, Comprehensive Cancer Centre, Cardiology, Respiratory Medicine, Renal Medicine, Neurosciences, Oncology, Gastroenterology, other Medical Subspecialties, Planned and Emergency Surgery, Ambulatory Procedures Centre, Endoscopy, Obstetrics and Gynaecology, Perinatal, Neonatal, Paediatric Medicine and minor surgery, Mental Health (gazetted), Aged Care, Rehabilitation services, Palliative Care, Drug and Alcohol and a broad range of specialist outpatient clinics and services including Pain Management. Nepean Hospital also has a role in the provision of Trauma services.

Nepean Hospital is a major referral centre for a range of sub-specialty medical, surgical, women's, neonatal, drug and alcohol and mental health services. All services within the NBMLHD are networked to facilitate access to specialist input and consultation 24 hours, 7 days per week. Nepean Hospital has referral networks and relationships with hospitals in western NSW and beyond.

Research is also significant across medical and surgical specialties and subspecialties at Nepean Hospital. Research is supported and facilitated through collaboration with the Clinical School, University of Sydney, University of Western Sydney and other universities.

Nepean Hospital also provides telehealth services, with a focus on specialist Medical and Surgical care, to hospitals within the NBMLHD and beyond, particularly to western NSW.

Nepean Hospital has undergone significant upgrading in recent years to enable the provision of services appropriate for a major tertiary referral hospital, including the establishment of an Ambulatory Procedures Centre and enhancement of Operating Theatres, Intensive Care Unit and Centralised Sterilising Services Department. Other enhancements include the expansion of the Medical Assessment Unit, In-centre Haemodialysis and acute Mental Health care. These developments will in part provide for the capacity for the NBMLHD to meet future service needs.

Table 4.1 Nepean Hospital Activity, 2010/11

Average beds available	500 beds
Average occupancy rate	89.5% occupancy
Births	3,610 births
Emergency department presentations	52,360 presentations
Psychiatric dedicated facility separations	1,392 separations
Perinatology and qualified neonates	1,398 separations
Non-admitted patient services	789,623 NAPOOS
Total acute and sub-acute separations (all ages excluding emergency department presentations, dedicated psychiatric, renal dialysis and chemotherapy, unqualified neonates)	34,488 separations
Total cost weighted separations undiscounted	54,863 separations
Total overnight bed days	146,308 bed days
Average length of stay (overnight)	5.3 days

% Activity / Separations	Adult medical	Adult Surgical	Adult Procedural	Obstetrics/ Babies	Paediatrics <15 years	Total Separations
Same day	36%	33%	14%	12%	6%	6,880
Overnight	45%	22%	3%	22%	9%	27,608
Planned	19%	58%	57%	78%	19%	14,573
Emergency	81%	42%	43%	22%	81%	19,915

Source: FlowInfo v11.2, Health Information Exchange Web nap, Bed Board
Notes: Acute and sub-acute inpatient activity, all ages. Excludes psychiatric (dedicated facility), renal dialysis, chemotherapy, admit and discharge from Emergency Department, unqualified neonates. Bed numbers as at October 2012. Occupancy rate as at 11/9/2012. Non-admitted patient occasions of service for 2010 calendar year. Same Day shown as percentage of total activity for same day. Overnight shown as percentage of total activity for overnight. Planned and Emergency shown as percentage of total activity within types of Adult medical, adult surgical, adult procedural, obstetrics/ babies and paediatrics <15 years. Medical, surgical, procedural activity excludes SRG Obstetrics (refer "Obstetrics"). Obstetrics / babies = SRGs Obstetrics, Perinatology and Qualified neonates. Paediatrics excludes qualified and unqualified neonates and perinatology.

Table 4.2 Nepean Hospital: Service Related Group Activity, 2010/11

Service Related Group	Activity
Obstetrics	5,422
Orthopaedics	2,587
Cardiology	2,147
Non Subspecialty Surgery	1,972
Gastroenterology	1,767
Respiratory Medicine	1,669
Non Subspecialty Medicine	1,491
Gynaecology	1,435
Urology	1,270
Neurology	1,158
Interventional Cardiology	952
Drug and Alcohol	798
Neurosurgery	794
Upper GIT Surgery	715
ENT and Head and Neck	639
Plastic and Reconstructive Surgery	617
Haematology	607
Diagnostic GI Endoscopy	562
Colorectal Surgery	422
Oncology	317
Vascular Surgery	317
Renal Medicine	307
Immunology and Infections	272
Pain Management	218
Endocrinology	208
Tracheostomy	145
Psychiatry - Acute	144
Breast Surgery	142
Rheumatology	132
Cardiothoracic Surgery	87
Dermatology	81
Dentistry	61
Unallocated	33
Ophthalmology	31
Extensive Burns	4
Grand Total	**29,523**

Source Flowinfo v11.2

Notes: Acute and sub-acute inpatient activity, all ages.Excludes psychiatric (dedicated facility), renal dialysis, chemotherapy, admit and discharge from Emergency Department, unqualified neonates. SRG “Psychiatry Acute” only includes acute separations in the main hospital and excludes separations in dedicated psychiatric facilities.

Blue Mountains District ANZAC Memorial Hospital

C2 District Group 2

Blue Mountains District ANZAC Memorial Hospital provides district level inpatient and outpatient services for people of all ages. Services include Emergency, Critical Care, General Medicine, Planned and Urgent Surgery, Maternity, Paediatrics, gazetted Mental Health Unit, sub and non-acute Aged Care, Rehabilitation and Palliative care services, and a broad range of specialist outpatient clinics and services. Inpatient services generally have the capacity to manage lower complexity patients who do not require sub-speciality care. Patients are referred to Nepean Hospital for tertiary and specialist services. Blue Mountains District ANZAC Memorial Hospital has been designated as an Area of Need hospital.

There is strong and active support from the local community for the continuation of a broad range of service provision from the Blue Mountains District ANZAC Memorial Hospital.

Blue Mountains District ANZAC Memorial Hospital is an older hospital that opened in the 1920s. The Nurses' Home was built in the 1940s. The Nurses Home accommodates services and provides accommodation for hospital staff, as well as staff from Lithgow Hospital. The ability to provide on-site temporary staff accommodation is crucial in attracting and retaining staff under the 'Area of Need' provision.

Table 4.3 Blue Mountains District ANZAC Memorial Hospital Activity, 2010/11

Average beds available	97 beds
Occupancy rate	62.7% occupancy
Births	223 births
Emergency department presentations	17,629 presentations
Psychiatric dedicated facility separations	242 separations
Perinatology and qualified neonates	39 separations
Non-admitted patient services	150,435 NAPOOS
Total acute and sub-acute separations (all ages excluding emergency department presentations, dedicated psychiatric and unqualified neonates)	3,385 separations
Total cost weighted separations undiscounted	3,715 separations
Total overnight bed days	19,846 bed days
Average length of stay (overnight)	7.0 days

% Activity / Separations	Adult medical	Adult Surgical	Adult Procedural	Obstetrics/ Babies	Paediatrics <15 years	Total Separations
Same day	35%	31%	22%	7%	5%	534
Overnight	72%	6%	1%	12%	8%	2,851

Source FlowInfo v11.2, Health Information Exchange Web nap, Bed Board

Notes: Acute and sub-acute inpatient activity, all ages. Excludes psychiatric (dedicated facility), renal dialysis, chemotherapy, admit and discharge from Emergency Department and unqualified neonates. Bed numbers as at October 2012. Occupancy rate as at 11/9/2012. Same Day shown as percentage of total activity for same day. Overnight shown as percentage of total activity for overnight. Medical, surgical, procedural activity excludes SRG Obstetrics (refer "Obstetrics") .Obstetrics / babies = SRGs Obstetrics, Perinatology and Qualified neonates. Paediatrics excludes qualified and unqualified neonates and perinatology.

Table 4.4 Blue Mountains District ANZAC Memorial Hospital: Service Related Group Activity, 2010/11

Service Related Group	Activity
Cardiology	403
Respiratory Medicine	394
Obstetrics	351
Non Subspecialty Medicine	286
Neurology	181
Gynaecology	153
Non Subspecialty Surgery	145
Gastroenterology	135
Dentistry	95
Orthopaedics	71
Upper GIT Surgery	58
Colorectal Surgery	41
Rheumatology	39
Drug and Alcohol	32
Endocrinology	31
Renal Medicine	30
Neurosurgery	28
ENT and Head and Neck	27
Vascular Surgery	26
Plastic and Reconstructive Surgery	26
Immunology and Infections	22
Oncology	22
Psychiatry - Acute	16
Haematology	15
Diagnostic GI Endoscopy	15
Urology	13
Dermatology	10
Pain Management	8
Interventional Cardiology	5
Ophthalmology	2
Breast Surgery	2
Grand Total	**2,682**

Source Flowinfo v11.2

Notes: Acute and sub-acute inpatient activity, all ages. Excludes psychiatric (dedicated facility), renal dialysis, chemotherapy, admit and discharge from Emergency Department, unqualified neonates. SRG "Psychiatry Acute" only includes acute separations in the main hospital and excludes separations in dedicated psychiatric facilities.

Springwood Hospital

D1a- Acute Community Surgery

Springwood Hospital is located in the Blue Mountains LGA and provides low risk inpatient and outpatient services in a defined range of specialties, including Medicine, planned Day Only Surgery, sub-acute and non-acute Aged Care and Rehabilitation services and Palliative Care. Emergency services are not available at Springwood Hospital.

Springwood Hospital is an older facility that was built in the 1970s through community support and donations. Springwood Hospital is no longer fit for purpose and is not able to meet increasing needs for sub-acute care (rehabilitation, aged and palliative care) for residents of the local community, as well as from Penrith and Hawkesbury LGAs.

There is an active Friends of Springwood Hospital Auxiliary and community expectations are high in relation to the Hospital's role.

Table 4.5 Springwood Hospital Activity, 2010/11

Average beds available	30 beds
Occupancy rate	93.7% occupancy
Total acute and sub-acute separations (all ages excluding emergency department presentations, dedicated psychiatric, renal dialysis and chemotherapy)	1,352 separations
Total cost weighted separations undiscounted	697 separations
Total overnight bed days	8,885 bed days
Average length of stay (overnight)	20.5 days

% Activity / Separations	Adult medical	Adult Surgical	Adult Procedural	Obstetrics/ Babies	Paediatrics <15years	Total Separations
Same day	5%	82%	8%	0%	5%	918
Overnight	98%	2%	0%	0%	0%	434

Source FlowInfo v11.2, Health Information Exchange Web nap, Bed Board
Notes: Acute and sub-acute inpatient activity, all ages. Excludes psychiatric (dedicated facility), renal dialysis, chemotherapy, admit and discharge from Emergency Department. Bed numbers as at October 2012. Occupancy rate as at 11/9/2012. Same Day shown as percentage of total activity for same day. Overnight shown as percentage of total activity for overnight. Medical, surgical, procedural activity excludes SRG Obstetrics (refer "Obstetrics").Obstetrics / babies = SRGs Obstetrics, Perinatology and Qualified neonates. Paediatrics excludes qualified and unqualified neonates and perinatology.

Table 4.6 Springwood Hospital: Service Related Group Activity, 2010/11

Service Related Group	Activity
Ophthalmology	457
Gynaecology	197
Urology	165
Breast Surgery	19
Non Subspecialty Surgery	12
ENT and Head and Neck	12
Non Subspecialty Medicine	11
Orthopaedics	9
Plastic and Reconstructive Surgery	6
Cardiology	4
Oncology	3
Neurosurgery	3
Neurology	3
Rheumatology	3
Respiratory Medicine	2
Renal Medicine	2
Psychiatry - Acute	2
Haematology	2
Vascular Surgery	2
Upper GIT Surgery	2
Gastroenterology	1
Colorectal Surgery	1
Unallocated	1
Dermatology	1
Drug and Alcohol	1
Grand Total	921

Source Flowinfo v11.2

Notes: Acute and sub-acute inpatient activity, all ages. Excludes psychiatric (dedicated facility), renal dialysis, chemotherapy, admit and discharge from Emergency Department, unqualified neonates. SRG "Psychiatry Acute" only includes acute separations in the main hospital and excludes separations in dedicated psychiatric facilities.

Lithgow Hospital

C2 District Group 2

Lithgow Integrated Health Service, west of the Blue Mountains, is a multi-facility campus comprising Lithgow Hospital, Lithgow Community Health Centre, a small private health facility and a residential aged-care residential facility. Lithgow Hospital was commissioned in 1999.

Lithgow Hospital is a teaching hospital of the University of Notre Dame. The hospital provides inpatient and outpatient services for all ages, managing lower complexity patients who do not require sub-specialty care. Services include 24 hour Emergency service, Paediatrics, Maternity, low-risk Surgery and General Medicine, with on call medical services. Inpatient services are delivered under a Visiting Medical Officer / General Practitioner model of care with the capacity to manage lower complexity patients who do not require sub-specialty care. Allied Health services are also provided including a hydrotherapy pool. Other services provided include Pathology services, Women's Health, X-ray and CT scan. These services are supported by telehealth and outreach services provided from Nepean Hospital.

Lithgow Hospital functions as a district level hospital, providing services to the residents of the City of Greater Lithgow including the surrounding rural areas and supports the Portland Tabulam Health Centre. The distance from services and the geographical area combine to provide a challenging set of demands for delivering and planning services, including patient transport between facilities.

Table 4.7 Lithgow Hospital Activity, 2010/11

Average beds available	42 beds
Occupancy rate	64.3% occupancy
Births	202 births
Emergency department presentations	13,476 presentations
Perinatology and qualified neonates	15 separations
Non-admitted patient services	61,254 NAPOOS
Total acute and sub-acute separations (all ages excluding emergency department presentations)	3,028 separations
Total cost weighted separations undiscounted	2,917 separations
Total overnight bed days	9,227 bed days
Average length of stay (overnight)	5.1 days

% Activity / Separations	Adult medical	Adult Surgical	Adult Procedural	Obstetrics/ Babies	Paediatrics <15 years	Total Separations
Same day	17%	36%	38%	5%	4%	1,218
Overnight	70%	7%	2%	15%	6%	1,810

Source FlowInfo v11.2, Health Information Exchange Web nap, Bed Board
Notes: Acute and sub-acute inpatient activity, all ages. Excludes psychiatric (dedicated facility), renal dialysis, chemotherapy, admit and discharge from Emergency Department, unqualified neonates. Bed numbers as at October 2012. Occupancy rate as at 11/9/2012. Same Day shown as percentage of total activity for same day. Overnight shown as percentage of total activity for overnight. Medical, surgical, procedural activity excludes SRG Obstetrics (refer Obstetrics"). Obstetrics / babies = SRGs Obstetrics, Perinatology and Qualified neonates. Paediatrics excludes qualified and unqualified neonates and perinatology.

Table 4.8 Lithgow Hospital Service Related Group Activity, 2010/11

Service Related Group	Activity
Obstetrics	307
Diagnostic GI Endoscopy	289
Gastroenterology	287
Cardiology	241
Respiratory Medicine	236
Ophthalmology	159
Non Subspecialty Medicine	155
Gynaecology	148
Non Subspecialty Surgery	144
Urology	97
Neurology	92
Plastic and Reconstructive Surgery	84
Orthopaedics	79
ENT and Head and Neck	75
Upper GIT Surgery	50
Psychiatry - Acute	50
Drug and Alcohol	49
Neurosurgery	43
Colorectal Surgery	33
Endocrinology	29
Oncology	27
Haematology	25
Vascular Surgery	18
Rheumatology	15
Renal Medicine	12
Immunology and Infections	10
Dermatology	10
Pain Management	9
Dentistry	5
Unallocated	4
Interventional Cardiology	1
Breast Surgery	1
Extensive Burns	1
Grand Total	**2,785**

Source Flowinfo v11.2

Notes: Acute and sub-acute inpatient activity, all ages. Excludes psychiatric (dedicated facility), renal dialysis, chemotherapy, admit and discharge from Emergency Department, unqualified neonates. SRG "Psychiatry Acute" only includes acute separations in the main hospital and excludes separations in dedicated psychiatric facilities.

Portland Tabulam Health Centre

D2 Community Non-Acute

Portland Tabulam Health Centre is a multipurpose-like facility that opened in 2006 and combined the services of the former Portland Hospital and Tabulam Cottages Aged Care Hostel on the one site. Portland Tabulam Health Centre now provides sub-acute care, low level residential aged care with ageing in place for 22 residents. An Aged Day Care Centre is also provided.

The Portland Tabulam Health Centre hosts a General Practice.

There are a range of community and primary care services provided from the Health Centre. The primary care services include Chronic and Complex community care, Women's and Children's Health and a range of visiting Allied Health services provided from Lithgow.

Hawkesbury Hospital

C1 District Group 1

Hawkesbury Hospital is a District Hospital with Community Health services, providing health care services for the population of the Hawkesbury Local Government Area. Hawkesbury Hospital opened in 1996, and is owned and operated by Hawkesbury District Health Service Pty Ltd, a part of Catholic Health Care Services.

Hawkesbury Hospital is a schedule 3A hospital and provides public hospital services in the Hawkesbury area under a service agreement with NBMLHD. Hawkesbury Hospital is a teaching hospital of the University of Notre Dame. Services provided include Emergency care, Medical, Surgical, Maternity, Neonatal, Palliative, Intensive and Coronary Care as well as diagnostics services.

The Service Agreement with Hawkesbury District Health Service concludes in 2016. The Hawkesbury Hospital asset reverts to ownership of the Health Administration Corporation at this time. Under the terms of the contract, payment is primarily by bed days which have been capped since the commencement of the agreement.

Table 4.9 Hawkesbury Hospital Activity (Public), 2010/11

Average beds available	125 beds
Occupancy rate	N/A
Births	748 births
Emergency department presentations	20,105 presentations
Perinatology and qualified neonates	46 separations
Total acute and sub-acute separations (all ages excluding emergency department presentations and unqualified neonates)	6,958 separations
Total cost weighted separations undiscounted	8,407 separations
Total overnight bed days	24,836 bed days
Average length of stay (Overnight)	4.8 days

% Activity - Separations	Adult medical	Adult Surgical	Adult Procedural	Obstetrics/ Babies	Paediatrics <15 years	Total Separations
Same day	11%	31%	47%	7%	3%	1,766
Overnight	46%	19%	3%	19%	12%	5,192

Source FlowInfo v11.2, Health Information Exchange Web nap, Bed Board
Notes: Acute and sub-acute inpatient activity, all ages. Excludes psychiatric (dedicated facility), renal dialysis, chemotherapy, admit and discharge from Emergency Department, unqualified neonates. Bed numbers as at October 2012. Same Day shown as percentage of total activity for same day. Overnight shown as percentage of total activity for overnight. Medical, surgical, procedural activity excludes SRG Obstetrics (refer "Obstetrics"). Obstetrics / babies = SRGs Obstetrics, Perinatology and Qualified neonates. Paediatrics excludes qualified and unqualified neonates and perinatology.

Table 4.10 Hawkesbury Hospital (Public) Service Related Group Activity, 2010/11

Service Related Group	Activity
Obstetrics	1,,065
Diagnostic GI Endoscopy	637
Gastroenterology	577
Orthopaedics	549
Respiratory Medicine	504
Non Subspecialty Surgery	433
Cardiology	408
Non Subspecialty Medicine	392
Gynaecology	348
Upper GIT Surgery	225
Colorectal Surgery	191
Urology	175
Neurology	169
Plastic and Reconstructive Surgery	104
ENT and Head and Neck	68
Oncology	48
Vascular Surgery	44
Renal Medicine	38
Endocrinology	36
Interventional Cardiology	33
Immunology and Infections	30
Neurosurgery	26
Ophthalmology	25
Rheumatology	24
Dermatology	18
Dentistry	18
Pain Management	11
Breast Surgery	11
Haematology	10
Drug and Alcohol	8
Psychiatry - Acute	6
Cardiothoracic Surgery	2
Extensive Burns	1
Grand Total	**6,234**

Source Flowinfo v11.2

Notes: Acute and sub-acute inpatient activity, all ages. Excludes psychiatric (dedicated facility), renal dialysis, chemotherapy, admit and discharge from Emergency Department, unqualified neonates. SRG “Psychiatry Acute” only includes acute separations in the main hospital and excludes separations in dedicated psychiatric facilities.

Overview of Activity in the Nepean Blue Mountains Local Health District

The following information provides an overview of activity within the NBMLHD facilities over the period 2006/07 to 2010/11. Information is provided on total acute activity, acute adult activity, paediatric acute activity, sub-acute activity, cost-weighted separations, mental health acute inpatient activity and perinatology and qualified neonatal activity. The acute activity presented in this section excludes dedicated psychiatric facilities and excludes separations for renal dialysis, chemotherapy and unqualified neonates. It is noted that renal dialysis accounted for 9,563 separations in 2010/11, chemotherapy accounted for 527 separations in 2010/11 and unqualified neonates accounted for 3,821 separations.

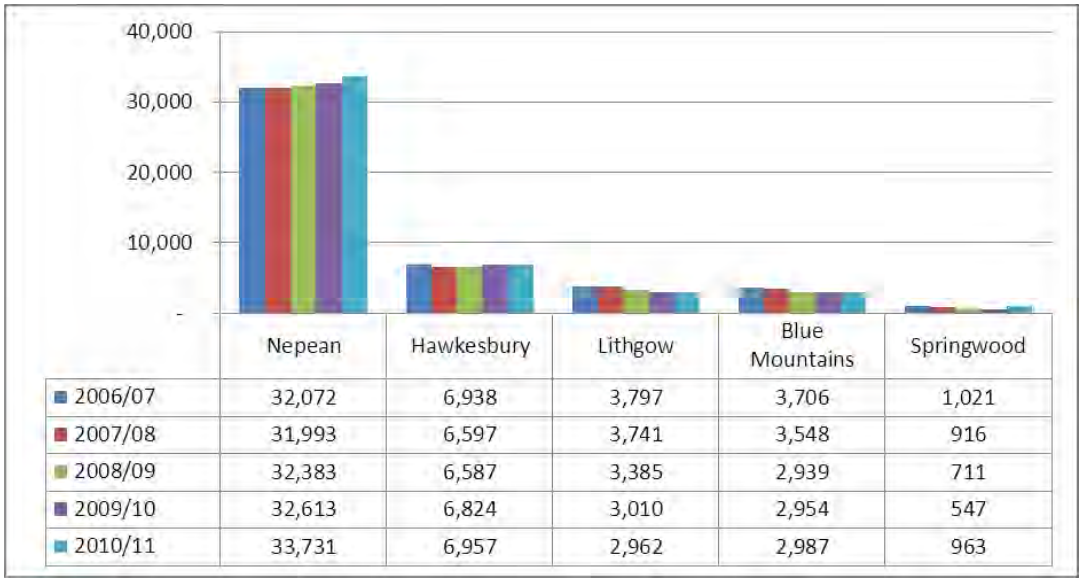
Inpatient Acute Activity, All Ages

Total inpatient acute activity for all ages in NBMLHD hospitals was relatively steady over the period 2006/07 to 2010/11. Activity accounted for 47,534 separations in 2006/07 and 47,600 separations in 2010/11.

The change in the number of total inpatient separations varied between NBMLHD facilities over the period from 2006/07 to 2010/11 (refer to Figure 4.3):

- Nepean Hospital separations increased from 32,072 to 33,731 (5%)
- Hawkesbury Hospital separations increased slightly 6,938 to 6,957 (0%)
- Springwood Hospital separations decreased from 1,021 to 963 (6%)
- Blue Mountains Hospital separations decreased from 3,706 to 2,987 (19%)
- Lithgow Hospital separations decreased from 3,797 to 2,962 (22%).

Figure 4.3 Total Inpatient Activity in NBMLHD Facilities, All Ages, from 2006/07 to 2010/11



	Nepean	Hawkesbury	Lithgow	Blue Mountains	Springwood
2006/07	32,072	6,938	3,797	3,706	1,021
2007/08	31,993	6,597	3,741	3,548	916
2008/09	32,383	6,587	3,385	2,939	711
2009/10	32,613	6,824	3,010	2,954	547
2010/11	33,731	6,957	2,962	2,987	963

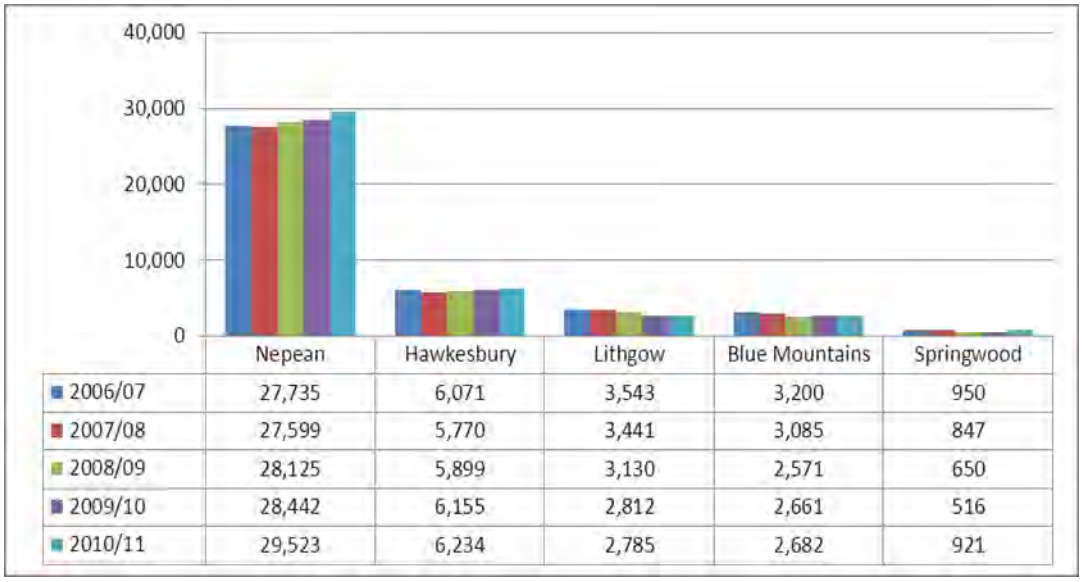
Source: FlowInfo V11.2
Notes: Excludes psychiatric dedicated facility, admitted and discharged within Emergency Department, chemotherapy, renal dialysis and unqualified neonates.

Adult Acute Activity (Aged 15 Years and Over)

There was a 2% increase in acute adult inpatient activity in NBMLHD from 41,499 separations in 2006/07 to 42,145 in 2010/11. The change in the number of total inpatient separations varied between the NBMLHD facilities over the period 2006/07 to 2010/11 (refer to Figure 4.4):

- Nepean Hospital separations increased from 27,735 to 29,523 (6%)
- Hawkesbury Hospital separations increased 6,071 to 6,234 (3%)
- Springwood Hospital separations decreased from 950 to 921 (3%)
- Blue Mountains Hospital separations decreased from 3,200 to 2,682 (16%)
- Lithgow Hospital separations decreased from 3,543 to 2,785(21%).

Figure 4.4 Adult Acute Inpatient Activity in NBMLHD Facilities, from 2006/07 to 2010/11



	Nepean	Hawkesbury	Lithgow	Blue Mountains	Springwood
2006/07	27,735	6,071	3,543	3,200	950
2007/08	27,599	5,770	3,441	3,085	847
2008/09	28,125	5,899	3,130	2,571	650
2009/10	28,442	6,155	2,812	2,661	516
2010/11	29,523	6,234	2,785	2,682	921

Source: FlowInfo V11.2

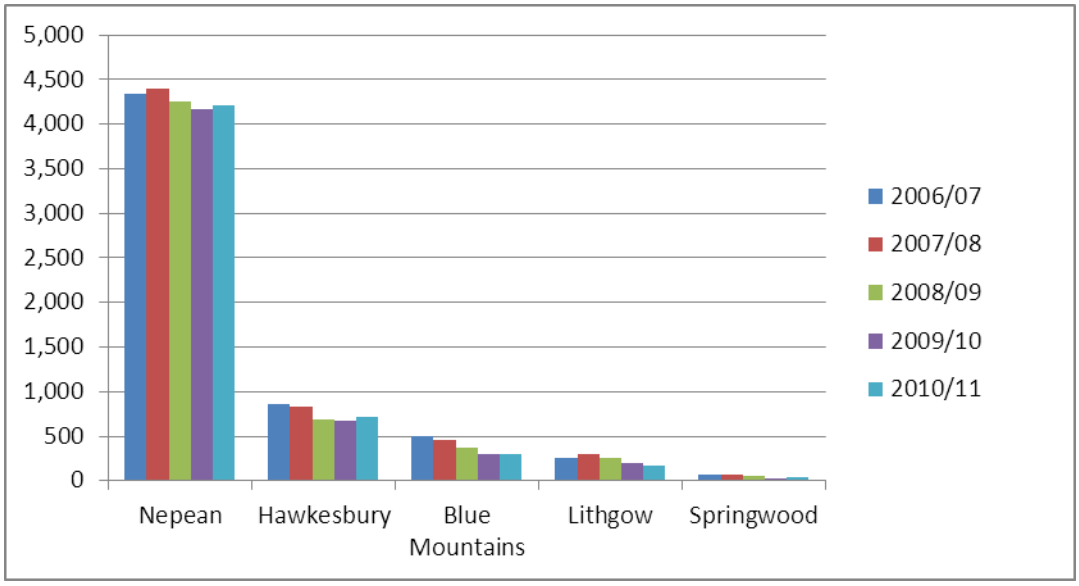
Notes: Excludes Includes psychiatric dedicated facility, admitted and discharged within Emergency Department, chemotherapy, renal dialysis and unqualified neonates.

Paediatric Acute Activity

There was a 10% reduction in acute paediatric inpatient activity in NBMLHD from 6,035 separations in 2006/07 to 5,455 separations in 2010/11. The change in the number of total inpatient separations varied between NBMLHD facilities over the period 2006/07 to 2010/11 (refer to Figure 4.5):

- Nepean Hospital separations decreased from 4,337 to 4,208 (3%)
- Hawkesbury Hospital separations decreased 867 to 723 (17%)
- Springwood Hospital separations decreased from 71 to - 42 (41%)
- Blue Mountains Hospital separations decreased from 506 to 305 (40%)
- Lithgow Hospital separations decreased from 254 to 177 (30%).

Figure 4.5 Paediatric Acute Inpatient Activity in NBMLHD Facilities, from 2006/07 to 2010/11

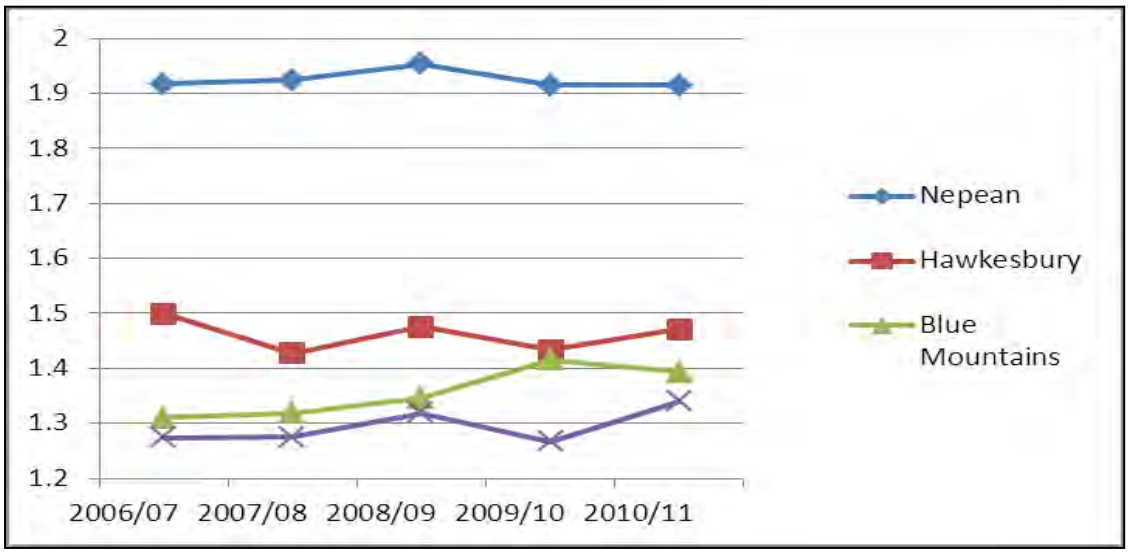


Source: FlowInfo V11.2
Notes: Excludes psychiatric dedicated facility, admitted and discharged within Emergency Department, chemotherapy, renal dialysis and unqualified neonates.

Cost Weighted Separations (Overnight, Acute, All Ages)

Nepean Hospital provided 51,436 acute overnight cost weighted separations (undiscounted), (with an average of 1.92 acute overnight cost weighted separations undiscounted) in 2010/11, as appropriate for a tertiary level facility. Hawkesbury Hospital experienced an average of 1.47 acute overnight cost weighted separations (undiscounted), Blue Mountains Hospitals was at 1.39 and Lithgow Hospital was 1.34 acute overnight cost weighted separations undiscounted, as appropriate for district level hospitals. (Refer to Figure 4.6.)

Figure 4.6 Average Acute Overnight Cost Weighted Separations (Undiscounted) in NBMLHD Hospitals, from 2006/07 to 2010/11



Source: FlowInfo V11.2
Notes: Excludes psychiatric dedicated facility, admitted and discharged within Emergency Department, chemotherapy, renal dialysis and unqualified neonates.

Mental Health Inpatient Acute Activity

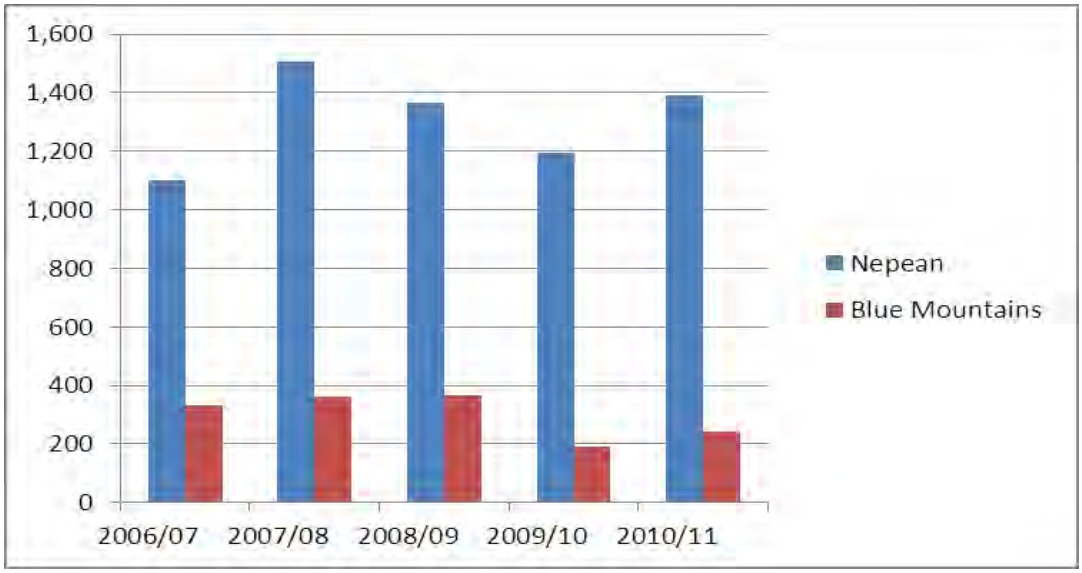
There are two dedicated mental health units (gazetted) in the NBMLHD including the Pialla Unit, based at Nepean Hospital and in the Blue Mountains District ANZAC Memorial Hospital.

Over the five year period to 2010/11 there has been a 14% increase in separations from 1,448 to 1,634 separations and a 4% increase in bed days (from 17,794 to 18,183 bed days) in mental health inpatient acute activity in the NBMLHD.

There are distinct variations in activity over the five year period to 2010/11 for the two mental health gazetted units in the NBMLHD. Separations at Nepean Hospital have increased by 26% from 1,102 separations in 2006/07 to 1,392 separations in 2010/11.Bed days have also increased by 9% from 12,579 in 2006/07 to 13,708 bed days in 2010/11. However separations at the Mental Health Unit in Blue Mountains District ANZAC Memorial Hospital have decreased by 28% from 334 separations in 2006/07 to 242 separations in 2010/11, with a 9% decrease in bed days from 4,910 bed days in 2006/07 to 4,475 bed days in 2010/11. This is a reflection of increased length of stay of patients at Blue Mountains Mental Health Unit. (Refer to Figure 4.7.)

A new Mental Health Centre is in development at Nepean Hospital through Nepean Hospital Stage 3A Redevelopment and is due for completion in 2013. The new facility will increase the capacity for mental health service delivery in the NBMLHD.

Figure 4.7 Mental Health Acute Inpatient Activity in Dedicated Mental Health Units, NBMLHD, from 2006/07 to 2010/11



Source: FlowInfo V11.2

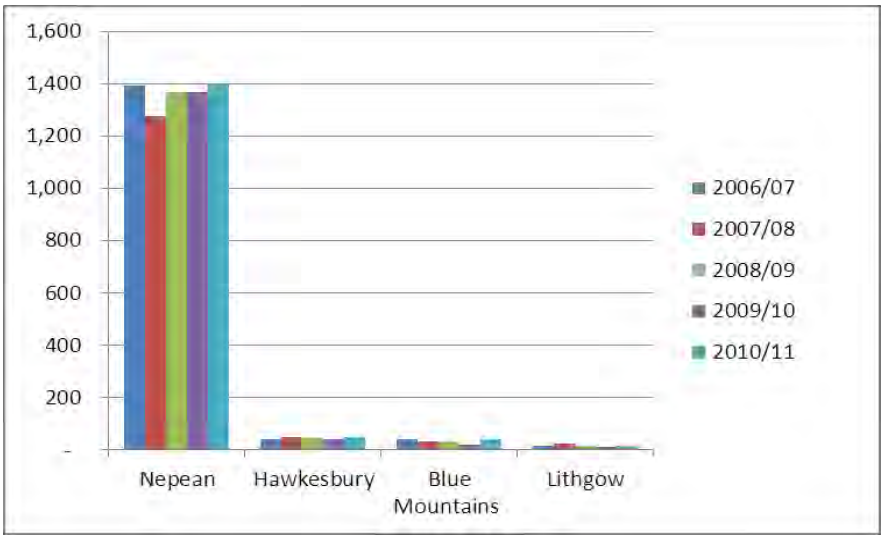
Notes : Excludes admit and discharge from Emergency Department, acute and sub-acute inpatient activity.

Perinatology and Qualified Neonates

There were 1,498 separations for perinatology and qualified neonates in NBMLHD hospitals in 2010/11. These figures have remained relatively constant over the five year period up to 2010/11. Although separations have remained relatively constant, bed days have declined over this period by 12% from 13,693 in 2006/07 to 12,083 bed days in 2010/11. (Refer to Figure 4.8 and Figure 4.9.)

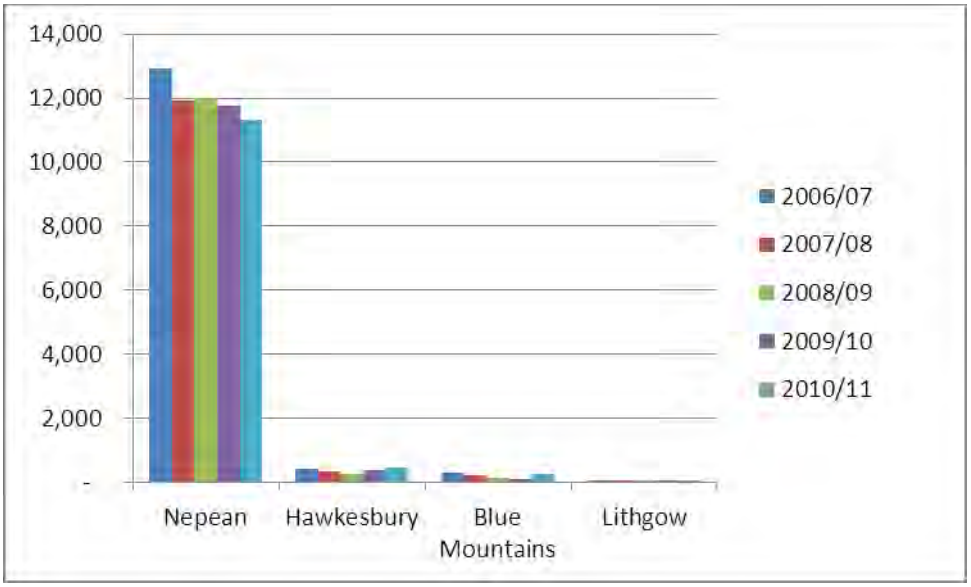
The majority of perinatology and qualified neonatal acute activity in NBMLHD was delivered at Nepean Hospital with 1,398 separations and 11,321 bed days and 3,893 cost weight separations undiscounted in 2010/11. These figures are consistent with the major tertiary referral role provided by Nepean Hospital for perinatology including neonatal care. (It is noted that Neonatal Intensive Care Unit activity is included in NBMLHD acute inpatient activity and comprises both perinatology activity and qualified neonate activity.)

Figure 4.8 NBMLHD Hospital Supply Activity for Perinatology and Qualified Neonate from 2006/07 to 2010/11, Separations



Source: FlowInfo v11.2
Note: Activity - acute, all ages for the service related groups of Perinatology and Qualified Neonates only. Excludes admit and discharge from Emergency Department, dedicated psychiatric facility.

Figure 4.9 NBMLHD Hospital Supply Activity for Perinatology and Qualified Neonate from 2006/07 to 2010/11, Bed days



Source: FlowInfo v11.2
Note: Activity - acute, all ages for the SRGs of Perinatology and Qualified Neonates only. Excludes admit and discharge from Emergency Department, dedicated psychiatric facility.

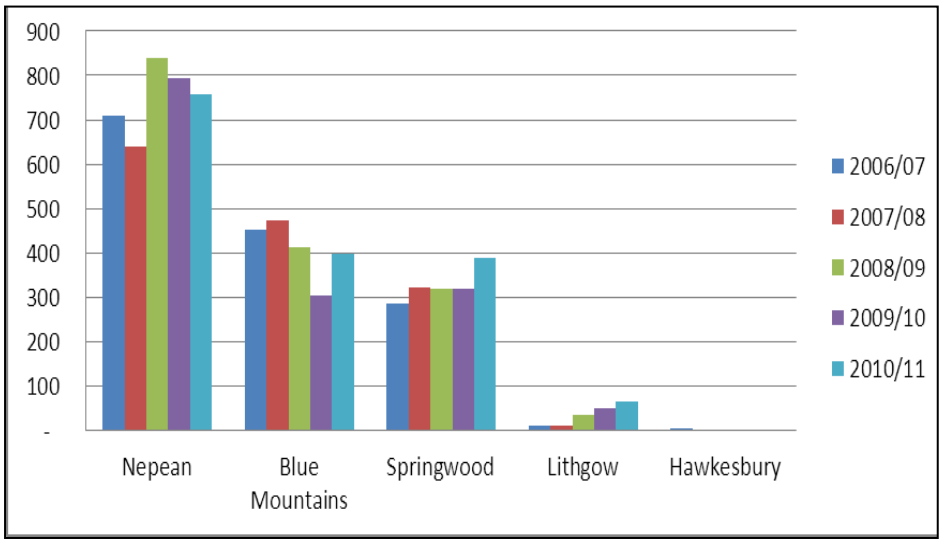
Sub-Acute Care

There was a 10% increase in sub-acute inpatient activity in NBMLHD from 1,461 separations in 2006/07 to 1,611 separations in 2010/11. The change in the number of total inpatient separations varied between NBMLHD facilities over the period 2006/07 to 2010/11 (refer to Figure 4.10):

- Nepean Hospital separations increased from 708 to 757 (7%)
- Springwood Hospital separations increased from 285 to 389 (36%)
- Blue Mountains Hospital separations decreased from 451 to 398 (12%)
- Lithgow Hospital separations decreased from 11 to 66 (500%).

In 2010/11 most sub-acute activity provided in NBMLHD was rehabilitation (920 separations), followed by maintenance (370 separations), palliative care (299 separations) and psychogeriatric care (22 separations) (refer to Figure 4.11).

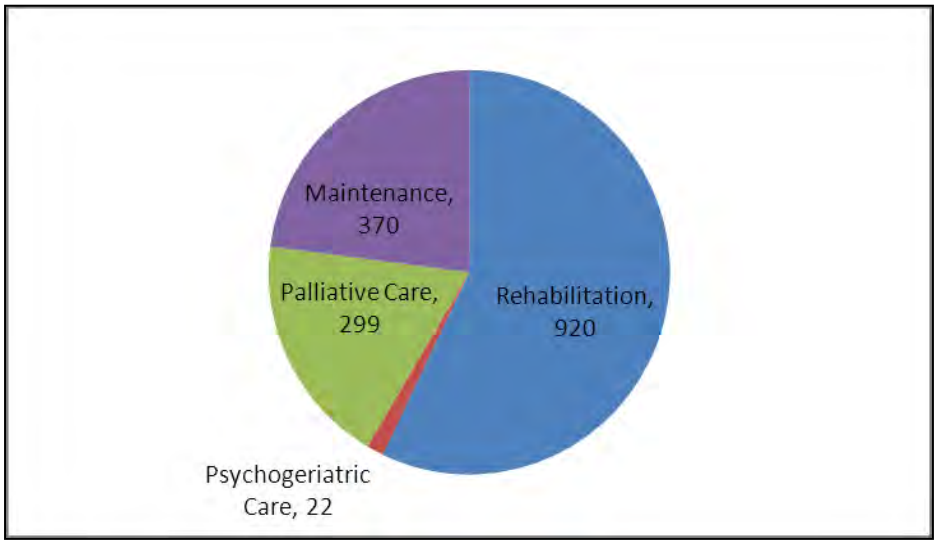
Figure 4.10 Adult Sub-Acute Inpatient Activity in NBMLHD Facilities, from 2006/07 to 2010/11



Source: FlowInfo V11.2

Notes: Includes psychiatric dedicated facility. Excludes admitted and discharged within Emergency Department, chemotherapy, renal dialysis and unqualified neonates.

Figure 4.11 Adult Sub-Acute Inpatient Activity in NBMLHD Facilities, 2010/11



Source: FlowInfo V11.2

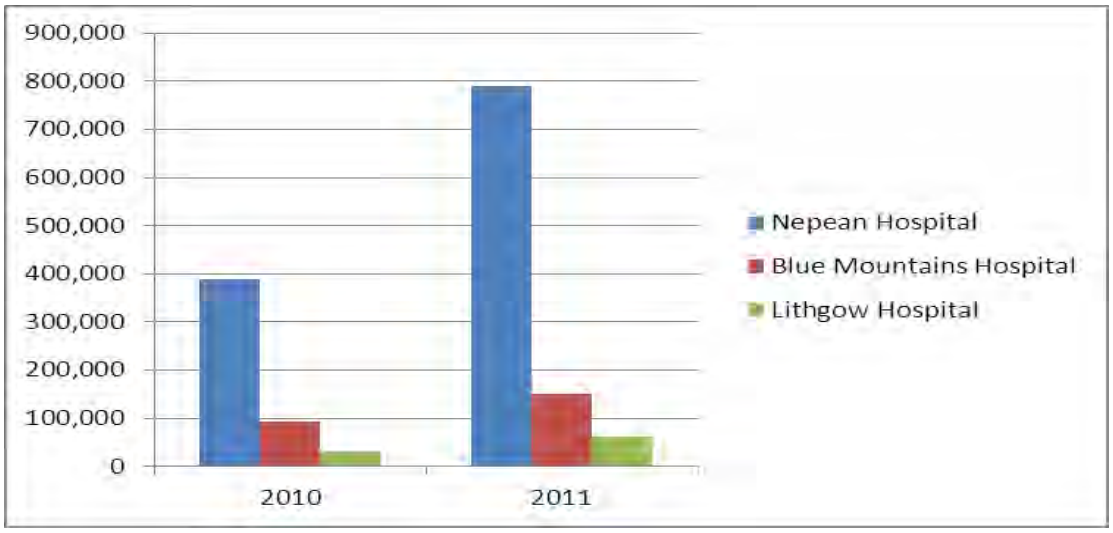
Notes: Includes psychiatric dedicated facility. Excludes admitted and discharged within Emergency Department, chemotherapy, renal dialysis and unqualified neonates.

Outpatient Activity

There were more than 1 million non-admitted patients occasions of service provided in NBMLHD in 2011. This represented an increase from 512,317 non-admitted patient occasions of service provided in NBMLHD in 2010. This comprised outpatient, emergency and rehabilitation and extended care non-inpatient activity. Primary Care and Community Health and community based Mental Health Care occasions of service are in the NBMLHD are shown later in this Chapter. (Refer to Figure 4.12 and Table 4.11.)

With the introduction of Activity Based Funding there have been improvements in the recording of non-admitted patient occasions of service, impacting on increasing the numbers of non-admitted patient occasions of services. It is anticipated that further improvements are still to be gained in the recording of non-admitted patient occasions of service activity in the NBMLHD that are likely to show increases in activity through 2012 and 2013.

Figure 4.12 Non-Admitted Patient Occasions of Service in NBMLHD, from 2010 to 2011



Source: Non-Admitted Patient Occasions of Service, NBMLHD, March 2012

Table 4.11 Non-Admitted Patient Occasions of Service in NBMLHD, from 2010 to 2011

Hospital	2010	2011
Nepean Hospital	389,688	789,623
Blue Mountains Hospital	92,251	150,435
Lithgow Hospital	30,378	61,254
Total	**512,317**	**1,001,312**

Source: Non-Admitted Patient Occasions of Service, NBMLHD, March 2012

Clinical Support Services

All activities in NBMLHD facilities are supported by a range of clinical support services. These include Pathology, Medical Imaging and Nuclear Medicine, Information Management and Medical Records and Information and Communication Technology.

Pathology

Public Pathology services are provided to NBMLHD by Pathology West, a sector of Pathology NSW. NATA accredited laboratory services and collection centres are located at Nepean Hospital, Blue Mountains District ANZAC Memorial Hospital and Lithgow Hospital. Collection services are also available at a number of Community Health Centres and Portland Tabulam Health Service. Pathology services at Nepean Hospital also support smaller laboratories in Western and Far Western NSW LHDs.

The pathology service interacts with clinical units all across the NBMLHD to provide a timely and efficient service responsive to the critical demands of the units. A close relationship is maintained between pathology and the clinical units, enabling the pathologists to assist the clinicians with improving critical issues such as access block that can impede the ability of the clinical units to deliver efficient services. The pathology service also provides a range of services including diagnostic pathology, clinical interpretation and direct patient consultative services. The service also trains pathologists and medical technologists and undertakes medical research.

Medical Imaging and Nuclear Medicine

Medical imaging provides a comprehensive range of diagnostic and therapeutic radiology and nuclear medicine services to primary, secondary and tertiary referral patients. High end diagnostic and interventional services, including angiography, interventional radiology, nuclear medicine, magnetic resonance imaging and specialised ultrasound are consolidated at the major hospitals such as Nepean. CT services are available at Nepean and Lithgow Hospitals. A wide range of general x-ray, fluoroscopy x-ray, including barium studies and ultrasound services are provided at most hospitals.

Information Management and Medical Records

Information management supports the NBMLHD to deliver high quality clinical care and make informed decisions by ensuring effective development, collection and storage of information. The Information Management Strategy aims to improve and maintain information processes across the NBMLHD. This includes a framework and policy infrastructure that is driven by the health care and service priorities and business information needs. Providing support to staff and governance of patient data and information supports the maintenance of a high standard of information management. Central to the implementation of Activity Based Funding is ensuring high quality and appropriate coding of patients' medical records. The shift from paper based to electronic medical records is underway in the NBMLHD. Through the Community Health Data and Information Plan all Community Health patient records are now recorded electronically. The Patient Controlled Electronic Health Record (PCeHR) is a major initiative being implemented in the NBMLHD. The PCeHR facilitates the recording of patient information in an electronic record, as well as the sharing of this information between general practitioners, community health services and hospitals.

Information and Communication Technology

Linked to information management is the effective and efficient use of Information and Communications Technology to support information management requirements. Information and Communication Technology providing services to the NBMLHD categorised as Statewide Service Desk Support, Business Services, Application Support, Training Services and Procurement. These services cover software applications and platforms, hardware including communication links. A central theme of ICT is shifts to electronic records, common platforms among key user groups.

The planned roll-out of National Broadband Network is underway across Australia including the NBMLHD. In NBMLHD the initial rollout will commence in the Penrith locality. The rollout of this technology will provide opportunities for enhanced capacity across the locality, such as for telehealth capacity.

Telehealth capacity is increasingly emerging as important in providing contemporary clinical care across multiple sites. The establishment of the Nepean Telehealth Centre will provide links with district level NBMLHD hospitals and rural NSW to enhance patient care and outcomes. Other initiatives that aim to enhance telehealth capacity are also underway, such as the Perinatal High Risk Monitoring program from Nepean Hospital with western NSW and University of Sydney and links from Nepean Hospital to Residential Aged Care Facilities.

Private Hospital Services Provided for Residents of the Nepean Blue Mountains Local Health District

NBMLHD residents used private hospital care for 38% of total hospital inpatient acute care in 2010/11, 25% of bed days and 31% of cost weighted separations (refer to Figure 4.13).

There has been an increase in private hospital services provided to the residents of the NBMLHD over the five year period to 2010/11, although the proportion of the NBMLHD population using private hospital services has remained relatively constant. Private hospital activity for NBMLHD residents has increased by 16% from 26,618 separations in 2006/07 to 30,845 separations in 2010/11. There has been a corresponding increase of 7.5% in bed days from 60,153 bed days in 2006/07 to 64,694 bed days in 2010/11 and an increase of 14% in cost weighted separations from 30,911 cost weighted separations in 2006/07 to 35,163 cost weighted separations in 2010/11. These figures indicate the increasing complexity of care being provided by the private hospital sector (refer to Figure 4.13 and Figure 4.14).

By Service Related Groups

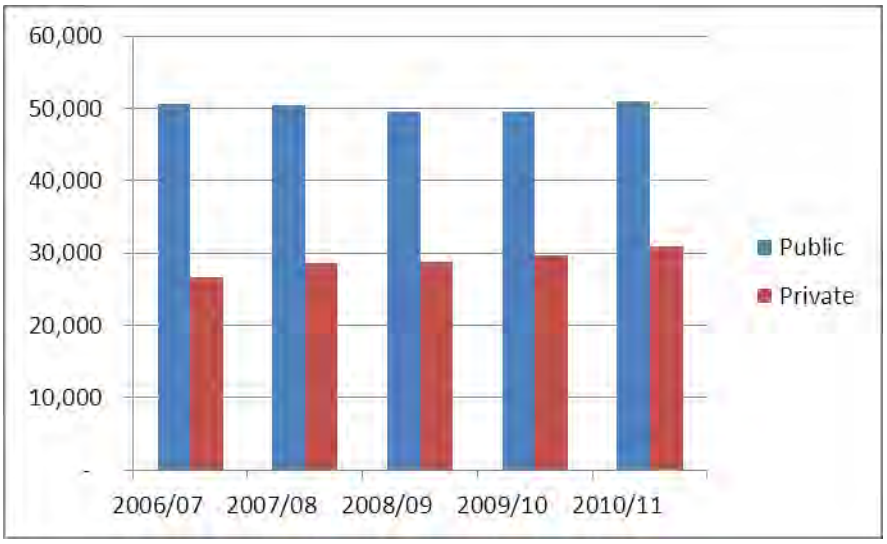
The top service related groups provided by private hospitals for NBMLHD residents in 2010/11 included orthopaedics (16% of total private hospital separations provided to NBMLHD residents), diagnostic GI endoscopy (13%) and gastroenterology (8%) (refer to Figure 4.15 and Figure 4.16).

For private day procedures centres the top service related groups of services provided to NBMLHD residents comprised ophthalmology (41%), gynaecology (16%) and diagnostic GI endoscopy (12%).

By LGA Residents

Residents of the Penrith LGA are the highest user group of private hospital care in the NBMLHD, accounting for 45% of private sector demand.

Figure 4.13 NBMLHD Resident Demand by Public and Private Hospital from 2006/07 to 2010/11 (All Ages), Separations

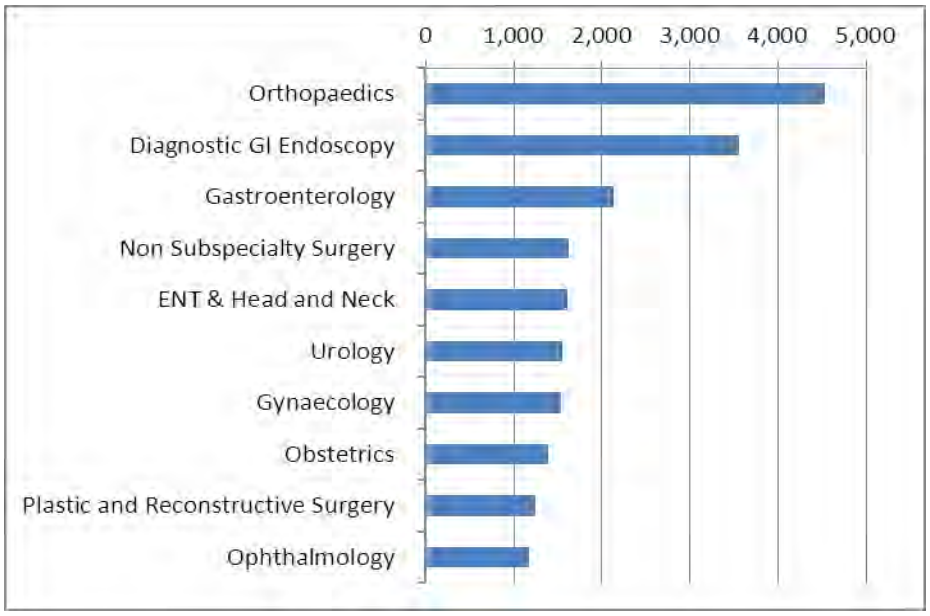


Source: FlowInfo V11.2
Notes: Excludes admit and discharge from Emergency Department, renal dialysis, chemotherapy, unqualified neonates, dedicated psychiatric facility.

Figure 4.14 NBMLHD Resident Demand by Public and Private Hospital from 2006/07 to 2010/11 (All Ages), Bed days

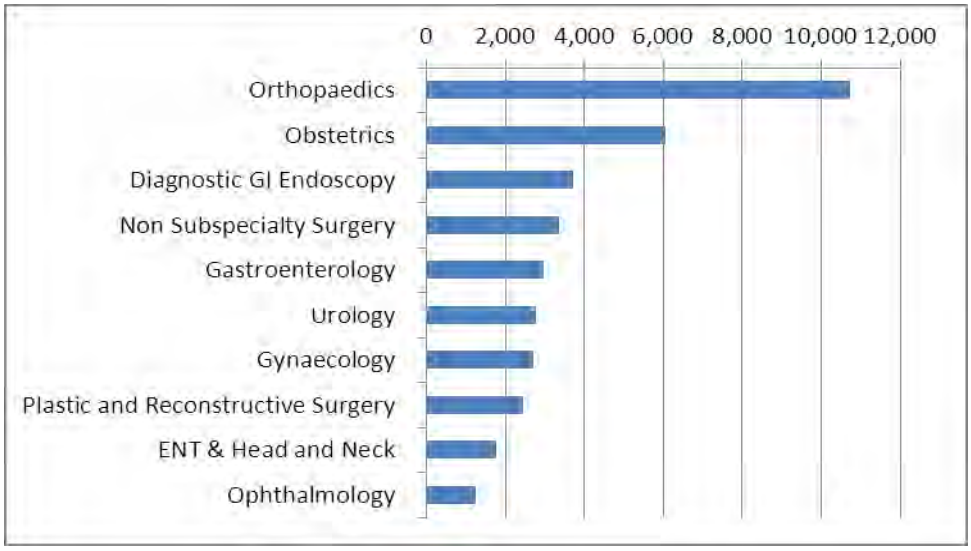
Source: FlowInfo V11.2
Notes: Excludes admit and discharge from Emergency Department, renal dialysis, chemotherapy, unqualified neonates, dedicated psychiatric facility.

Figure 4.15 Top 10 Service Related Groups for NBMLHD Residents in Private Hospitals (Acute, All Ages) in 2010/11, Separations



Source: FlowInfo V11.2
Notes: Excludes admit and discharge from Emergency Department, renal dialysis, chemotherapy, unqualified neonates, dedicated psychiatric facility.

Figure 4.16 Top 10 Service Related Groups for NBMLHD Residents in Private Hospitals (Acute, All Ages) in 2010/11, Bed days



Source: FlowInfo V11.2
Notes: Excludes admit and discharge from Emergency Department, renal dialysis, chemotherapy, unqualified neonates, dedicated psychiatric facility.

Private Hospitals within the Nepean Blue Mountains Local Health District

The NBMLHD has a limited number of private health facilities operating within the locality. Public hospital services are delivered at Hawkesbury Hospital under contract with Hawkesbury District Health Service to 2016. Other private hospitals in the NBMLHD include:

- Nepean Private Hospital, Kingswood (109 beds)
- St John of God Hospital, Richmond (88 mental health beds, non-gazetted)
- Francis Street Ophthalmic Day Procedure Centre, Richmond.

The Lithgow Community Private Hospital (14 beds) closed its overnight acute inpatient activity at the end 2012. It is anticipated that day only and extended day only surgery and specialist consulting suites will continue.

Further information on private hospitals in the NBMLHD is provided in the Appendix and Reference Data Book.

Community Based Health Services

NBMLHD provides community based health services in the following service streams:

- Primary Care and Community Health
- Mental Health
- Drug and Alcohol services
- Oral Health services.

Other NBMLHD community based health services include Satellite Renal Dialysis Service, based at Governor Phillip campus in Penrith.

Community based health services in the NBMLHD are integral to the functioning and sustainability of hospital based acute and sub-acute services. These services have an integral role in supporting current and evolving models of care including early discharge and home based coordinated and integrated care.

The preferred model of care is collocation of community based health services within local Community Health Centres. Oral Health services are also co-located in selected community health facilities or hospitals (Nepean Hospital and Blue Mountains ANZAC District Memorial Hospital).

Links with General Practice and the NBM Medicare Local are critical and central to the service provision model for community based health services.

Community Health Centres are located throughout the NBMLHD. The above community based health services are co-located and delivered from these facilities. These services are listed in the Appendix by LGA. Further information about these services is provided in the Appendix.

Primary Care and Community Health

Primary Care and Community Health provides a range of community based prevention, early intervention, clinical care coordination, maintenance and rehabilitative support services through a multidisciplinary approach. Services are provided in the community either through home visiting or centre based services throughout the Local Health District. The streams in Primary Care and Community Health are:

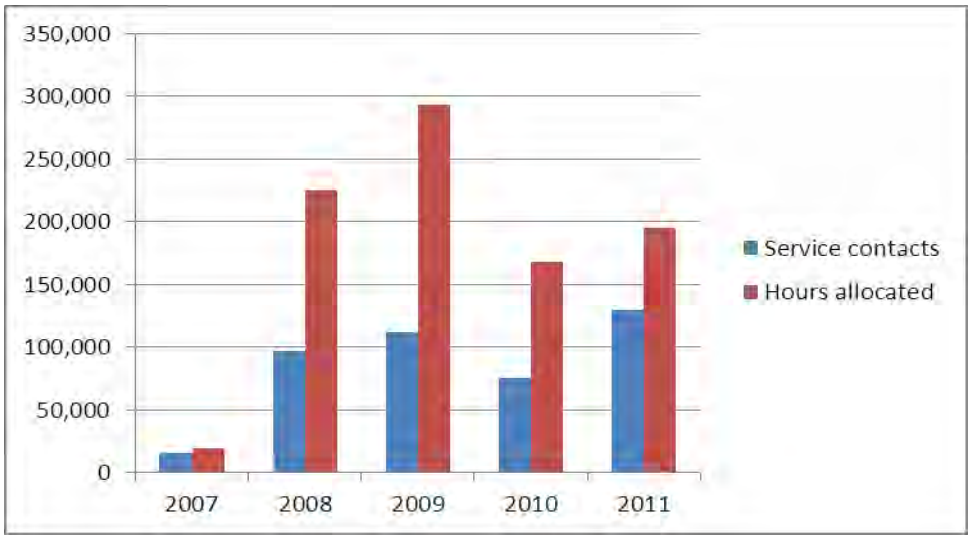
- Child and Family Health which focuses on disease prevention, health promotion, early detection, intervention and treatment of health problems in a multidisciplinary context for new babies, children and their families
- Complex, Aged and Chronic Care services focus on people with multiple risk factors for chronic disease, wound care. The service collaborates with NBMLHD hospitals to minimise and prevent readmission of clients to hospitals or premature admission to a nursing home, improve and maintain client functioning in the home and promote self-management of chronic illness in line with Ministry of Health Directives
- Integrated Violence Prevention and Response Services (IVPRS) provide a co-ordinated approach to violence prevention and a clinical response across the LHD for sexual assault, child protection, domestic and family violence and victims of crime.

Primary Care and Community Health services activity has increased over the period from 2007 to 2011 (refer to Figure 4.17 and Reference Data Book). Service contacts have increased significantly from 15,625 contacts in 2007 to 65,441 contacts in 2012. Hours allocated have also increased significantly over this time from 19,076 in 2007 to 92,599 hours allocated in 2012.

Increases in activity in Primary Care and Community Health services have been driven by increases in as well as the ageing of the population, funding enhancements for specific programs such as Connecting Care (enhancing care for people with chronic illness), Home and Community Care programs tied to specific outputs, new initiatives in children in out of home care and STEPS for screening of four year olds. Service delivery has also been reviewed to ensure greater efficiencies.

It is noted that the decline in numbers of activity in 2010 related to changes in coding practices for Home and Community Care programs and do not reflect real reductions in activity volumes. Lithgow Community Health service activity was not included in the 2007 figures.

Figure 4.17 Primary Care and Community Health Activity in NBMLHD from 2007 to 2011



Source: Community Health Information Management Enterprise, November 2012

Mental Health Services

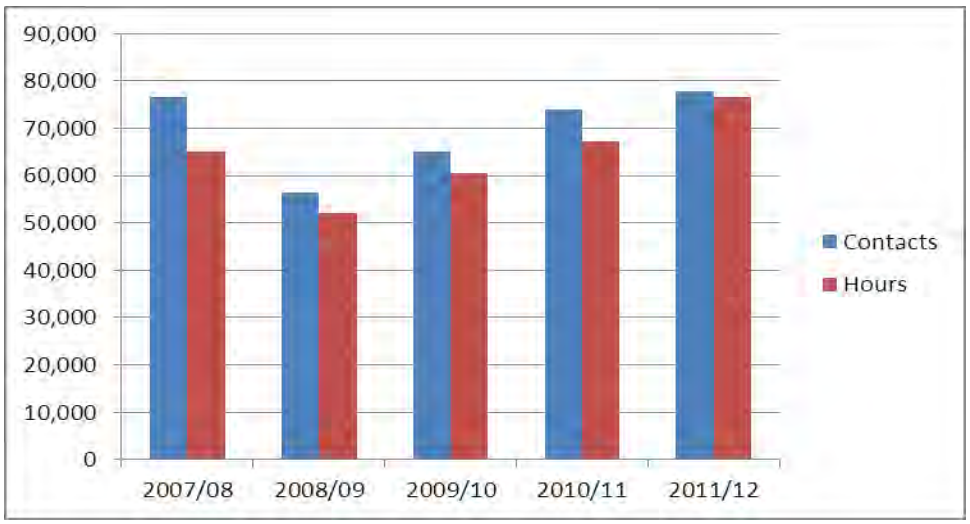
Mental Health Services comprise inpatient and community based services covering the full spectrum of care from prevention and early intervention to recovery, across the age span from children to adolescents, adults and older people. Services are delivered from facilities across the NBMLHD. This section focuses on the community based mental health services provided in the NBMLHD and initiatives aimed at promoting mental health, preventing mental illness and early intervention of mental illness. Other aspects of mental health services and future directions are discussed in Chapter 7. Community based mental health services have a high level of integration with other community based health services and inpatient mental health services.

Community mental health provides services to people living in the community, including residential aged care facilities and other residential facilities. Services are provided through the following streams (further information is provided in the Appendix):

- Acute Access Teams
- Child and Youth Mental Health Service (CYMHS)
- Adult Community Mental Health Services
- Specialist Mental Health Services for Older People Services (SMHSOP).

Activity in community based mental health services in the NBMLHD has increased over the period 2007 to 2012. Recorded client contacts and client-related hours have been steadily increasing since 2008/09. In 2011/12 there were 77,802 contacts with 76,495 hours allocated. Recent clinical enhancements to Specialist Mental Health Services for Older People (SMHSOP) and Child and Youth Mental Health Services (CYMHS) services will result in continued increases in service provision to the community (refer to Figure 4.18).

Figure 4.18 Ambulatory Mental Health Service Activity in NBMLHD from 2007 to 2012



Source: Non-Admitted Patient Occasions of Service, NBMLHD, November 2012

Drug and Alcohol Services

The Drug and Alcohol Service in the NBMLHD provides care in the management of alcohol and drug problems for individuals, families and community organisations. The priorities of the service are to provide equitable services to all members of the community including marginalised groups, and provide access to all levels of service from population based strategies designed to prevent substance abuse in the first instance, to outpatient individual and group programs and inpatient detoxification services to help those with severe dependence issues.

The Drug and Alcohol Service provides inpatients and outpatient detoxification treatment, opioid treatment services, hepatitis C screening and treatment, alcohol clinic, specialist psychology services, community counselling, Magistrates Early Referral Into Treatment (MERIT) Program, Adult Drug Court, adolescent services, drug use in pregnancy services, child and family health services and population health services.

In 2011/12 Drug and Alcohol services in the NBMLHD provided the following services:

- 3,445 patients and 102,783 occasions of service, representing a 1% increase from the previous year
- 516 Aboriginal and Torres Strait Islander patients, comprising 15% of all patients
- 206 culturally and linguistically diverse patients, comprising 6% of all patients
- 289 young people (aged less than 21 years), comprising 8% of all patients.

The impact of drugs, both illicit and licit (including alcohol) has been significant, often resulting in destructive and harmful effects on individuals and communities. Drug use has led to loss of life, and has also greatly diminished the quality of life for many people. Excessive consumption of alcohol remains a major cause of health and social harms. Short episodes of heavy alcohol consumption are a major cause of road and other accidents, domestic and public violence, and crime. Long-term heavy drinking is a major risk factor for chronic disease [including liver disease] and brain damage and contributes to family breakdown and broader social dysfunction.

The Drug and Alcohol Prevention and Health Promotion strategies are in line with the NSW Health *Drug and Alcohol Health Promotion Plan 2011-2015*, NSW Health Indicators to help with capacity building in health promotion and the *National Drug Strategy 2010-2015*. The primary focus in all population health strategies across the District is the need to build capacity, both internally and with outside organisations and the majority of strategies identified will be delivered in partnership with mainstream health services and through inter-sectorial partnerships with external agencies.

Oral Health Services

Oral Health services are provided to the eligible population in the NBMLHD according to the *NSW Policy Directive PD2009_074, Oral Health - Eligibility of Persons for Public Oral Health Care in NSW*. Oral Health services are located at Nepean Hospital and other centres throughout the District (refer to Table 4.12). General and acute dental services are delivered to the eligible adult and child population throughout the NBMLHD.

During 2011/12 Oral Health services in the NBMLHD:

- Increased the clinical output and service delivery to meet increased demands and to target at risk populations during 2011/12
- Experienced an 11% increase in the Dental Occasions of Services (dental appointments) in 2011/12 compared to 2010/11
- Matched the increase in the Dental Occasions of Services with a 13.5% increase in the Dental Weighted Occasions of Services (a measure that quantifies the actual dental services/ treatment provision)
- Successfully met the Oral Health waiting time benchmarks for adult patients with concurrent medical conditions requiring dental care, as well as the waiting time benchmarks for most child waiting lists.

Table 4.12 Oral Health Services in NBMLHD on November 2012

Facility	Number of Chairs, 2012
Nepean	13* (capacity for 32)
Hawkesbury	5
Katoomba	4
Springwood	2
Lithgow	2
Total	**26**

*Average chairs operational at Nepean on 5 November, 2012. It is noted that up to 20 chairs are in operation, at least once per week, when students are placed at Nepean Oral Health Centre.

Population Health Services

Population health services in the NBMLHD aim for 'Better health for all and better population health services'[1]. A range of services in the NBMLHD deliver policies and programs that aim to prevent disease and illness, promote early detection and intervention of illness, promote and protect the health and wellbeing of the population and also provide services in the community to the population of the NBMLHD.

The range of services in the NBMLHD that focus on population health and providing community based services have specific and complementary roles in coordinating strategic directions, service and program planning, delivery and implementation and monitoring and evaluation. These services have critical roles in promoting and protecting the health of the population and supporting the health and health care delivery to vulnerable families, older people, Aboriginal populations, culturally and linguistically diverse populations and disadvantaged populations. These services include:

- Aboriginal Health
- Health Promotion Unit
- HIV and Related Programs (HARP)
- Mammographic Screening
- Multicultural Health
- Public Health Unit.

A brief description and commentary about current and future programs and service delivery is provided below for each of the above services. Examples of KPIs for monitoring performance of this range of services are outlined in Schedule E, *2012-13 Service Agreement for Nepean Blue Mountains Local Health District*. Further information about these services is provided in the Appendix.

[1] Vision outlined in *Population Health Priorities for NSW 2012-2017*, Population and Public Health Division, NSW Ministry of Health, 2012

Aboriginal Health

There is a large Aboriginal population in the NBMLHD. *The health of Aboriginal people: Report of the Chief Health Officer 2012* and the NBMLHD *Aboriginal Health Status Report* outline the status of the health of Aboriginal communities in the NBMLHD and highlight a range of health issues for attention that will ultimately close the gap between indigenous and non-indigenous health status. The NSW and National Aboriginal Health Strategies, *New South Wales 10 Year Aboriginal Health Plan* and the *National Aboriginal and Torres Strait Islander Health Plan* provide an overarching context for the delivery of Aboriginal health services and programs in the NBMLHD. Delivering these services and programs needs to occur in close collaboration with partner organisations including Western Sydney Aboriginal Medical Service, Medicare Local as well as Aboriginal communities throughout the NBMLHD.

The primary function of the NBMLHD Aboriginal Health Unit is to work across the LHD and with other services operating in the NBMLHD to improve access for Aboriginal people to health services. Further information on the range of programs underway in the NBMLHD focussing on Aboriginal communities is provided in the Appendix. Many of these programs are managed through Primary Care and Community Health services or Population Health.

Health Promotion

The Health Promotion Unit in the NBMLHD aims for 'Better health for all and better population health services'[2]. The Health Promotion Unit develops, implements and evaluates community based programs that improve and maintain population health and reduce inequalities in health outcomes. Health Promotion focuses on national and state programs targeting healthy weight, tobacco control and falls injury prevention.

Under the National Partnership Agreement on Preventative Health, Health Promotion services will continue to deliver programs under the Healthy Children's Initiative, Healthy Worker's Initiative as well as providing support for local government under the Healthy Communities Initiative.

In addition to the initiatives outlined above, other key strategic documents that drive delivery of health promotion programs include:

- NSW Government Plan for Preventing Overweight and Obesity in Children, Young People and Their Families 2009-2011
- NSW Tobacco Strategy 2012-2017
- Prevention of Falls and Harm from Falls among Older People 2011-2015.

[2] Vision outlined in Population Health Priorities for NSW 2012-2017, Population and Public Health Division, NSW Ministry of Health, 2012

HIV and Related Programs (HARP)

The overarching goal of HIV and Related Program services in NSW is to reduce the impact of blood-borne viruses (specifically HIV and Hepatitis C) and Sexually Transmissible Infections on the health and wellbeing of individuals, priority population groups and the wider community. Services are guided by the NSW Strategic Plans for HIV, Sexually Transmissible Infections and Hepatitis C and deliver a programmatic response to priority populations in each LHD.

The NBM HIV and Related Programs (HARP) Population Health Unit delivers the following services:

- HIV/AIDS, sexual health and hepatitis health promotion
- Needle and Syringe program
- Dedicated programs to improve sexual health and to increase access to hepatitis C services among Aboriginal people.

Priority populations are gay and homosexually active men, Aboriginal people, people who inject drugs, young people, people from culturally and linguistically diverse backgrounds, sex workers, people living with HIV/AIDS and people with hepatitis C.

NSW has been recognised in national and international literature for its successes in first preventing a generalised epidemic and then preventing sustained increases in HIV infection over the past decade. There are significant new opportunities for the treatment and prevention of HIV and hepatitis C, in particular, and strong targets have been identified for the NBMLHD, including reducing new HIV infections by 60% by 2015, and 80% by 2020.

Specific HIV and Related Program Unit objectives are to:

- Contribute to the reduction in rates of HIV/STI and hepatitis C
- Contribute to the prevention of transmission of blood borne viruses through:
    - Needle and Syringe Program
    - Increasing access to hepatitis C treatment programs to priority populations
- Increase access to HIV/ Sexual health services for priority populations
- Contribute to improving the health of people with HIV/AIDS and hepatitis C.

Mammographic Screening

BreastScreen NSW is a free breast screening service for women, actively targeting women aged 50 to 69 years. This is a biannual mammographic screening service funded by the NSW Government. Research has shown that screening of women in this age group and early detection reduces rates of mortality from breast cancer.

The Westmead Breast Cancer Institute co-ordinates this screening program in the Western Sydney and Nepean Blue Mountains Local Health Districts. The Service has screening locations in the NBMLHD and these include:

- Blue Mountains Hospital
- Lithgow Hospital
- Mt Druitt Hospital
- Sunflower clinic located in the Penrith Myer store.

In addition there is a mobile van that visits Springwood throughout the year.

This free mammographic screening service specifically recruits women aged 50 to 69 years, though free screening is also available to all women aged over 40 years. Women in the target age range are invited to participate by mail, and other advertising and promotional events are also used.

About BreastScreen

The Westmead Breast Cancer Institute co-ordinates a free mammographic screening program for several sites within the NBMLHD. The aims of the mammographic screening service provided in the NBMLHD are aligned with those of BreastScreen NSW, and its targets are outlined in the Appendix.

The major challenge is to recruit women and increase participation (a target of 70% for women in the target age range is set) in the BreastScreen program.

In the two year period 2009 to 2010, the participation rate for BreastScreen Australia was 55% for women in the target age group of 50-69 years. Participation was significantly lower for Aboriginal and Torres Strait islander than non-Indigenous women (36% versus 55%).

Multicultural Health Services

The NBMLHD is home to 49,302 people who speak a language other than English, based on the 2011 Census. This equates to 14.6% of the total NBMLHD population with the Penrith LGA recording the highest numbers at 34,081. The Indo-Aryan language group (comprising Bengali, Hindi, Punjabi, Sinhalese, Urdu and other) has replaced Arabic as the top language group for the NBMLHD. The second language group is Arabic followed by Filipino, Italian, Chinese, Maltese, Spanish, Greek, Croatian and German. New and emerging communities who are predominantly of refugee background include communities from Sudan, Afghanistan, Iraq, Bhutan and Nepal.

The NBMLHD aims to ensure an equitable health system that includes cultural and linguistic diversity at the heart of all policy development, service planning and delivery. The Multicultural Health Unit provides leadership in health policy and service and program development to assist staff in the NBMLHD to build capacity to address the health needs of people from culturally and linguistically diverse backgrounds. The Unit also works in partnership with other government and non-government agencies to build the capacity of culturally and linguistically diverse (CALD) communities and individuals in identifying and addressing their health needs, build their health literacy and actively participate in their own health care.

The key policies and programs that drive the delivery of culturally relevant programs and services include the *Policy and Implementation Plan for Healthy Culturally Diverse Communities 2012-2016* and the NSW *Multicultural Policies and Services Program*.

Public Health

The Public Health Unit in the Nepean Blue Mountains Local Health District aims to protect the health of the population of the District by responding to public health aspects of communicable diseases, environmental health, and bio-preparedness for major incidents or disasters in the Nepean Blue Mountains Local Health District. Functions include providing public health services including immunisations, monitoring public health, identifying adverse trends and evaluating the impact of health services.

The main program areas of Public Health include:

- Bio-preparedness
- Communicable disease control
- Environmental health
- Immunisation.

Nepean Blue Mountains Medicare Local and General Practitioners

The formation of the Nepean Blue Mountains Medicare Local provides coordination of the primary health care sector. The NBM Medicare Local will build on the successes of the former Divisions of General Practice, which were set up to support general practitioners to improve the health of their patients. The NBM Medicare Local will continue to support general practitioners and also involve other health care professionals and organisations to achieve better health for the local community. With more flexible funding, the NBM Medicare Local will have a greater focus on prevention and health promotion.

General practitioners are important providers of care to all patients and clients seen in hospitals and community health services. Increasingly their contribution and place in the multidisciplinary health care team is being recognised. Work continues between the public health services, Medicare Local/ Divisions and Associations of General Practice and individual general practitioners, to improve communication and collaboration. Table 4.13 outlines the numbers of general practitioners in the Nepean Blue Mountains locality, with general practitioner to population ratios and remoteness classifications. It is noted that a ratio of 1 general practitioner per 1,100 population is considered reasonable.

Primary health care generally refers to first line health care provided out of the hospital setting. It includes general practitioners, practice nurses, podiatrists, dieticians, physiotherapists, psychologists and other allied health professionals.

The priorities for the NBM Medicare Local include aged care, mental health, after hours general practice care, child and family strategy, population health and planning, eHealth, elective surgery (including preadmission and addressing surgical risk factors such as obesity and diabetes), directory of specialists and referral pathways. Planning will focus on the Medicare Local overall, as well as within each of the four specific LGAs – Nepean, Blue Mountains, Lithgow and Hawkesbury.

The Nepean Blue Mountains Medicare Local, in collaboration with the NBMLHD, has been successful in securing funding to implement the HealthOne initiative across the Local Health District. HealthOne within the Nepean Blue Mountains Local Health District will comprise a variety of service delivery models to enable it to meet the specific needs of each Local Government Area. These include hub-and-spoke and virtual service provision, in line with the move towards Telehealth and Telemedicine. The capital component to support the initiative will be an extension to the Cranebrook Community Health Centre.

Table 4.13 Information on General Practitioners in the Nepean Blue Mountains

LGA	Penrith LGA	Hawkesbury LGA	Blue Mountains LGA	Lithgow LGA	Total
Estimated resident population 2010[3]	186,221	64,030	77,943	21,094	**349,228**
GP Numbers					
Raw Number	186	65	68	23	**342**
FTE	135	40 (Estimate)	61	22 (Estimate)	**258**
Number of Practices	75	22	25	6	**128**
FWE GP to population ratio[4]	<1000	>1600 (Estimate)	1300 to 1449	1150 to 1299	**N/A**
Land area	407 km^2	2,776 km^2	1,432 km^2	4,551 km^2	**9,190 km^2**
National Park	N/A	1,960 km^2	1,000 km^2	3,049 km^2	**6,069 km^2**
% national park of total land area		70% of total land area	74% of total land area	67% of total land area	**66% of total land area**
Distance from Sydney GPO	35 – 55 km	50 – 100 kms	55-95 kms	140 kms	**35 -140 kms**
Geography	Nepean River border with Blue Mountains LGA	Mountain border with Blue Mountains LGA	Mountain border with Hawkesbury and Lithgow LGA	Mountain border with Blue Mountains LGA	**N/A**
Remoteness Classification ASGS	Major Cities / Inner Regional	Major Cities / Inner Regional	Major Cities / Inner Regional	Inner Regional	**Major Cities / Inner Regional**
Classification by Local City Council	Residential and rural municipality	Residential, and rural municipality	Residential, resort and rural municipality	Residential and rural area.	**Regional and rural**
Aboriginal Population	4,263	1,213	986	646	**7,108**

Source: Nepean Blue Mountains Medicare Local Needs Assessment Report, p 49

[3] http://www.abs.gov.au

[4] PHCRIS Benchmarking Tool- http://www.phcris.org.au

Non-Government Organisations

There are several non-government organisations operating throughout the NBMLHD. These are funded through various government departments and though other sources to deliver a wide range of community based services including a range of health services. These self-governing and independent agencies provide additional and valuable services to NBMLHD residents in line with NSW Health priorities and directions. Through partnership arrangements many non-government organisations engage staff in a variety of projects and programs that facilitate improved services for local residents. Home and Community Care services in particular are key partners working with NBMLHD by providing access to support services that assist people to live in their own homes and remain out of residential care. Refer to the Appendix for a list of non-government organisations funded through NBMLHD as at November 2012.

Residential Aged Care Facilities

There were 27 residential aged care facilities in the NBMLHD in June 2011, with a total of 2,179 residential aged care places. This included 1,301 high care places and 878 low care places (refer to Table 4.14).

Table 4.14 Operational Nursing Home Places in the Nepean Blue Mountains locality, 30 June 2011

LGA	Service Name	High Care	Low Care	Total Beds
Blue Mountains	Anita Villa Care Facility	102	0	
	BCS Morven Gardens Centre	0	62	62
	Bodington	68	52	120
	Buckland	73	71	144
	Endeavour Residential Aged Care Facility	68	0	68
	Martyn Claver Nursing Home	46	0	46
	The Ritz Nursing Home	148	0	148
	Uniting Care Springwood Village	37	97	134
Blue Mountains Total		**542**	**282**	**824**
Hawkesbury	Chesalon Care Richmond	60	0	60
	Fitzgerald Memorial Aged Care Facility Limited	0	48	48
	Kurrajong and District Community Nursing Home	30	0	30
	Richmond Community and RSL Nursing Home	93	7	100
	Uniting Care Hawkesbury Village	52	82	134
Hawkesbury Total		**235**	**137**	**372**
Lithgow	Cooinda Aged People's Home	0	47	47
	Tabulam (Portland Tabulam Health Centre)	0	22	22
	Tanderra Nursing Home	42	6	48
	Three Tree lodge	0	54	54
Lithgow Total		**42**	**129**	**171**
Penrith East	Emmaus Village	0	64	64
	Kingswood Court Aged Care Facility	67	10	77
	St Marys Gardens	92	28	261
Penrith East Total		**159**	**102**	**261**
Penrith West	Edinglassie Lodge	0	65	65
	Governor Phillip Manor	80	0	80
	Henry Fulton Nursing Home	40	0	40
	Jamison Gardens	55	40	95
	Lemongrove gardens Hostel	0	46	46
	Mountainview Nursing Home	99	0	99
	Uniting Care Edinglassie Village	49	77	126
Penrith West Total		**323**	**228**	**551**
Grand Total		**1301**	**878**	**2179**

Source: Nepean Blue Mountains Medicare Local Needs Assessment Report, p 13

5. Inflows and Outflows

Contents

5. Inflows and Outflows

Summary

This chapter reviews the flow of patients for hospital inpatient care that is provided in NBMLHD hospitals (hospital supply) and that is provided for NBMLHD residents (resident demand). The information in this chapter covers:

- *Inflows:* Reviewing where residents come from to use NBMLHD hospitals
- *Outflows:* Reviewing where NBMLHD residents go to receive their hospital inpatient care
- *Net flows:* Determining net flows based on the above information.

The flow analysis presented in this chapter is at a high level. More detailed flow analysis will be undertaken in 2013 to inform potential patient flow reversals.

It should be noted that the flow data used in this analysis is based on hospital inpatient care activity provided up to June 2011, prior to the establishment of the Local Health Districts. The hospital networking arrangements in place at that time under Sydney West Area Health Service will be reflected in the flow data. It is anticipated that some of these flows may reverse with subsequent changes to networking arrangements from late 2011 with the establishment of the Local Health Districts, such as for mental health care and selected planned surgical activity. The data also reflects inpatient care which occurred prior to the completion of new service developments at Nepean Hospital (Stages 3 and 3A). Enhanced service provision at Nepean Hospital from 2012 is expected to impact on surgical patient flows. Initiatives are also underway with the Children's Hospital, Westmead to reverse paediatric patient flows for selected surgical and medical activity.

A portion of outflows of NBMLHD residents for hospital inpatient care are not appropriate or difficult to target for reversal. These include the following.

- "Border" flows where residents on the border of an LHD may 'inflow' or 'outflow' to an adjacent LHD Hospital. This reflects patient choice regarding ease of access.
- Emergency care activity such as for urgent care, acute illness or trauma which can occur outside the local LHD. Ambulance protocols can also impact on this.
- Complex tertiary, quaternary and statewide services may need to be accessed in other hospitals such as Westmead Hospital. Inflows may also occur for this reason e.g. with Nepean Hospital's statewide role for Intensive Care and Neonatal Intensive Care.
- Clinical referral patterns (for example collegial links between doctors).
- Inadequate volume of outflow activity to warrant a targeted flow reversal strategy.

Inflows

Acute Care (All Ages)

- Inflows of residents from outside of NBMLHD for inpatient care provided by NBMLHD hospitals accounted for 20% of acute separations and bed days and 22% of cost weighted separations in 2010/11.
- Most inflows to NBMLHD hospitals were from bordering LGAs with residents from Blacktown LGA comprising 53% of inflow activity to NBMLHD hospitals.
- 20% of inflows to NBMLHD hospitals were for obstetric care, followed by orthopaedics at 9%.
- Emergency care comprised 30% of inflows for inpatient care provided by NBMLHD hospitals.
- Nepean Hospital was the main provider of inpatient care for inflowing residents from outside of the NBMLHD.

Perinatology and Qualified Neonates

- Inflows for Perinatology and Qualified Neonates inpatient care represented 35% of NBMLHD hospital activity in 2010/11, which is consistent with the statewide role provided by Nepean Hospital's Neonatal Intensive Care Unit.

Mental Health Care

- There was a relatively small but increasing volume of inflows of patients for mental health care in NBMLHD hospitals, ranging from 9% of total activity in 2006/07 to 16% in 2010/11. In part this related to management of mental health patients under the previous Sydney West Area Health Service.

Sub-Acute Care

- Inflows of patients from outside of NBMLHD for sub-acute inpatient care provided by NBMLHD hospitals were low (11% of total activity in 2010/11). The inflowing residents were primarily border-related activity.

Outflows

Adult Acute Inpatient Care (Aged 15 Years and Over)

- Outflows of NBMLHD residents for inpatient care provided outside of NBMLHD hospitals have been steady from 2006/07 to 2010/11, at 22% of inpatient care in 2010/11.
- Most of the outflows are to border hospitals, with 7% of inpatient care flowing to Westmead Hospital, followed by Blacktown Hospital at 3%.
- Most of the outflows (59%) were from Penrith LGA, at 5,559 separations, followed by Blue Mountains LGA at 17% (1,554 separations).
- The top outflow inpatient care activity was orthopaedics (1,217 separations in 2010/11) representing 13% of total outflow activity, followed by non-subspecialty surgery (701 separations, 7% of total activity) and cardiology (586 separations, 6% of activity).
- The outflows reflect access to complex tertiary, quaternary and statewide services, border flows, emergency care, as well as hospital networking arrangements under Sydney West Area Health Service (especially for planned surgery).
- Self-sufficiency for adult acute inpatient care (that is the proportion of NBMLHD residents receiving hospital inpatient care from NBMLHD hospitals) was 78% in 2010/11.

Private Demand (Adults)

- There has been a steady trend in the proportion of private hospital activity for NBMLHD adult residents, at around 40%.
- In 2010/11, 38% of total resident demand for hospital inpatient care was provided in private hospitals, with 29,227 separations, 61,925 bed days and 33,843 cost weighted separations undiscounted.
- Penrith LGA had the highest volume of private hospital inpatient care at 12,998 separations, or 36% of total resident demand. Hawkesbury had the highest proportion of private hospital inpatient activity at 48%, with 6,682 separations
- The top outflow activity for hospital inpatient care was orthopaedics at 4,529 separations, representing 16% of total resident demand for private inpatient care, followed by diagnostic GI endoscopy with 3,942 separations or 13% of activity.

Paediatric Acute Inpatient Care (Aged Less Than 15 Years)

- Outflows for paediatric acute inpatient care increased over the last 5 years from 38% to 48% in 2010/11 (from 6,382 separations to 6,491 separations).
- Outflows of NBMLHD residents to the Children's Hospital Westmead increased by 26% over the last five years (from 1,784 separations to 2,245 separations in 2010/11).
- In 2010/11, 37% of paediatric inpatient care for NBMLHD children was provided at Nepean Hospital (2,411 separations) and 35% at Children's Hospital Westmead (2,245 separations)
- There are variations in self-sufficiency (that is the proportion of NBMLHD children receiving care in NBMLHD hospitals) between surgery (at 36%) and medicine (at 58%).

- A high proportion of outflows for paediatric inpatient care are for district level care.
- There is potential to reverse flows in collaboration with the Children's Hospital, Westmead.
- Parental confidence is a significant factor in where children will be taken for care. Collaboration with the Children's Hospital Network will be crucial in addressing the issue of parental confidence.

Private Paediatric Acute Inpatient Care

- There has been a 28% increase in demand for private hospital care for NBMLHD children over the five years to 2010/11, from 1,135 separations to 1,452 separations in 2010/11.
- The proportion of private hospital inpatient care provided to NBMLHD children has remained steady at 18% over this period.

Perinatal and Qualified Neonates

- Outflows for perinatology and qualified neonatal acute care by NBMLHD residents were relatively low at 14% in 2010/11, and this trend has been steady over the last five years.
- Most of the small volume of outflow activity was to the Children's Hospital, Westmead (47 separations).
- Self-sufficiency (that is the proportion of NBMLHD residents receiving inpatient care provided by NBMLHD hospitals) was 86% in 2010/11.
- Demand for private hospital perinatology and qualified neonatal acute care by NBMLHD residents has increased by 43% for separations over the five year period to 2010/11, from 116 separations to 166 separations in 2010/11.

Mental Health Acute Inpatient Care

- Over the five year period to 2010/11 there was a 12% increase in outflows of NBMLHD residents for mental health acute care (from 1,056 separations to 1,186 separations accounting for 9,670 bed days).
- Outflows of NBMLHD residents in 2010/11 for mental health inpatient care comprised 46% of NBMLHD resident demand.
- 27% of the outflow activity was to Westmead Hospital (704 separations in 2010/11) followed by Concord Hospital (197 separations) and Cumberland Hospital (127 separations).
- Self-sufficiency (that is the proportion of NBMLHD residents receiving mental health inpatient care in NBMLHD hospitals) was 54% in 2010/11.
- Many of the flows for mental health inpatient care reflect networking arrangements between hospitals established under Sydney West Area Health Service.
- Outflows of NBMLHD residents also reflect access to higher level complexity or specialist mental health inpatient care (including Child and Adolescent Mental Health Acute Inpatient, Mental Health Intensive Care and Specialist Mental Health Services for Older People) provided outside of NBMLHD mental health facilities.
- There is potential for flow reversals with the establishment of the new Mental Health Centre at

Nepean Hospital.

- Demand for private acute mental health inpatient care for NBMLHD residents has remained relatively constant (around 2,500 separations) over the five year period to 2010/11.

Sub-Acute Inpatient Care

- There is minimal outflow activity for sub-acute inpatient care, with outflows comprising 18% of activity in 2010/11. This trend has been relatively steady over the last five years.
- The majority of outflows of NBMLHD residents was to Mount Druitt Hospital (103 separations in 2010/11), followed by Westmead Hospital (52 separations in 2010/11).
- Most outflows of NBMLHD residents were border activity, reflecting previous hospital networking arrangements under Sydney West Area Health Service.
- Self-sufficiency (that is the proportion of NBMLHD residents receiving inpatient care in NBMLHD hospitals) was 82% in 2010/11.
- Private sector sub-acute care provided to NBMLHD residents has increased significantly (118%) over the five year period to 2010/11, from 1,327 separations to 2,890 separations in 2010/11.

Net Flows

- NBMLHD is a “net outflow” district, where outflows exceed inflows.
- Total net outflows of NBMLHD residents increased by 7% from 3,070 separations to 3,285 separations.
- Net outflows of NBMLHD residents reduced by 17% from 1,004 to 835 separations when outflows of NBMLHD residents to the Children’s Hospital, Westmead were excluded.

Introduction

The information presented in this chapter focuses on flows (inflows, outflows and net flows) of NBMLHD residents for hospital based care and activity provided at NBMLHD hospitals. Data supporting the information presented throughout this chapter is included in the Reference Data Book accompanying this Plan.

Hospital inpatient care and activity is generally described in terms of:

- *Hospital supply* – hospital inpatient care provided within NBMLHD Hospitals. This comprises:
    - Inpatient care provided for residents of NBMLHD LGAs
    - Inflows – inpatient care provided in NBMLHD Hospitals to residents outside of NBMLHD
- *Resident Demand* – where residents of NBMLHD LGAs go for hospital inpatient care. This comprises:
    - Inpatient care provided for NBMLHD residents in NBMLHD hospitals (often described as 'self-sufficiency')
    - Outflows – where NBMLHD residents have accessed hospital inpatient care in hospitals outside of NBMLHD
- *Net flows* describe the balance between inflows into NBMLHD Hospitals and outflows for NBMLHD residents.

The information presented provides a high level analysis of patient flows. Further analysis around potential flow reversals will be undertaken in 2013 in consultation with relevant senior clinicians and managers. The following issues should be noted in relation to understanding patient flows (especially in relation to the potential to reverse activity):

- Many flows for inpatient care are for residents living on the "border" of NBMLHD and other LHDs. This is particularly noticeable for Penrith and Blacktown LGA residents who account for the highest percentage of outflows to Blacktown Mount Druitt Hospital and inflows to Nepean Hospital respectively. It is not anticipated that these "border" flows can be reversed due to patient choice around ease of access.
- A portion of outflows for inpatient care are for complex tertiary, quaternary and statewide services provided by hospitals outside of NBMLHD, primarily Westmead Hospital. For example, the treatment of spinal injuries, major burns, transplants etc. Some inflows to Nepean Hospital also reflect statewide roles for Intensive Care and Neonatal Intensive Care Services. Most of these flows are considered to be appropriate and are expected to continue.
- A portion of flows for hospital inpatient care are for emergency care, which can occur when a resident of NBMLHD requires urgent care in another hospital (for example, due to acute illness, accident). These flows are appropriate and not able to be reversed. However, it is noted that flows for emergency care also reflect ambulance retrieval protocols. Changes to these protocols, specifically in relation to Nepean Hospital's trauma role, are being piloted from 2013 and the resulting flow trends will be monitored.

- Some flows for hospital inpatient care reflect networking arrangements between hospitals that were in place under the previous Sydney West Area Health Service. The shift to Local Health Districts has resulted in changes to these hospital networking arrangements. This is particularly notable for patient flows for mental health care, as well as selected planned surgical activity. It is anticipated that some of these patient flows will shift as referral patterns change.
- Clinical referral patterns are also a factor in outflows (and inflows) for hospital inpatient care – for example, collegial relationships between General Practitioners and specialists will influence referral patterns; and General Practitioners may be unaware of new or enhanced locally available services. Clinical referral patterns can be difficult to influence which needs to be taken into consideration when reviewing flow patterns.
- The trend of flows of patients for hospital inpatient care to June 2011 (most recent flow data available) occurred prior to the service developments at Nepean Hospital (Stages 3 and 3A) with expansion to operating theatres, a new ambulatory procedures centre, relocated surgical wards and increased capacity for intensive care, oral health, renal dialysis and mental health. The commencement of new and enhanced services at Nepean Hospital, particularly for planned surgery and mental health, are anticipated to reduce outflow activity. However, patient flow reversals for surgery will need to consider the impact of NBMLHD hospitals meeting surgical wait list targets initially, before addressing potential patient flow reversals.
- Collaboration with the Children's Hospital, Westmead in 2012 has identified selected paediatric patient activity (surgical and medical) for targeted flow reversals. It is recognised that influencing parental confidence so that there is a sense of confidence that the treatment their children receive in NBMLHD will be consistent with that received at the Children's Hospital will be crucial in changing these flows. These reversals are likely to impact on physical capacity at Nepean Hospital and will be monitored.
- An adequate volume of hospital inpatient care activity is required as the basis for a targeted flow reversal strategy.

Inflows, Outflows and Net Flows

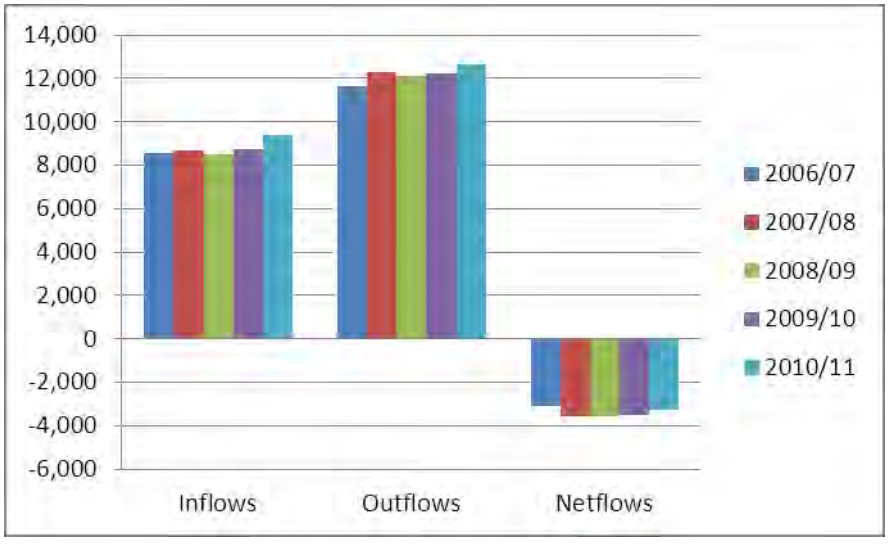
NBMLHD is a "net outflow" district as outflows exceed inflows. Inflows are residents outside of NBMLHD seeking treatment in NBMLHD facilities and outflows are NBMLHD residents seeking treatment in facilities outside of the NBMLHD.

Over the five year period to 2010/11 (refer to Figure 5.1, Figure 5.2 and Table 5.1):

- *Inflows:* Inflows of residents outside of NBMLHD to NBMLHD hospitals for acute inpatient care (all ages) increased from 8,593 to 9,375 separations (and from 18% to 20% of total separations)
- *Outflows:* Outflows of NBMLHD residents to other LHD hospitals increased by 6% from 9,597 to 10,210 separations and outflows of NBMLHD residents to the Children's Hospital, Westmead increased by 19% from 2,066 to 2,450 separations
- *Net Outflows:* Total net outflows of NBMLHD residents increased by 7% from 3,070 separations to 3,285 separations
- Net outflows of NBMLHD residents reduced by 17% from 1,004 to 835 separations when outflows of NBMLHD residents to the Children's Hospital, Westmead were excluded.

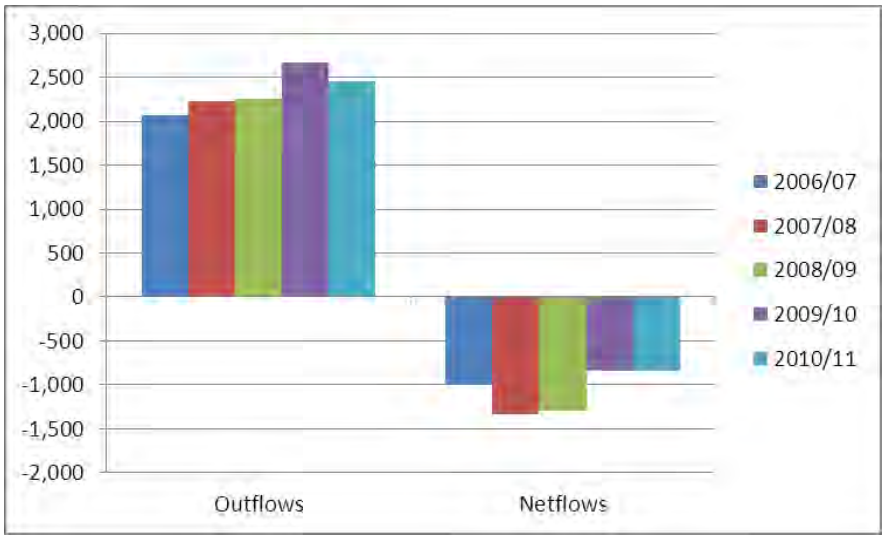
It is noted that the Children's Hospital at Westmead has a role in providing paediatric specialist services to NBMLHD residents. Over the five years to 2010/11 there has been an increase from 2,066 separations in 2006/07 to 2,450 separations in 2010/11 provided to NBMLHD residents (and a slight increase in the overall proportion of outflows from 2.7% in 2006/07 to 3% in 2010/11). This reflects the location of the Children's Hospital at Westmead being relatively close to the NBMLHD and the specialist paediatric tertiary level services provided.

Figure 5.1. Inflow and Outflow Profile of NBMLHD from 2006/07 to 2010/11: Acute Inpatient Separations (All Ages)



Source: FlowInfo v11.2
Notes: Excludes admit and discharge from Emergency Department, renal dialysis, chemotherapy, dedicated psychiatric facility.

Figure 5.2 Inflow and Outflow Profile of NBMLHD to the Children Hospital Westmead from 2006/07 to 2010/11: Acute Inpatient Separations (All Ages)



Source: FlowInfo v11.2
Notes: Excludes admit and discharge from Emergency Department, renal dialysis, chemotherapy, dedicated psychiatric facility.

Table 5.1 Inflow and Outflow Profile of NBMLHD from 2006/07 to 2010/11: Acute Inpatient Separations (All Ages)

		2006/07	2007/08	2008/09	2009/10	2010/11
Inflows	Total	8,593	8,705	8,533	8,753	9,375
Outflows	To Childrens Hosp Westmead	2,066	2,226	2,252	2,667	2,450
	To other LHD Hosps	9,597	10,038	9,834	9,589	10,210
	Total	11,663	12,264	12,086	12,256	12,660
Netflows	Total	-3,070	-3,559	-3,553	-3,503	-3,285
Netflows	Total excludes CHW	-1,004	-1,333	-1,301	-836	-835
Private	Total	26,618	28,563	28,785	29,723	30,845

Source: Flowinfo v11.2
Notes: Excludes admit and discharge from Emergency Department, renal dialysis, chemotherapy, dedicated psychiatric facility.

Inflows of Patients from Outside of Nepean Blue Mountains Local Health District (Acute Inpatient Care, All Ages)

NBMLHD hospitals treat both local residents and residents from other localities. NBMLHD hospitals provide treatment to residents from other localities (inflows) for several reasons including close proximity to a particular hospital when the person becomes acutely unwell, the tertiary role of the services provided by a particular hospital or patient transfers occurring to a specific hospital due to clinician relationships and / or bed availability.

Inflows for acute inpatient care in NBMLHD hospitals accounted for (refer to Table 5.1):

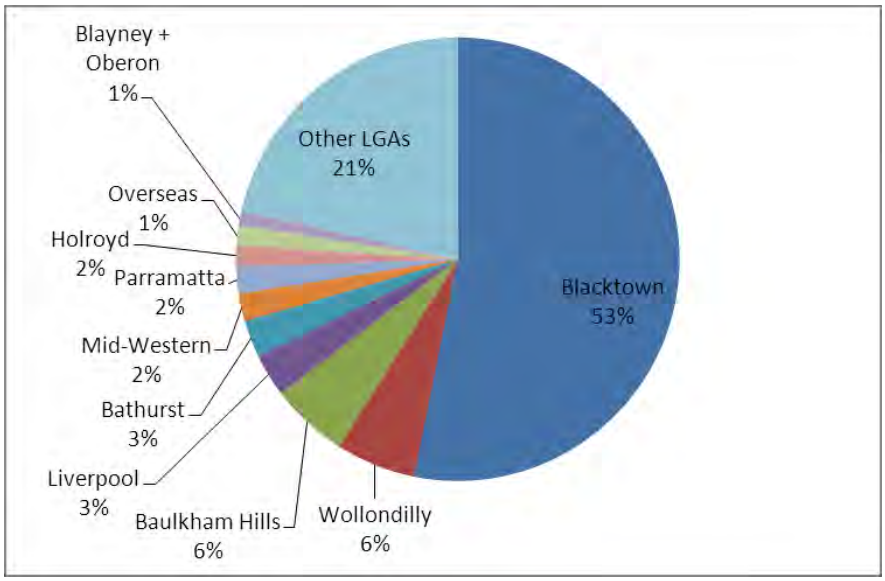
- 18% in 2006/07 to 20% (9,375) in 2010/11 of separations
- 19% in 2006/07 to 20% (38,992) in 2010/11 of bed days
- 20% in 2006/07 to 22% (15,457) in 2010/11 of cost weighted separations.

The higher inflow percentage for cost weighted separations compared to separations (that is 22% compared to 20%), reflects the higher average cost weight for specialised services inflows to NBMLHD hospitals.

Inflows from Other Local Government Areas (Acute Inpatient Care)

Most of the inflows to NBMLHD hospitals were from residents from Local Government Areas bordering the NBMLHD. Blacktown had the largest proportion of resident inflows to NBMLHD hospitals (53% accounting for 4,984 separations), followed by Wollondilly (6% with 547 separations), Baulkham Hills (6% with 533 separations), Liverpool (3% with 293 separations), Bathurst (3% with 252 separations) and Mid-Western (2% with 189 separations). The sources of inflows to NBMLHD hospitals over the period to 2010/11 are outlined in Figure 5.3.

Figure 5.3 Top Local Government Areas for Inflows to NBMLHD Hospitals, 2010/11 for Acute Inpatient Care (All Ages)



Source: FlowInfo v11.2

Notes: Excludes admit and discharge from Emergency Department, renal dialysis, chemotherapy, dedicated psychiatric facility.

Inflows by Service Related Groups (Acute Inpatient Care, All Ages)

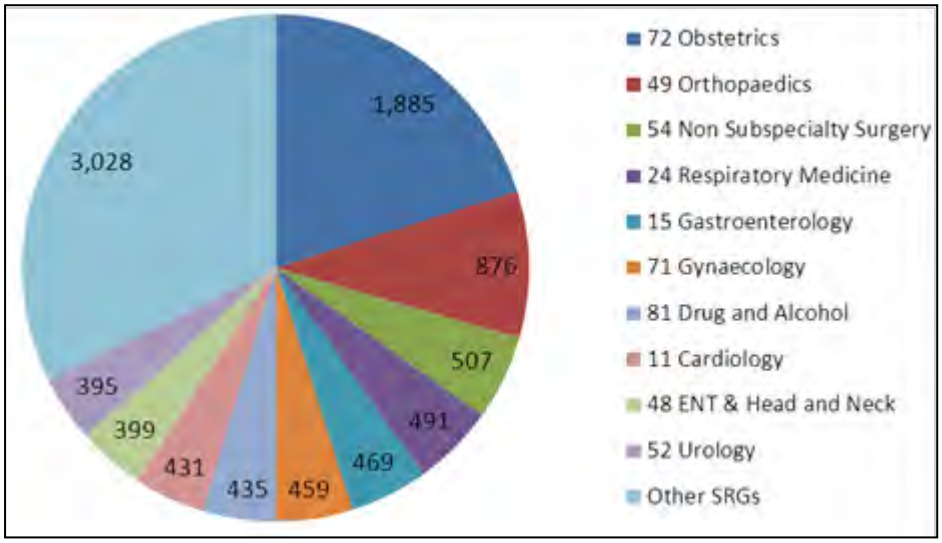
Most inflows to NBMLHD hospitals in 2010/11 were for obstetrics (20% of inflowing total inpatient acute activity with 1,885 separations, 6,113 bed days and 1,974 cost weighted separations), followed by orthopaedics (9% with 876 separations, 4,585 bed days and 1,741 cost weighted separations), non-subspecialty surgery (5% with 507 separations, 1,741 bed days and 698 cost weighted separations) and respiratory medicine (491 separations and 2,595 bed days and 787 cost weighted separations). Refer to Figure 5.4.

The large majority of inflows to NBMLHD inpatient acute care were for obstetric services at Nepean Hospital (1,572 separations). This is consistent with the tertiary and super-district role of Nepean Hospital in providing obstetrics and perinatology services. These factors combined result in women with high risk pregnancies being transferred to deliver at Nepean Hospital. This also allows for access to the Neonatal Intensive Care unit located at Nepean Hospital.

In 2010/11, 30% of inflows to the NBMLHD were for emergency care. This includes 54% of inflows for orthopaedic inpatient acute care, 71% of inflows non-subspecialty surgery and 92% of inflows for respiratory medicine.

The services with the highest inflows as a percentage of their caseload were Drug and Alcohol (at 48% with 435 separation of inflow acute inpatient activity), followed by perinatology (41% with 177 separations) and qualified neonates (30% with 324 separations and 1,063 bed days). These services reflect the supra-district tertiary level role of Nepean Hospital, as outlined above.

Figure 5.4 Top 10 Service Related Group Inflows to NBMLHD Hospitals in 2010/11 (All Ages)



Source: FlowInfo v11.2
Notes: Excludes admit and discharge from Emergency Department, renal dialysis, chemotherapy, dedicated psychiatric facility.

Inflows to NBMLHD Hospitals (Acute Inpatient Care, All Ages)

As noted above inflows to NBMLHD hospitals accounted for 20% of acute inpatient separations (9,375 separations) during 2010/11.

Nepean Hospital

Of the NBMLHD hospitals, Nepean Hospital received most of the inflows for acute inpatient care, with 7,237 separations, 32,059 bed days and 13,089 cost weighted separations of inflow activity in 2010/11. The tertiary role of Nepean Hospital was reflected in the higher inflow percentage for cost weighted separations compared to separations (that is 24% compared to 21%). Over the five year period to 2010/11 the percentage of inflows was relatively constant (from 20% to 21%).

Most of the inflows to Nepean Hospital came from the Blacktown LGA (54% accounting for 3,919 separations), followed by Wollondilly (7% accounting for 530 separations).

Hawkesbury Hospital

Hawkesbury Hospital received the second most inflows of the NBMLHD hospitals, with 1,555 separations, 5,428 bed days and 1,818 cost weighted separations of inflow activity in 2010/11. Most of the inflows came from the neighbouring LGAs of Blacktown (60% with 936 separations) and Baulkham Hills (21% with 323 separations). Over the five year period to 2010/11 the percentage of inflows was steady from 20% to 22% (6,957 separations).

Other NBMLHD Hospitals

There were relatively small inflows of acute inpatient activity to Lithgow Hospital (256 separations), Blue Mountains District ANZAC Memorial Hospital (169 separations) and Springwood Hospital (158 separations).

Inflows for Acute Mental Health Inpatient Care in Dedicated Facilities (All Ages)

There was a small volume of inflows for acute mental health inpatient care to NBMLHD hospitals (refer to Table 5.2). Inflows accounted for:

- 136 separations in 2006/07 to 259 separations in 2010/11 of separations (a modest increase from 9 to 16% of total separations)
- 1,633 bed days in 2006/07 to 2,242 bed days in 2010/11 of bed days.

Table 5.2 NBMLHD Mental Health (Dedicated Psychiatric Facilities) Activity (All Ages), 2006-2011

	2006/07	2007/08	2008/09	2009/10	2010/11
NBMLHD LGAs					
Separations	1,300	1,653	1,478	1,172	1,375
Bed days	15,856	16,418	16,526	15,133	15,941
Inflow LGAs					
Separations	136	216	252	216	259
Bed days	1,633	2,288	2,284	2,051	2,242
Total Separations	**1,436**	**1,869**	**1,730**	**1,388**	**1,634**
Total Bed days	**17,489**	**18,706**	**18,810**	**17,184**	**18,183**
% inflows Separations	**9%**	**12%**	**15%**	**16%**	**16%**

Source: Flowinfo v11.2
Notes : Excludes admit and discharge from Emergency Department. Excludes acute and subacute inpatient activity.

Inflows for Perinatology and Qualified Neonates

There is a Neonatal Intensive Care Unit at Nepean Hospital that provides a statewide role for this level of care. Inflows for perinatology and qualified neonatal inpatient care to Nepean Hospital in 2010/11, by residents from outside of the NBMLHD, represented 35% of activity (492 separations, 4,575 bed days and 1,834 cost weighted separations undiscounted). This is consistent with the statewide Neo-natal Intensive Care Unit role provided at Nepean Hospital.

Inflows into NBMLHD for perinatology and qualified neonates were primarily from bordering LGAs and Western NSW. There was a 19% increase in inflows from Western Sydney over the period 2006/07 to 2010/11 from 287 to 341 separations. This pattern of inflows from bordering LHDs is as expected to ensure provision of Neonatal Intensive Care services as close as possible to a person's residence.

Inflows for Sub-Acute Care in NBMLHD Hospitals (All Ages)

In 2010/11 there was a small volume of inflows from residents outside of the NBMLHD for sub-acute care (11% or 177 separations) in NBMLHD hospitals. This was an increase in inflows from 7% (102 separations) in 2006/07. Most of the inflows were residents from neighbouring localities of NBMLHD including Western Sydney and Sydney South West Local Health Districts.

Outflows of Residents of Nepean Blue Mountains Local Health District to Other Hospitals

Residents of the NBMLHD are treated in NBMLHD Hospitals as well as in hospitals in other localities (outflows). The following information outlines acute adult, sub-acute and paediatric acute outflow activity, as well as mental health care outflow activity.

Outflows for Adult Acute Inpatient Care (Aged More Than 15 Years)

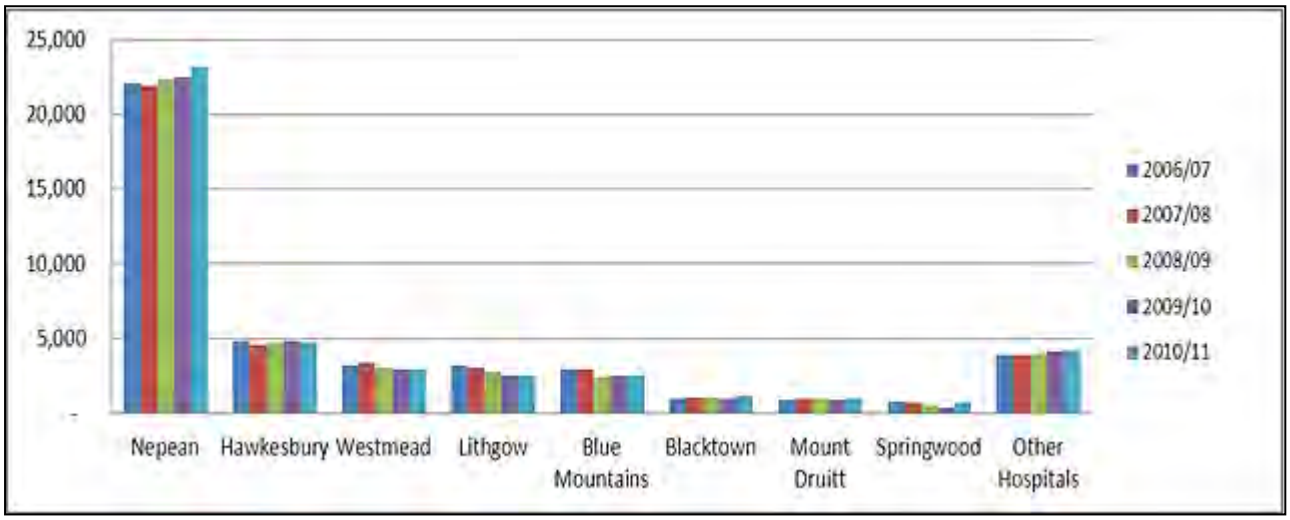
During the five year period to 2010/11 the supply of acute inpatient care provided to NBMLHD residents (aged more than 15 years) in NBMLHD hospitals was steady, with 33,850 separations in 2010/11 accounting for 138,652 bed days and 49,920 cost weighted separations undiscounted.

Outflows for adult acute inpatient care by NBMLHD residents in 2010/11 have been to Westmead Hospital (7% with 2,999 separations), Blacktown Hospital (3% with 1,136 separations) and Mount Druitt Hospital (2% with 980 separations) (refer to Figure 5.5 and Figure 5.6).

Outflows of NBMLHD residents to WSLHD facilities reflect a mixture of “border” flows, with NBMLHD residents accessing complex tertiary, quaternary, statewide and major trauma services at Westmead Hospital, as well as reflecting the networking arrangements between hospitals that were in place under the previous Sydney West Area Health Service. Outflows of NBMLHD residents for complex tertiary and quaternary level inpatient care was reflected in the high average cost weighted separations undiscounted for Westmead Hospital for NBMLHD residents (average cost weight of 2.2 in 2010/11). The top five service related groups for NBMLHD residents outflowing to Westmead Hospital in 2010 included renal medicine, non-specialty surgery, interventional cardiology, neurology and gynaecology.

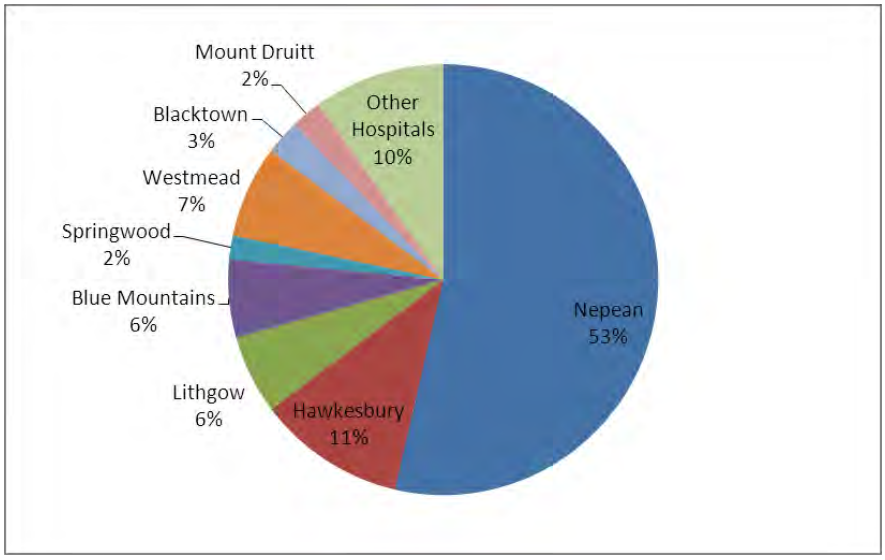
It is anticipated that a proportion of outflows of NBMLHD residents to Western Sydney Local Health District facilities will decline with changes in networking arrangements following the establishment of the Local Health District structures. However, it is anticipated that outflows for complex tertiary, quaternary and statewide services, emergency care as well as border flows will continue.

Figure 5.5 NBMLHD Adult Resident Demand for Acute Activity (Aged > 15 years), from 2006/07 to 2010/11



Source: FlowInfo v11.2
Notes: Excludes admit and discharge from Emergency Department, renal dialysis, chemotherapy, qualified and unqualified neonates, dedicated psychiatric facility.

Figure 5.6 NBMLHD Adult Resident Demand for Acute Activity (Aged > 15 years) in 2010/11



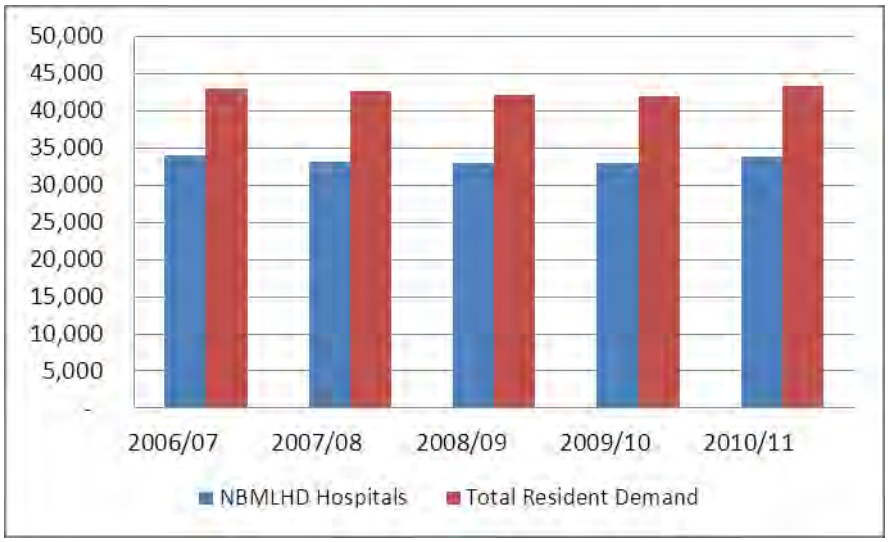
Source: FlowInfo v11.2
Notes: Excludes admit and discharge from Emergency Department, renal dialysis, chemotherapy, qualified and unqualified neonates, dedicated psychiatric facility.

Adult Acute Inpatient Activity – Self-Sufficiency

Self-sufficiency refers to the percentage of NBMLHD residents accessing care in NBMLHD hospitals and is one indicator of local access. However, it should be noted that there will always be a proportion of activity that will outflow, as outlined at the beginning of this chapter (i.e. due to emergency care, border flows, quaternary service access, patient choice, clinical referral patterns, sufficient volumes etc.) and which is not able to be reversed.

Self-sufficiency for adult acute inpatient care for NBMLHD residents in NBMLHD hospitals was 78% in 2010/11. This figure has been steady over the five year period to 2010/11 (refer to Figure 5.7).

Figure 5.7 NBMLHD Adult Resident Public Demand from 2006/07 to 2010/11

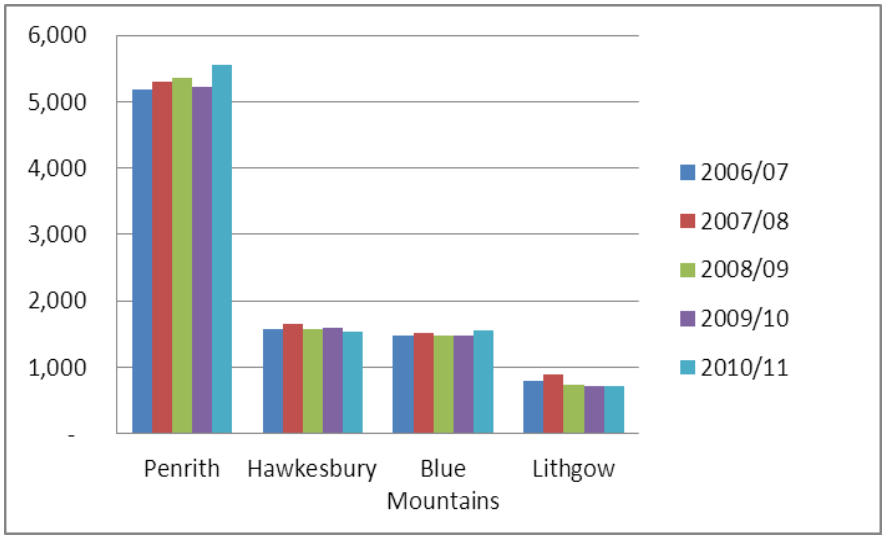


Source: FlowInfo v11.2
Notes: Excludes admit and discharge from Emergency Department, renal dialysis, chemotherapy, qualified and unqualified neonates, dedicated psychiatric facility.

Outflows for Acute Inpatient Care by Local Government Area

The largest proportion and number of outflows of NBMLHD residents for adult acute inpatient care was from the Penrith LGA, with a slight increase over the five year period to 2010/11 from 5,182 separations in 2006/07 to 5,559 separations in 2010/11. Outflows of NBMLHD residents from the Hawkesbury LGA accounted for 1,545 separations, with 1,554 separations for Blue Mountains LGA. Lithgow LGA had 726 separations outflow in 2010/11 (refer to Figure 5.8).

Figure 5.8 Outflow Separations for Adult Acute Inpatient Activity by LGA (Age >15 Years), from 2006/07 to 2010/11



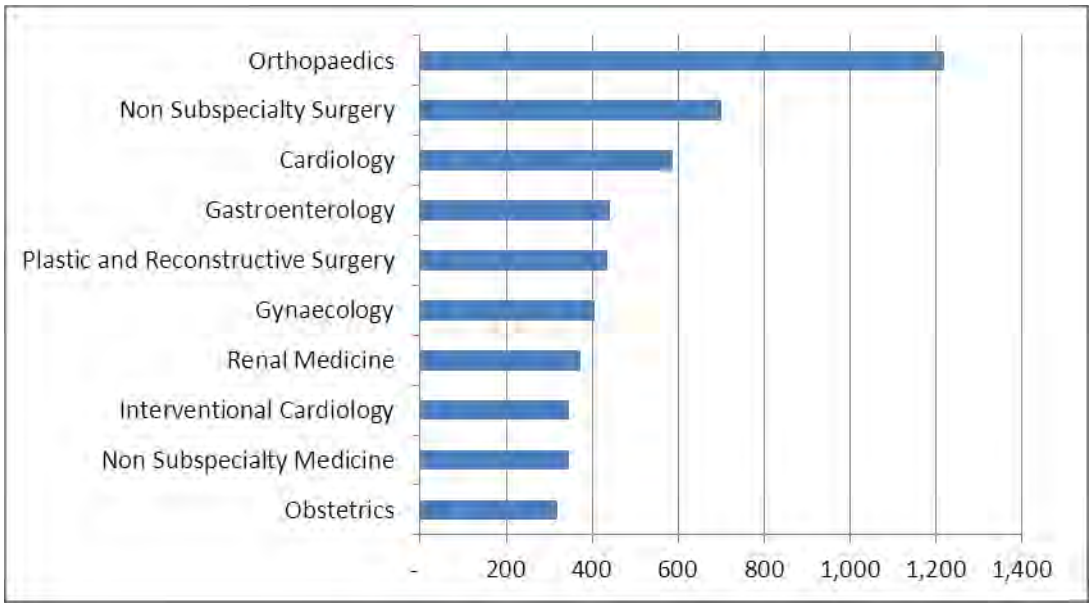
Source: FlowInfo v11.2
Notes: Excludes admit and discharge from Emergency Department, renal dialysis, chemotherapy, qualified and unqualified neonates, dedicated psychiatric facility.

Outflows for Acute Inpatient Care by Service Related Groups

The top five service related groups for outflow activity of NBMLHD residents for adult acute activity over the five year period to 2010/11 were orthopaedics (1,217 separations in 2010/11), non-sub-specialty surgery (701 separations), cardiology (586 separations), gastroenterology (441 separations) and plastic and reconstructive surgery (435 separations) (refer to Figure 5.9).

The proportion of outflows by service related groups were identified for emergency and planned activity. The highest percentage of emergency outflow activity was for the service related group of cardiology at 80% in 2010/11, followed by non-subspecialty medicine at 57% and non-subspecialty surgery at 50%. There were also a high percentage of emergency outflows for much smaller volumes of activity for the service related groupings of drug and alcohol, psychiatry- acute and tracheostomy.

Figure 5.9 Top 10 Outflows by Service Related Group for Adult Acute Inpatient Activity (Aged > 15 years), 2010/11



Source: FlowInfo v11.2
Notes: Excludes admit and discharge from Emergency Department, renal dialysis, chemotherapy, qualified and unqualified neonates, dedicated psychiatric facility.

Private Demand for Acute Inpatient Care

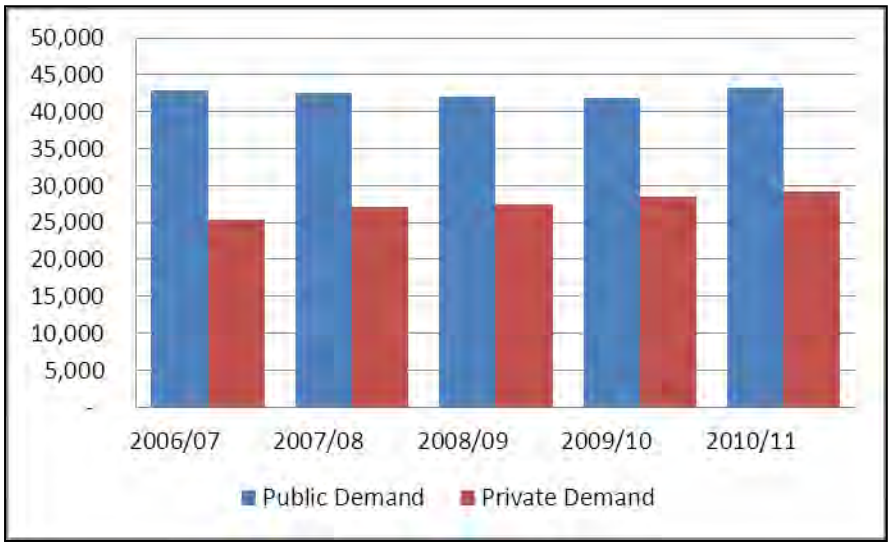
Private demand for acute inpatient care by adult residents of the NBMLHD has increased over the five year period to 2010/11. The increase in private demand for acute inpatient services is in the order of 15% for separations, 7% for bed days and 14% for cost weighted separations undiscounted. This shift is from 25,367 separations in 2006/07 accounting for 57,704 bed days and 29,814 cost weighted separations undiscounted to 29,227 separations in 2010/11 accounting for 61,925 bed days and 33,843 cost weighted separations undiscounted (refer to Figure 5.10).

Despite the increase in total volume for private acute inpatient care by NBMLHD residents, the proportion of the mix of public and private demand has stayed relatively constant over the five year period to 2010/11 at around 40% for private acute inpatient care.

Penrith LGA had the highest volume of private hospital activity at 12,998 separations, or 36% of total resident demand. Hawkesbury had the highest proportion of private activity at 48%, with 6,682 separations, with Blue Mountains LGA at 45% (7,324 separations). In Lithgow LGA 37% of residents accessed private hospitals, with 2,223 separations (refer to Figure 5.11).

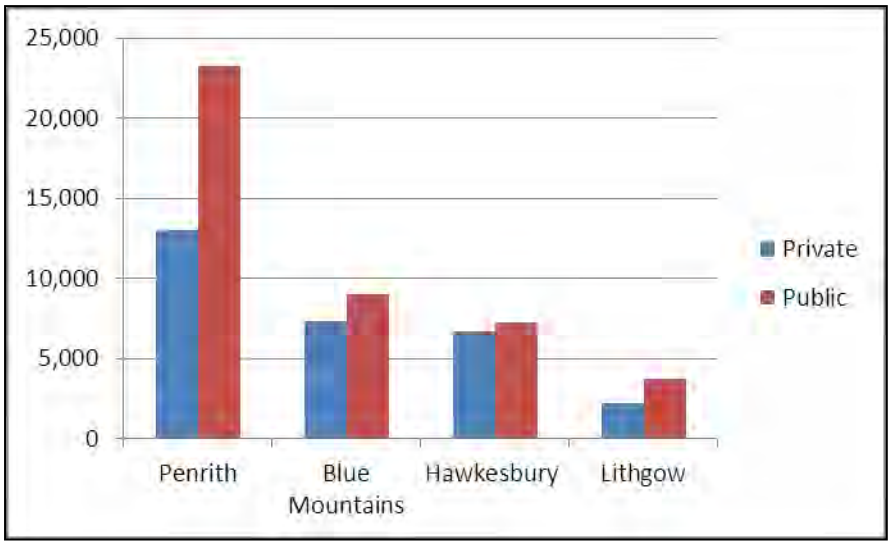
The top outflow activity to private hospitals by NBMLHD residents was for orthopaedics, with 4,529 separations, 10,738 bed days and 7,653 cost weighted separations. This represented 16% of total private demand. Diagnostic gastroenterology endoscopy comprised 13% of private demand, with 3,564 separations, followed by gastroenterology at 8%, with 2,137 separations.

Figure 5.10 NBMLHD Adult Resident Demand for Public and Private Acute Activity, from 2006/07 to 2010/11



Source: FlowInfo v11.2
Notes: Excludes admit and discharge from Emergency Department, renal dialysis, chemotherapy, qualified and unqualified neonates, dedicated psychiatric facility.

Figure 5.11 NBMLHD Adult Resident Demand by LGA for Public and Private Acute Activity, from 2006/07 to 2010/11



Source: FlowInfo v11.2
Notes: Excludes admit and discharge from Emergency Department, renal dialysis, chemotherapy, qualified and unqualified neonates, dedicated psychiatric facility.

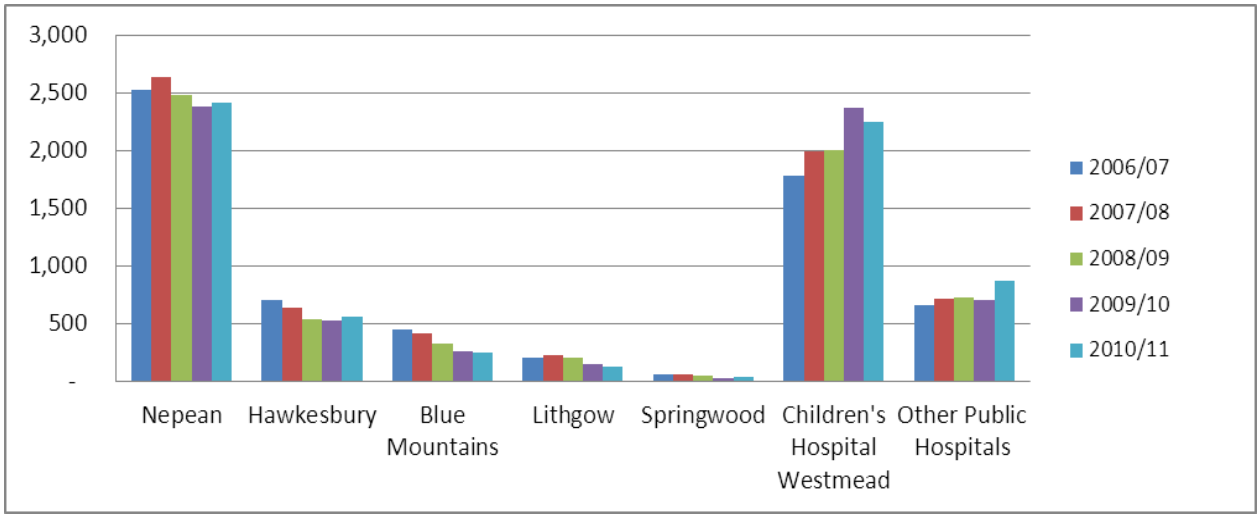
Outflows for Paediatric Acute Inpatient Care (Aged Less Than 15 Years)

During the five year period to 2010/11 there was a 14% reduction in inpatient acute care provided to NBMLHD children (less than 15 years) in NBMLHD hospitals, from 3,936 separations to 3,378 separations. This trend of reduced inpatient acute care for NBMLHD children was evident across all NBMLHD hospitals.

By comparison, during the five year period to 2010/11 there was a 26% increase in demand by NBMLHD children for inpatient care at the Children's Hospital Westmead from 1,784 separations to 2,245 separations and a 31% increase in demand by NBMLHD children for inpatient care other LHD hospitals from 662 separations to 868 separations (refer to Figure 5.12).

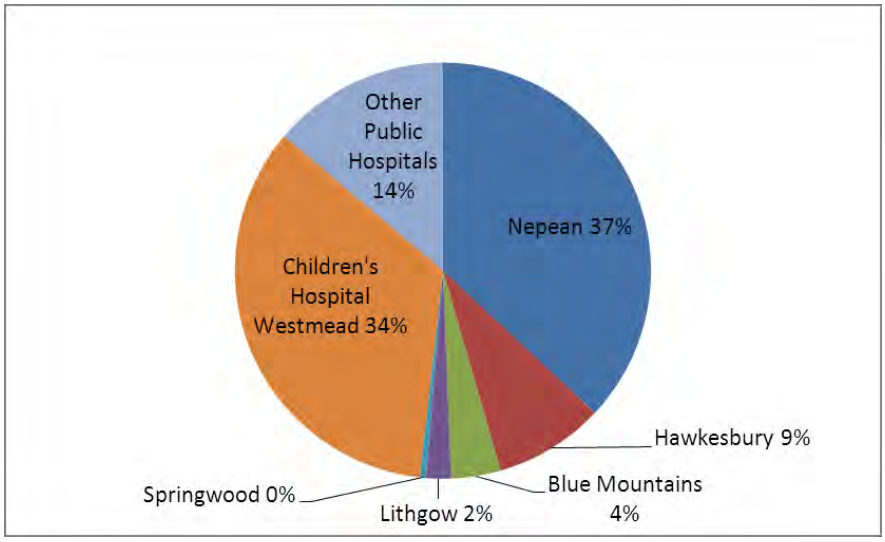
In 2010/11, 37% of paediatric inpatient care for NBMLHD children was provided at Nepean Hospital (2,411 separations) and 35% at Children's Hospital Westmead (2,245 separations) (refer to Figure 5.13).

Figure 5.12 NBMLHD Paediatric Resident Demand by Hospital from 2006/07 to 2010/11



Source: FlowInfo v11.2
Notes: Excludes admit and discharge from Emergency Department, renal dialysis, chemotherapy, qualified and unqualified neonates, dedicated psychiatric facility.

Figure 5.13 NBMLHD Paediatric Resident Demand by Hospital, 2010/11

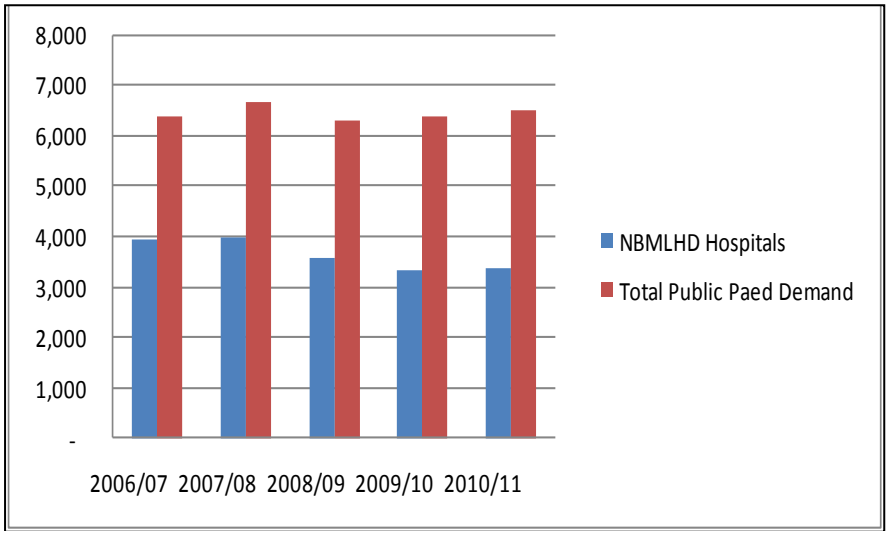


Source: FlowInfo v11.2
Notes: Excludes admit and discharge from Emergency Department, renal dialysis, chemotherapy, qualified and unqualified neonates, dedicated psychiatric facility.

Paediatric Inpatient Acute Care: Self-sufficiency

Over the five year period to 2010/11 there was a reduction in the level of self-sufficiency of acute paediatric service delivery for children (aged less than 15 years) by NBMLHD hospitals from 62% in 2006/07 to 52% in 2010/11 (refer Figure 5.14.)

Figure 5.14 NBMLHD Paediatric Resident Public Demand from 2006/07 to 2010/11



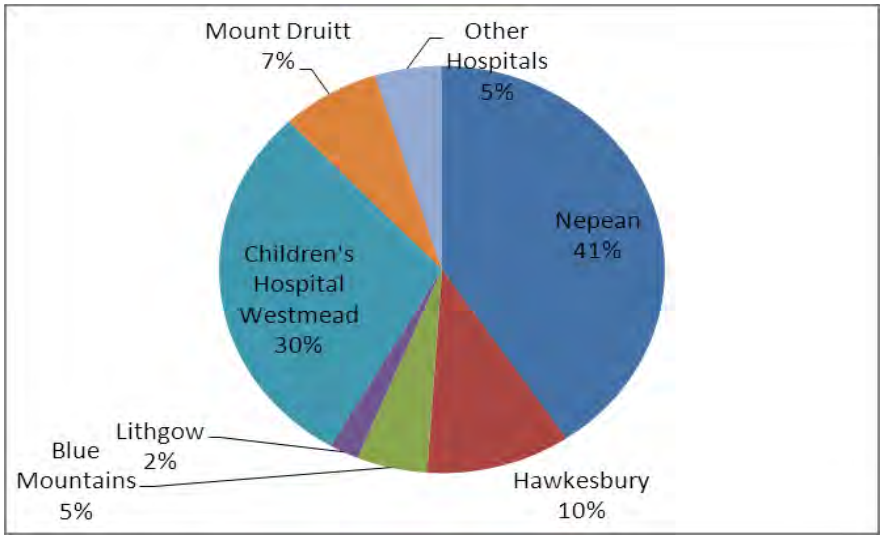
Source: FlowInfo v11.2
Notes: Excludes admit and discharge from Emergency Department, renal dialysis, chemotherapy, qualified and unqualified neonates, dedicated psychiatric facility.

Medical and Surgical Paediatric Acute Inpatient: Self-Sufficiency

Within the children's age group there is further variation in flows. Paediatric surgery is performed less in NBMLHD hospitals than paediatric medical inpatient care. Paediatric self-sufficiency for surgical inpatient care was 36% compared to 58% medical paediatric inpatient care in 2010/11. It should be noted that self-sufficiency for paediatric medical and surgical inpatient care in the NBMLHD hospitals has reduced over the five year period to 2010/11. There has been a reduction from 68% to 58% in self-sufficiency for medical paediatric inpatient care provided by NBMLHD hospitals for NBMLHD children, and a reduction from 43% to 36% in surgical/ procedural inpatient care provided by NBMLHD hospitals for NBMLHD children.

In 2010/11 for NBMLHD children for medical paediatric inpatient care, 30% of outflows were to the Children's Hospital Westmead compared to 41% of NBMLHD children receiving their care at Nepean Hospital. For paediatric surgery, 47% was undertaken at the Children's Hospital Westmead compared to 28% at Nepean Hospital (refer to Figure 5.15 and Figure 5.16).

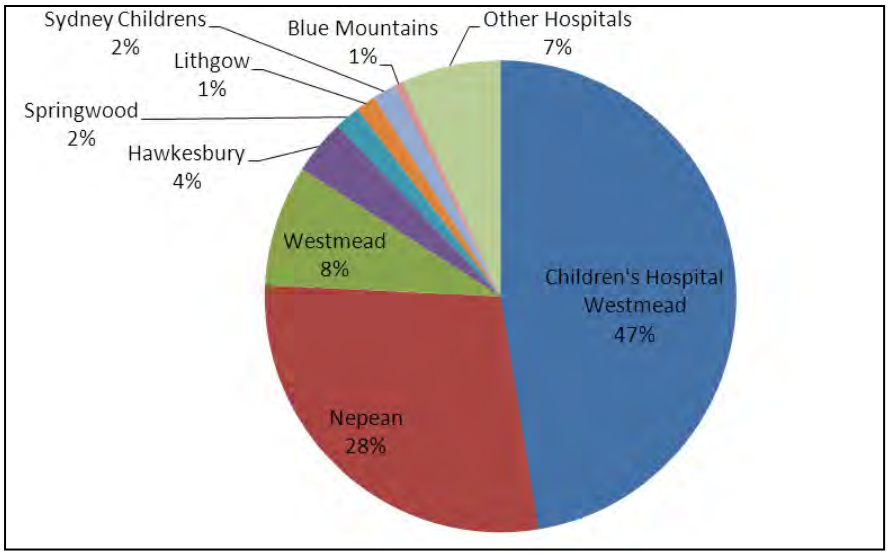
Figure 5.15 NBMLHD Paediatric Medical Activity by Hospital 2010/11



Source: FlowInfo v11.2

Notes: Excludes admit and discharge from Emergency Department, renal dialysis, chemotherapy, qualified and unqualified neonates, dedicated psychiatric facility.

Figure 5.16 NBMLHD Paediatric Surgical Activity by Hospital 2010/11



Source: FlowInfo v11.2

Notes: Excludes admit and discharge from Emergency Department, renal dialysis, chemotherapy, qualified and unqualified neonates, dedicated psychiatric facility.

Paediatric Acute Inpatient Activity Outflows by Service Related Groups

Outflows for paediatric acute care by NBMLHD children are largely for district level care as well as for specialist level care.

In 2010/11 for medical acute inpatient care the top service related groups were for other kidney and urinary tract diagnoses (121 separations), oesophagitis and gastroenteritis (84 separations), and viral illness (77 separations).

In 2010/11 for paediatric surgery the top service related groups for NBMLHD children outflowing to other LHD hospitals were dental extractions and restorations (184 separations), other gastroscopy, same day (75 separations) and testes procedures (69 separations).

In 2010/11 for medical paediatric inpatient care for NBMLHD children outflowing to the Children's Hospital, Westmead, the top service related groups were other kidney and urinary tract diagnoses without catastrophic or severe complications (119 separations) and red blood cell disorders without catastrophic or severe complications (72 separations).

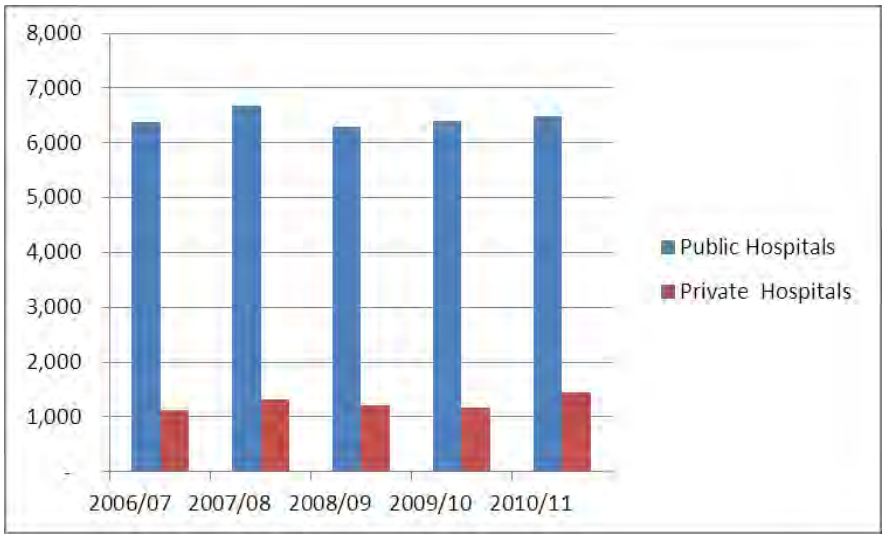
In 2010/11 for paediatric surgery for NBMLHD children outflowing to the Children's Hospital, Westmead, the top service related groups were other gastroscopy same day (70 separations), testes procedures (63 separations) and hernia procedures (61 separations).

Private Paediatric Demand

There has been a 28% increase in demand for privately provided paediatric acute care from private hospitals and private day procedure centres for NBMLHD children (aged less than 15 years) over the five year period to 2010/11. Private paediatric activity for NBMLHD children has increased from a total of 1,135 separations in 2006/07 accounting for 1,704 bed days and 940 cost weighted separations undiscounted to 1,452 separations in 2010/11 accounting for 1,728 bed days and 1,118 cost weighted separations undiscounted (refer to Figure 5.17).

Although private paediatric activity has increased over the five year period to 2010/11 for NBMLHD children, it has been steady in terms of the proportion of total paediatric acute activity comprising 18% of total public and private paediatric acute activity for NBMLHD children over this period.

Figure 5.17 NBMLHD Demand (Aged <15years) Public and Private Hospital Activity, from 2006/07 to 2010/11



Source: FlowInfo v11.2
Notes: Excludes admit and discharge from Emergency Department, renal dialysis, chemotherapy, qualified and unqualified neonates, dedicated psychiatric facility.

Outflows for Perinatology and Qualified Neonatal Acute Care

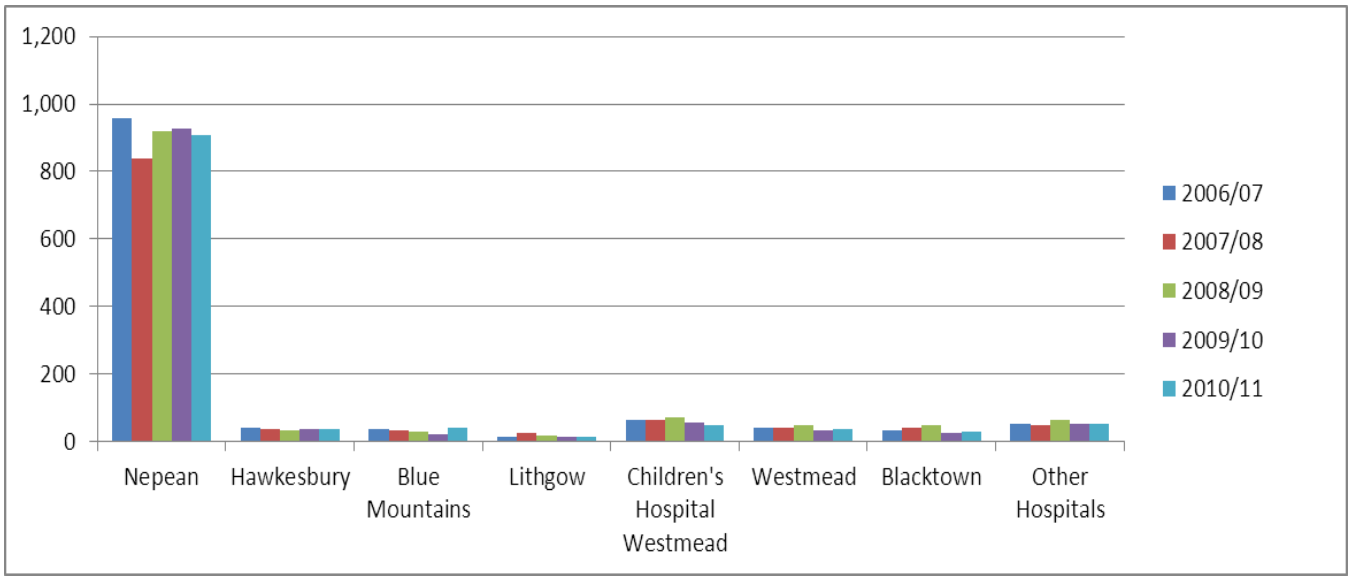
There has been a slight reduction for perinatology and qualified neonatal acute inpatient care by NBMLHD residents over the five year period to 2010/11. This has been in the order of a 6% reduction in separations, 20% reduction in bed days and 6% reduction in cost weighted separations undiscounted. This has been from 1,240 separations in 2006/07 with 10,847 bed days and 3,018 cost weighted separations undiscounted to 1,160 separations in 2010/11 accounting for 9,112 bed days and 3,028 cost weighted separations undiscounted.

Self-sufficiency for the provision of perinatology and qualified neonatal acute care by NBMLHD hospitals for its residents has been high and reasonably steady over the five year period to 2010/11, from 85% in 2006/07 to 86% in 2010/11.

In 2010/11 perinatal and qualified neonatal acute inpatient care was mainly provided to NBMLHD residents by Nepean Hospital with 906 separations in 2010/11 for NBMLHD residents. This was followed by much lower amounts of activity by NBMLHD residents at the Children's Hospital, Westmead (47 separations), Westmead Hospital (35 separations) and Blacktown Hospital (29 separations) (refer to Figure 5.18 and Figure 5.19).

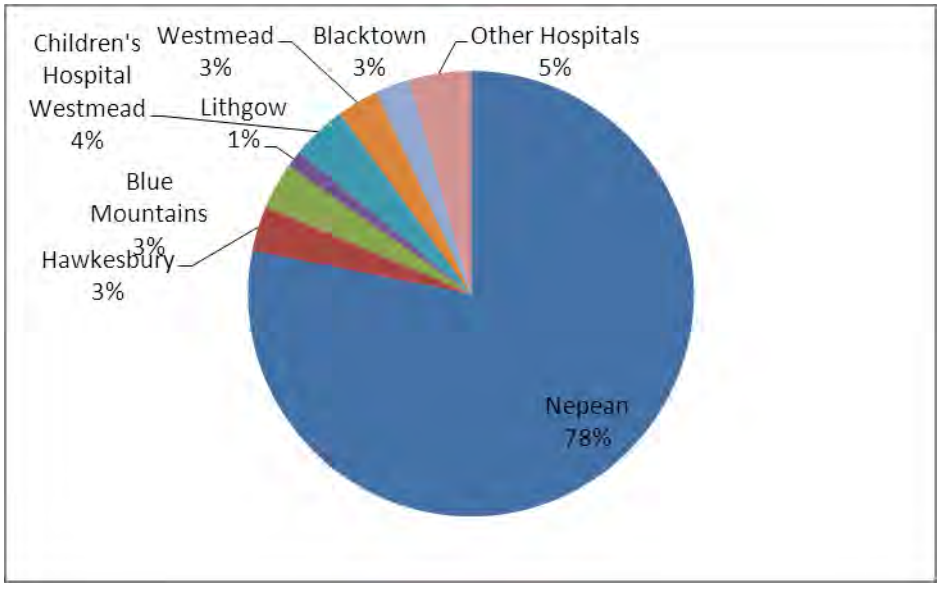
Private demand for perinatology and qualified neonatal acute care by NBMLHD residents has increased over the five year period to 2010/11. The increase in private demand for these services has increased by 43% for separations, 40% for bed days and 29% for cost weighted separations undiscounted. This shift is from 116 separations in 2006/07 accounting for 745 bed days and 157 cost weighted separations undiscounted to 166 separations in 2010/11 accounting for 1,041 bed days and 202 cost weighted separations undiscounted.

Figure 5.18 NBMLHD Acute Perinatology and Qualified Neonate Demand by Hospital, from 2006/07 to 2010/11



Source: FlowInfo V11.2

Figure 5.19 NBMLHD Acute Perinatology and Qualified Neonate Demand by Hospital 2010/11



Source: FlowInfo V11.2

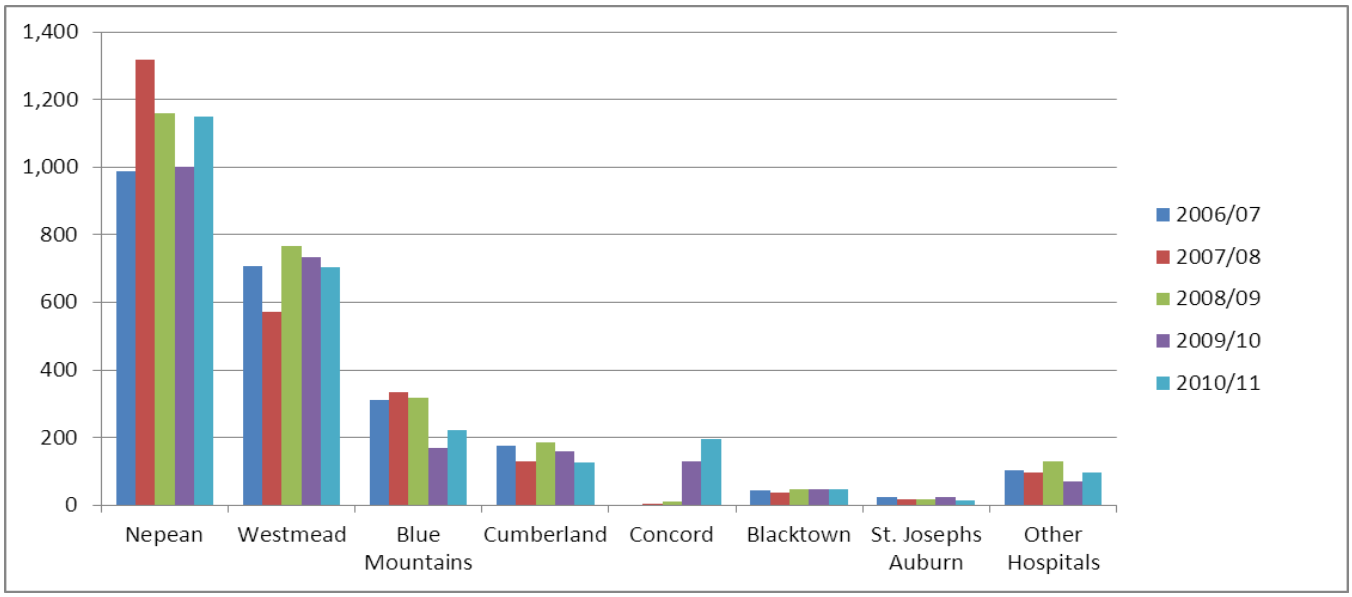
Outflows for Mental Health Inpatient Acute Care

NBMLHD has a low level of self-sufficiency for providing mental health acute care in dedicated facilities for NBMLHD residents (54% in 2010/11). Over the five year period to 2010/11 there was a 12% increase in outflows for mental health acute care by NBMLHD residents (from 1,056 separations to 1,186 separations accounting for 9,670 bed days). These outflows reflect referral pathways with dedicated mental health facilities in Western Sydney Local Health District and St Joseph's Hospital, and elsewhere.

Outflows for mental health acute inpatient care in dedicated facilities in 2010/11 were mainly to Westmead Hospital (704 separations in 2010/11 providing 27% of total mental health inpatient acute care for NBMLHD residents), Concord Hospital (197 separations), Cumberland Hospital (127 separations in 2010/11), Blacktown Hospital (46 separations) and St Joseph's Hospital (15 separations) (refer to Figure 5.10 and Figure 5.21).

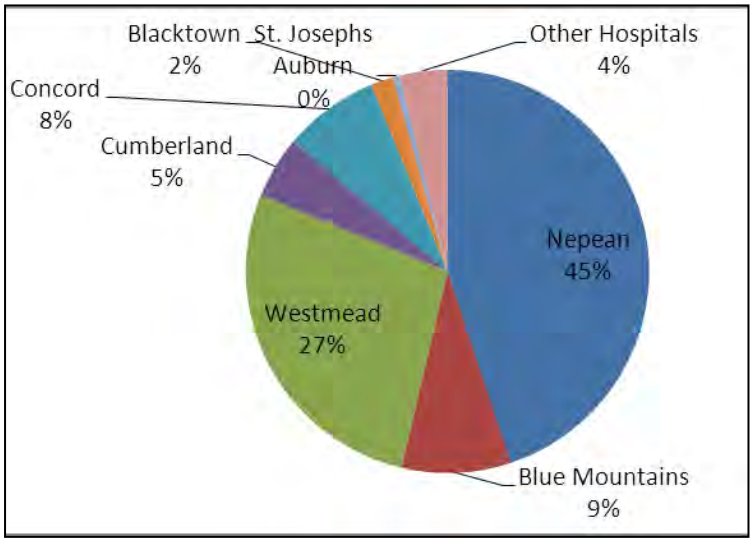
Acute mental health inpatient care provided by the private sector to NBMLHD residents has remained relatively constant (around 2,500 separations) over the five year period to 2010/11.

Figure 5.20 NBMLHD Resident Demand for Public Dedicated Psychiatric Facilities (All Ages) by hospitals, from 2006/07 to 2010/11



Source: FlowInfo V11.2
Notes : Excludes admit and discharge from Emergency Department, acute and sub-acute inpatient activity.

Figure 5.21 NBMLHD Resident Demand for Public Dedicated Psychiatric Facilities (All Ages) by Hospitals, 2010/11



Source: FlowInfo V11.2
Notes : Excludes admit and discharge from Emergency Department, acute and sub-acute inpatient activity.

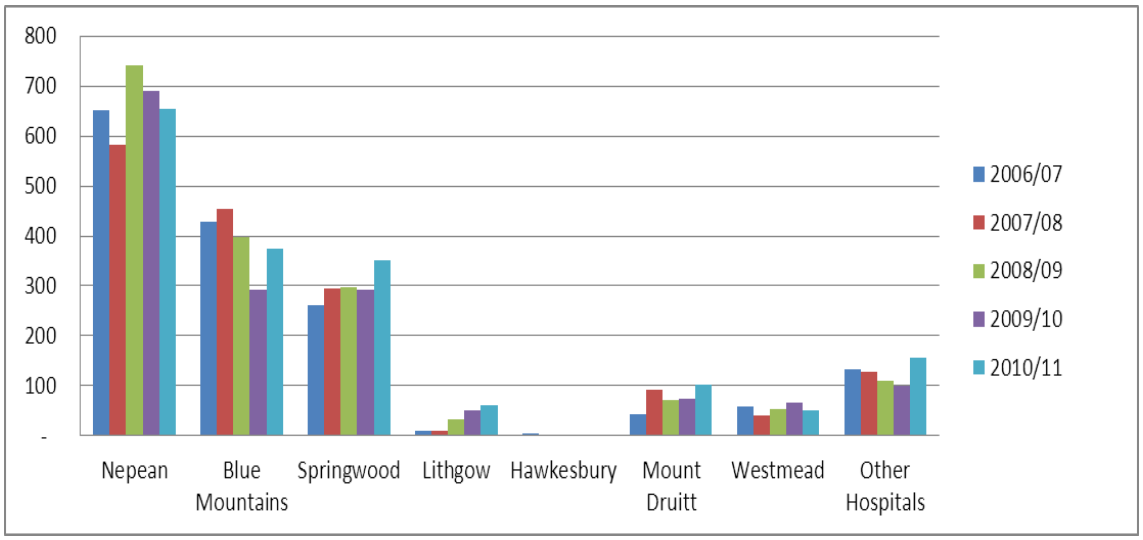
Outflows for Sub-Acute Care

NBMLHD has a high level of self-sufficiency for providing sub-acute care for NBMLHD residents (85% in 2006/07 to 82% in 2010/11). Over the five year period to 2010/11 there was a small increase in the number of outflows for sub-acute care by NBMLHD residents (from 235 separations to 311 separations). These separations represent a small proportion of overall sub-acute care in the NBMLHD. Outflows were to Mount Druitt Hospital (103 separations in 2010/11) and Westmead Hospital (52 separations in 2010/11). (Refer to Figure 5.22 and Figure 5.23).

In the NBMLHD in 2010/11 most sub-acute care is provided at Nepean Hospital (37% of sub-acute care activity, with 653 separations), followed by Blue Mountains (21% of sub-acute care with 374 separations) and Springwood Hospital (20% of sub-acute care, with 351 separations) (refer to Figure 5.23).

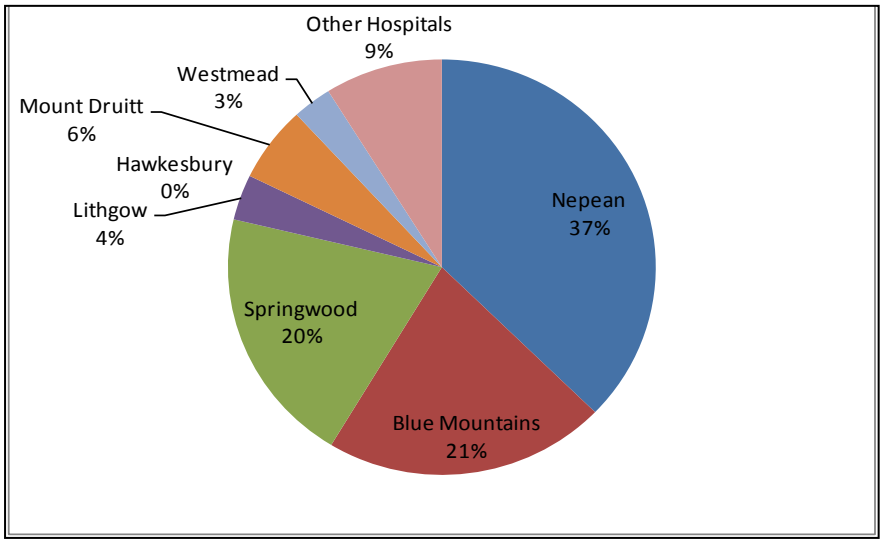
Private sector sub-acute care provided to NBMLHD residents has increased significantly (118%) over the five year period to 2010/11, from 1,327 separations in 2006/07 to 2,890 separations in 2010/11.

Figure 5.22 NBMLHD Resident Demand for Public Sub-Acute Inpatient Care by Hospitals, from 2006/07 to 2010/11



Source: FlowInfo V11.2
Notes : Excludes admit and discharge from Emergency Department, acute inpatient activity.

Figure 5.23 NBMLHD Resident Demand for Public Sub-Acute Activity by Hospitals, 2010/11



Source: FlowInfo V11.2
Notes : Excludes admit and discharge from Emergency Department, acute inpatient activity.

6. Projected Health Care Activity to 2022

Contents

6. Projected Health Care Activity to 2022

Summary

Significant increases are projected in health care activity in the NBMLHD across all age groups to 2021/22 and beyond to 2026/27. The projected increases in activity include acute inpatient care (for adults, paediatric care, deliveries, perinatology and qualified neonates), sub-acute care, emergency department presentations, mental health inpatient care (for acute and non-acute) and community based care, operating theatres, renal dialysis and cancer care (chemotherapy and radiation oncology). The projected increases are outlined for each of the facilities of the NBMLHD.

For acute inpatient projections the base case from aIM 2012 is presented. It is anticipated that NBMLHD will experience higher levels of increased projected health care activity than presented in the base case. This is due to the changed role of Lithgow Private Hospital in providing overnight inpatient care, patient flow reversals, such as for paediatric district level care and mental health acute inpatient care and the future arrangements for Hawkesbury Hospital following the expiration of the contract in 2016.

Capital developments such as the Nepean Hospital Redevelopment Stages 3 and 3A within NBMLHD will provide capacity for a proportion of the projected activity increases required for NBMLHD to 2021/22.

Acute and Sub-Acute Care Projected Activity

Significant increases are projected in acute and sub-acute inpatient care in hospitals across all age groups within the NBMLHD to 2021/2022 and beyond to 2026/27. The following is for the period from 2010/11 to 2021/22, unless otherwise stated.

- 23% increase in acute and sub-acute inpatient separations, 28% increase in bed days and 27% increase in bed equivalents.
- An additional 198 bed equivalents in acute and sub-acute inpatient care is projected to 2021/22 and a further 96 bed equivalents in acute and sub-acute inpatient care from 2021/22 to 2026/2027 for NBMLHD.

Acute Adult Inpatient Care

- 25% increase in day only inpatient activity (higher for medical than surgical)
- 22% increase in overnight inpatient separations (higher for medical than surgical) with 27% increase in bed days (slightly higher for medical than surgical)
- 27% increase in adult acute total inpatient bed equivalents.
- An additional 150 bed equivalents for adult acute inpatient care is projected to 2021/22.
- Top five service related groups will be (for separations) obstetrics, cardiology, orthopaedics, gastroenterology and respiratory medicine and (for bed days) will be orthopaedics, obstetrics, respiratory medicine, non-subspecialty medicine and cardiology.

- For older people (included in above), 56% increase in acute inpatient activity (higher for 70 to 84 than 85 plus years) is anticipated.
- Older people, aged 70 years and over, will comprise 35% (separations) and 49% (bed days) of adult acute inpatient activity by 2021/22.

Deliveries

- 13% increase in deliveries to 5,422 deliveries in 2021/22, comprising:
- 15% increase in vaginal deliveries with 17% increase in associated bed days
- 9% increase in caesarean deliveries with 11% increase in associated bed days.

Acute Perinatology and Qualified Neonates Inpatient Care

- 12% increase in perinatology and qualified neonatal separations and 29% increase in perinatology and qualified neonatal bed days.
- An additional 11 bed equivalents to 2020/21.

Acute Paediatric Inpatient Care

- 35% increase in paediatric day only inpatient care (higher for medical than surgical), 14% increase in paediatric overnight inpatient separations (higher for medical than surgical), 19% increase in paediatric overnight inpatient bed days (higher for medical than surgical) and 20% increase in paediatric acute total inpatient bed equivalents.
- An additional 5 bed equivalents to 2021/22.
- Top five service related groups (for separations) will be respiratory medicine, ear, nose and throat, head and neck, orthopaedics, gastroenterology and non-subspecialty surgery and (for bed days) respiratory medicine, ear, nose and throat, head and neck, orthopaedics, non-subspecialty medicine and gastroenterology.

Sub-Acute Inpatient Care

- 47% increase in sub-acute inpatient separations, 36% increase in bed days and 36% increase in bed equivalents. Rehabilitation has largest volume of separations and percentage increase (59%), then palliative care (54%).
- An additional 32 bed equivalents to 2020/21.

Emergency Department Presentations

- 33% increase to 143,860 Emergency Department presentations 2021 in NBMLHD.
- Nepean Hospital is anticipated to have the largest increase in volume and percentage (includes Nepean Hospital clinical judgement of an increase to 80-85,000 presentations by 2021).

Mental Health

- 125 beds are anticipated for mental health acute and non-acute care by 2021 (80% MHCCP). This includes:
- 74 beds for acute mental health inpatient care, all ages, to 2021 (80% MHCCP).
- Comprises 4 beds for child and adolescent acute mental health care and 13 beds for 65 plus

years. There are currently 0 child or adolescent mental health inpatient beds in NBMLHD. This service is provided through agreement with Western Sydney Local Health District.

- 51 beds for non-acute mental health care. There are no non-acute mental health inpatient beds in NBMLHD in 2012.

Operating Theatres

- Additional 2 to 6 operating theatres are estimated to be required at Nepean Hospital by 2022.

Renal Services

- 50% increase in in-centre haemodialysis by 2021 to 12 spaces.
- 127% increase in satellite renal dialysis by 2021 to 34 spaces.
- Additional 22 spaces for satellite renal dialysis projected for north-west growth corridor (either in NBMLHD or Western Sydney Local Health District).

Cancer Care

- 30% increase in cancer incidence in the NBMLHD to 2021. Cancer is increasingly recognised as a chronic illness.
- The trend in administration of chemotherapy is shifting from infusion to oral. The impact of this on capacity planning will be monitored. Assuming chemotherapy continues to occur primarily by infusion the following applies.
- 31% increase in ambulatory chemotherapy activity, an additional 11 chairs by 2021 (at 2.1 treatments per day) or 32 chairs (at 1.2 treatments per day) will be required.
- Third bunker and linear accelerator for radiation oncology.

Methodology

Projected health care activity in the NBMLHD is drawn from the tools provided by the Ministry of Health. These include the Acute Inpatient Modelling (aIM) 2012 tool, Sub-acute inpatient Modelling (SiAM) 2012 tool, Mental Health Clinical Care and Prevention (MHCCP) tool as well as Ministry of Health guidelines and statewide service planning frameworks such as intensive care, chemotherapy and radiation oncology, population projections, historical activity trends and clinician judgement.

Renal dialysis, chemotherapy and mental health projections are presented separately and are not included in the acute inpatient projections, as different methodologies have been used for their projected activity.

Introduction

Significant increases in health care activity are projected in the NBMLHD across all age groups to 2021/22 and beyond to 2026/27. This chapter outlines the extent of the projected health care activity requirements for services across the NBMLHD to 2021/22. Projected health care activity for NBMLHD comprises:

- Acute inpatient care for NBMLHD hospitals for the range of age groups (all ages, adult, older age, paediatric, obstetrics including deliveries and neonates and perinatology)
- Sub-acute inpatient care
- Emergency Department presentations
- Mental health inpatient care (including acute and non-acute) and community based care
- Operating theatre requirements
- Renal dialysis
- Cancer care (including chemotherapy and radiation oncology)
- Information on projected staffing requirements for community health and community based drug and alcohol services are outlined in the Appendix.

Projected activity for the NBMLHD to 2022 presented in this chapter is drawn from the Acute Inpatient Modelling tool (aIM 2012), Sub-acute Inpatient Modelling tool (SiAM 2012) and Mental Health Clinical Care and Prevention tool (MHCCP v2). Also Ministry of Health guidelines are used, where relevant, along with projected population figures and clinician judgement. Table 6.1 outlines the source of each of the projections presented and their associated inclusions and exclusions.

Renal dialysis, chemotherapy and mental health projections are presented separately and are not included in the acute inpatient projections, as different methodologies have been used for projected activity.

For acute projected activity from aIM 2012, the information is derived directly from the base case projected activity for NBMLHD hospitals. It is anticipated that there will be changes to this base case information. It is acknowledged that these scenarios have not been factored into the information presented throughout this chapter, unless stated.

Scenarios that will impact on the base case projected acute health care activity for the NBMLHD to 2022 are anticipated due to potential significant changes and shifts in activity locally. These include:

- The impact of the changed role of overnight acute capacity at Lithgow Community Private Hospital and the shift of this activity to Lithgow Hospital
- The impact of flow reversals, such as for paediatric surgery from the Children's Hospital Westmead to Nepean Hospital or for mental health patients from Western Sydney hospitals to the new Mental Health Centre at Nepean Hospital
- The potential future role of Hawkesbury Hospital including the number, range and type of services that will be provided, given the expiry of the contract with Hawkesbury District Health Service in 2016.

Further service planning across clinical portfolios in the NBMLHD may drive the substitution of overnight inpatient care to day only models of care as well as care provided in ambulatory centres, at home and in the community. The impact of telehealth and new technologies are also likely to influence projected health care requirements. It is not anticipated that there will be a large shift to private hospital utilisation in the NBMLHD in future years, due to limited capacity of private hospitals within the District.

Methodology

The methodology used in the health care projections for NBMLHD outlined in this chapter is summarised in Table 6.1. The information outlines inclusions and exclusions for each of the projected activity groupings, as well as the tools and methods used in determining the projected health care activity in the NBMLHD to 2021/22. More detailed data supporting the information presented throughout this chapter is included in the Reference Data Book accompanying this Plan.

Table 6.1 Methodology for Projected Health care Activity Requirements in the NBMLHD to 2021/22 and 2026/27

Type of Care	Inclusions and Exclusions	Tool for Projections
Acute	All acute inpatient hospital activity all ages excluding chemotherapy, renal dialysis, unqualified neonates, dedicated mental health facilities. Separate sections included for adult acute, paediatric acute, deliveries.	Acute Inpatient Modelling (aIM 2012)
Chemotherapy	All chemotherapy activity in NBMLHD hospitals	NSW Health Service Planning Guideline for Intravenous Chemotherapy Services, Utilisation
Radiation Oncology	Linear accelerators in the context of statewide planning for Nepean Hospital.	NSW Health Radiotherapy Services in NSW Strategic Plan to 2016
Renal dialysis	All in-centre and satellite renal dialysis activity.	Population projections, renal dialysis projections, Utilisation. Drawn from NSW Renal Strategic Plan
Deliveries	All deliveries, as drawn from Service Related Group – Obstetrics.	Acute Inpatient Modelling (aIM 2012)
Unqualified neonates	Generally excluded from analyses and includes all inpatient unqualified neonates.	aIM 2012
Mental health	All dedicated mental health facilities including units (Pialla and Psychiatric Emergency Care Centre [PECC]) at Nepean and Blue Mountains hospitals.	Mental Health Clinical Care and Prevention (MHCCP) tool
Operating theatres	Operating theatres and procedure rooms including endoscopy.	NSW Operating Theatre tool and utilisation modelling.
Emergency Department presentations	All presentations to Emergency Departments including those discharged and admitted to hospital.	Population projections and clinician judgement
Sub-Acute	All sub-acute activity including rehabilitation, geriatric, palliative care and psychogeriatric care.	Sub-Acute Inpatient Modelling (SiAM 2012)

Acute and Sub-Acute Projected Activity

Significant increases are projected in total acute and sub-acute inpatient activity in hospitals across all age groups within the NBMLHD to 2021/2022 and beyond to 2026/27. These projected increases are drawn from the base case scenario in the Acute Inpatient Modelling tool (aIM 2012) and Sub-Acute Inpatient Modelling (SiAM 2012). Adjustments for changed circumstances, as stated earlier, have not been factored into the projected health care activity presented.

Projected acute and sub-acute inpatient activity for the NBMLHD to 2021/22 in this chapter is presented in the following order:

- Acute and sub-acute activity for all ages
    - Separations, bed days, bed equivalents, day only and overnight, by hospital
- Acute inpatient activity for all ages
    - Separations, bed days, bed equivalents, by hospital
- Acute inpatient activity for adults
    - Separations, bed days, bed equivalents, day only and overnight, medical and surgical, by hospital, by service related groups
- Acute inpatient activity for older people
    - By age group for separations, bed days
    - 70 to 84 years by service related groups
    - 85 plus years by service related groups
- Acute inpatient activity for obstetrics care
    - Separations, bed days, day only and overnight, by hospital
    - Deliveries
        - By vaginal and caesarean section, by hospital
    - Other obstetrics activity
        - Separations, bed days, day only and overnight, by hospital, by service related groups
- Acute inpatient activity for paediatric care
    - Separations, bed days, bed equivalents, day only and overnight, medical and surgical, by hospital, by service related groups
- Acute inpatient activity for perinatal and neonatal care
    - Separations, bed days, bed equivalents, day only and overnight, by hospital, by service related groups
- Sub-acute inpatient activity
    - Separations, bed days, bed equivalents, care type, by hospital, by local government area.

Overall significant increases in health care activity are projected for the NBMLHD to 2021/22 for acute and sub-acute inpatient care (across all ages) (refer to Figure 6.1 and Table 6.2):

- *Separations*: An increase of 23% in total acute and sub-acute inpatient activity, from 49,297 separations in 2010/11 to 60,566 separations in 2021/22
- *Bed days*: An increase of 28% in total acute and sub-acute inpatient bed days from 219,993 bed days in 2010/11 in NBMLHD hospitals to 281,287 bed days in 2021/22
- *Bed equivalents*: An increase of 27% in total acute and sub-acute inpatient bed equivalents from 719 beds in 2010/11 in NBMLHD hospitals to 917 beds in 2021/22
- This equates to an additional 198 beds required across the NBMLHD to 2021/2022.

Although extending beyond the ten-year timeframe of the *Nepean Blue Mountains Local Health District Healthcare Services Plan 2012 to 2022*, providing a vision for projected acute and sub-acute health care requirements out to 2026/27 is important for well advanced capital planning.

In the above context projected acute and sub-acute activity requirements for NBMLHD hospitals continue to increase from 2021/22 to 2026/27:

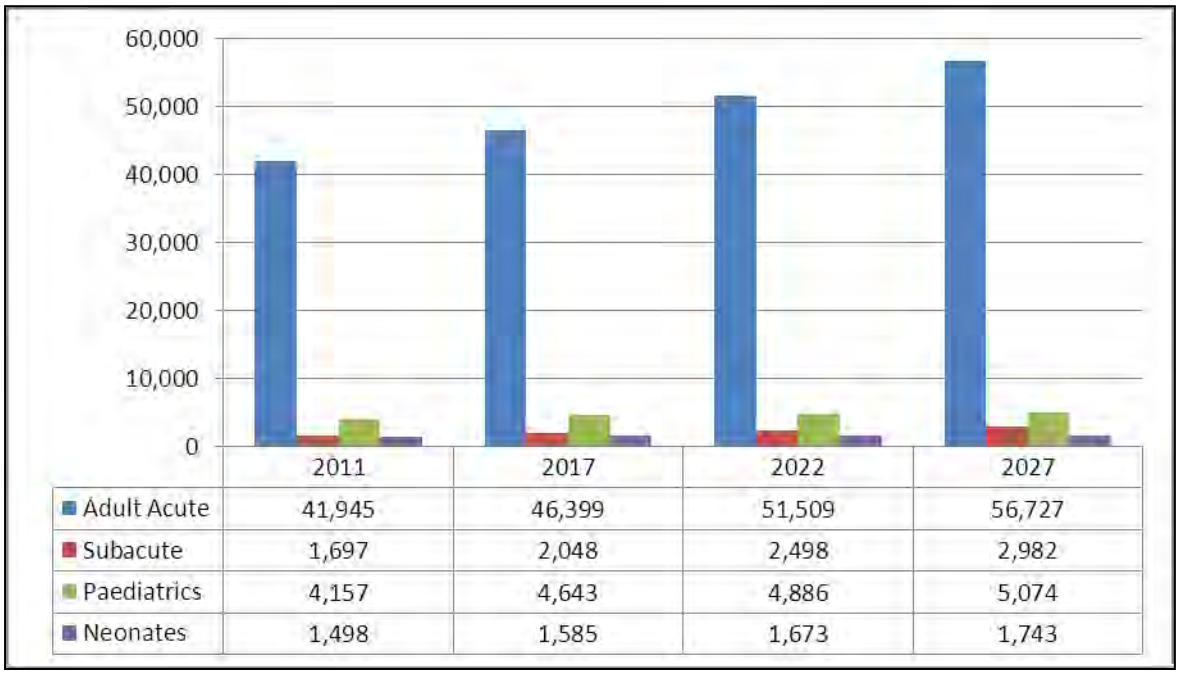
- *Separations:* A further 10% increase for acute and sub-acute inpatient separations for NBMLHD hospital to 2026/27 (from 60,566 separations in 2021/22 to 66,526 separations in 2026/27) is anticipated.
- *Bed days*: There is expected to be a 10% increase in acute and sub-acute inpatient bed days for NBMLHD hospitals to 2026/27 (from 281,287 bed days in 2021/22 to 310,750 bed days in 2026/27).
- *Bed equivalents*: A corresponding 10% increase in bed equivalents (from 917 bed equivalents in 2021/22 to 1,013 bed equivalents in 2026/27).
- This equates to an additional 96 beds required for NBMLHD for acute and sub-acute inpatient activity for all ages from 2021/22 to 2026/27.
- Or a total of 294 additional beds for acute and sub-acute inpatient activity for all ages for NBMLHD hospitals from 2010/11 to 2021/22.

The predominant drivers of the increases in activity in NBMLHD hospitals are significant population growth (28% growth to 2036 in NBMLHD), significant ageing of the population (134% increase in those aged over 70 years in NBMLHD, above NSW average increases to 2036), as well as increases in the younger 0-14 years population (20% growth in NBMLHD to 2036).

The growth in inpatient care in NBMLHD hospitals from 2010/11 to 2021/22 varies across age groups and types of care (presented later in this chapter).

A proportion of the additional bed equivalent requirements to 2021/22 have already been opened, with some still to be opened, as part of the Nepean Hospital Stage 3 Redevelopment and COAG Sub-Acute Program. Also part of the need for additional bed requirements in the NBMLHD has been met by changing models of care and shifting acute overnight activity to ambulatory care and community based models of care. The extent of capital developments required for the NBMLHD is outlined in the *Nepean Blue Mountains Local Health District Asset Strategic Plan 2012 to 2021*.

Figure 6.1 Projected Activity for NBMLHD for Acute and Sub-Acute Care by Age Group from 2010/11 to 2026/27, Separations



	2011	2017	2022	2027
Adult Acute	41,945	46,399	51,509	56,727
Subacute	1,697	2,048	2,498	2,982
Paediatrics	4,157	4,643	4,886	5,074
Neonates	1,498	1,585	1,673	1,743

Source: Acute Inpatient Modelling (aIM2012), Sub-acute Inpatient Modelling (SiAM2012)
Notes: Excludes admitted and discharged from Emergency Department, chemotherapy, renal dialysis, unqualified neonates and dedicated psychiatric facilities.

Table 6.2 Summary NBMLHD Historical and Projected Bed Equivalents by Stay Type and Age Group from 2010/11 to 2026/27

	Historical	Projected			% change	
	2011	**2017**	**2022**	**2027**	**2011-2022**	**2022-2027**
Adult acute bed equivalent	566	644	716	790	27%	10%
Subacute bed equivalent	88	102	120	138	36%	15%
Paediatric bed equivalent	26	30	31	32	20%	3%
Neonates bed equivalent	39	47	50	52	28%	4%
Total Bed equivalent	**719**	**823**	**917**	**1,013**	**27%**	**10%**

Source: Acute Inpatient Modelling (aIM2012), Subacute Inpatient Modelling (SiAM2012)
Notes: *Medical, surgical / procedural activity + obstetrics (all ages). Excludes admit and discharge from Emergency Department, renal dialysis, chemotherapy, dedicated psychiatric facilities. Bed Equivalents = bed days/365/hospital occupancy rate.

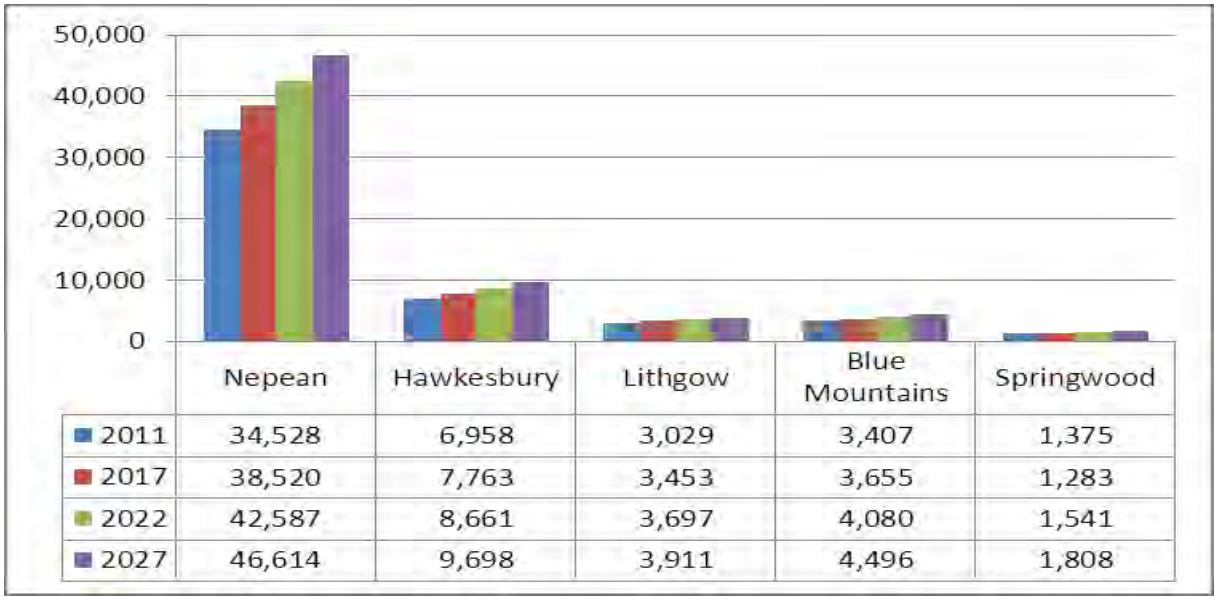
The concept of one new hospital for the Blue Mountains has been identified to meet the future growth requirements of the Blue Mountains residents and beyond. This one new hospital would co-locate services provided from Blue Mountains District ANZAC Memorial and Springwood Hospitals and the Lawson Community Health Centre. This one new hospital in the Blue Mountains will provide efficiencies in scale for service delivery in a district level hospital. This is discussed further in the Strategic Directions chapter.

Additional requirements for inpatient mental health acute and non-acute care in dedicated mental health facilities in the NBMLHD to 2022 are presented separately in a later section and are not included in the above figures. Future requirements for neonatal care are discussed separately in a later section and are not included in the figures in this section.

Acute and Sub-Acute Activity Projections by Hospitals

To 2021/22 an increase in inpatient activity is expected in each hospital within the NBMLHD (refer to Figure 6.2 and Table 6.3). The projected volume and percentage of increase in overall acute and sub-acute inpatient activity in the NBMLHD hospitals to 2021/2 is the largest at Nepean Hospital.

Figure 6.2 Projected Activity for Acute and Sub-Acute, NBMLHD by Hospital from 2010/11 to 2021/22 (All Ages), Separations



	Nepean	Hawkesbury	Lithgow	Blue Mountains	Springwood
2011	34,528	6,958	3,029	3,407	1,375
2017	38,520	7,763	3,453	3,655	1,283
2022	42,587	8,661	3,697	4,080	1,541
2027	46,614	9,698	3,911	4,496	1,808

Source: Acute Inpatient Modelling (aIM2012), Subacute Inpatient Modelling (SiAM2012)
Notes: Excludes admitted and discharged from Emergency Department, chemotherapy, renal dialysis, unqualified neonates and dedicated psychiatric facilities.

Table 6.3 Historical and Projected Acute and Subacute Activity at NBMLHD Hospitals (all ages) from 2010/11 to 2026/27

		Historical	Projected			% change	
Hospital	**Data**	**2011**	**2017**	**2022**	**2027**	**2011-2022**	**2022-2027**
Nepean	Seps	34,528	38,520	42,587	46,614	23%	9%
	Bed days	152,897	186,277	206,797	227,215	35%	10%
	Bed Equiv	491	597	663	728	35%	10%
Hawkesbury (Pub. Pats.)	Seps	6,958	7,763	8,661	9,698	24%	12%
	Bed days	26,498	25,332	28,487	32,235	8%	13%
	Bed Equiv	91	87	98	110	7%	13%
Lithgow	Seps	3,029	3,453	3,697	3,911	22%	6%
	Bed days	10,424	11,368	12,154	12,918	17%	6%
	Bed Equiv	37	41	44	46	16%	6%
Blue Mountains	Seps	3,407	3,655	4,080	4,496	20%	10%
	Bed days	20,323	20,334	22,995	25,645	13%	12%
	Bed Equiv	70	70	79	88	13%	11%
Springwood	Seps	1,375	1,283	1,541	1,808	12%	17%
	Bed days	9,851	9,167	10,854	12,736	10%	17%
	Bed Equiv	31	29	34	40	10%	17%
Total Seps		**49,297**	**54,674**	**60,566**	**66,526**	**23%**	**10%**
Total Bed days		**219,993**	**252,478**	**281,287**	**310,750**	**28%**	**10%**
Total Acute & Subacute Bed Equivalents (all ages)		**719**	**823**	**917**	**1,013**	**27%**	**10%**

Source: Acute Inpatient Modelling (aIM2012) Subacute Inpatient Modelling (SiAM2012)
Notes: All ages, acute, public supply activity. Excludes admit and discharge from Emergency Department, Renal Dialysis, Chemotherapy, unqualified neonates (NB Includes perinatology and qualified neonates). Acute Bed equivalents = bed days/365/occupancy rate. Nepean hospital O/R = 85%, Hawkesbury hospital O/R = 80%, Lithgow, Blue Mountains, Springwood hospitals O/R = 75%. Subacute Bed Equivalent = bed days/365/90% occupancy rate.

Acute (All Ages) Projected Activity

NBMLHD hospitals are projected to experience increases in acute inpatient activity for all ages to 2021/22 (refer to Figure 6.3).

- *Separations*: A 22% increase in acute inpatient separations for all ages from 47,600 separations in 2010/11 to 58,068 separations in 2021/22.
- *Bed days*: An increase in acute inpatient bed days (of 27%) for all ages from 190,951 bed days in 2010/11 in NBMLHD hospitals to 241,935 bed days in 2021/22.
- *Bed equivalents*: A 26% increase in acute inpatient beds, from 631 bed equivalents in 2010/11 to 797 bed equivalents in 2021/22.
- This equates to an additional 166 acute inpatient bed equivalents required for NBMLHD hospitals by 2021/22.

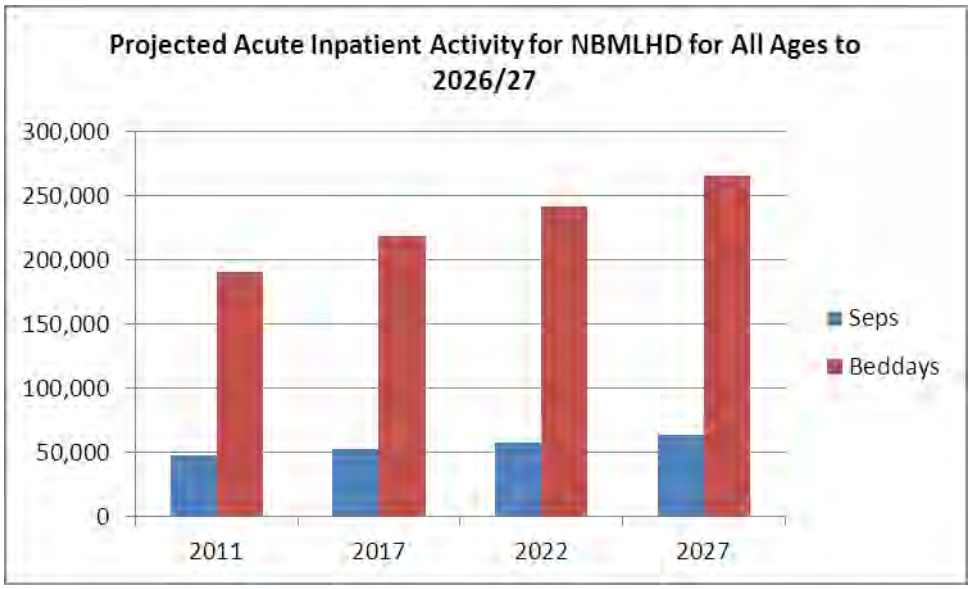
Although extending beyond the ten-year timeframe of the *NBMLHD Healthcare Services Plan 2012 to 2022*, providing a vision for projected acute health care requirements out to 2026/27 is important in guiding capital developments. This is due to the long lead time required for capital developments, with 10 years considered reasonable.

In the above context projected acute activity requirements for NBMLHD hospitals continue to increase from 2021/22 to 2026/27:

- *Separations:* A further 9% increase for acute inpatient separations for NBMLHD hospital for all ages to 2026/27 (from 58,068 separations in 2021/22 to 63,544 separations in 2026/27) is anticipated.
- *Bed days*: There is expected to be a 10% in acute inpatient bed days for NBMLHD hospitals for all ages to 2026/27 (from 241,935 bed days in 2021/22 to 265,433 bed days in 2026/27).
- *Bed equivalents*: A corresponding 10% increase in bed equivalents (from 797 bed equivalents in 2021/22 to 875 bed equivalents in 2026/27).
- This equates to an additional 78 beds equivalents required for NBMLHD for acute all ages inpatient activity from 2021/22 to 2026/27.
- Or a total of 244 additional beds for acute inpatient all ages activity for NBMLHD hospitals from 2010/11 to 2021/22.

For further information on projected acute inpatient activity refer to Table 6.1 and the Reference Data Book for all ages as well as by age group to 2027. The age groups comprise adults, paediatrics, obstetrics and neonatal care. Further information on the projected acute activity for these age groups for NBMLHD is presented in the following sections within this chapter.

Figure 6.3 Projected Acute Inpatient Activity for NBMLHD for All Ages from 2010/11 to 2026/27

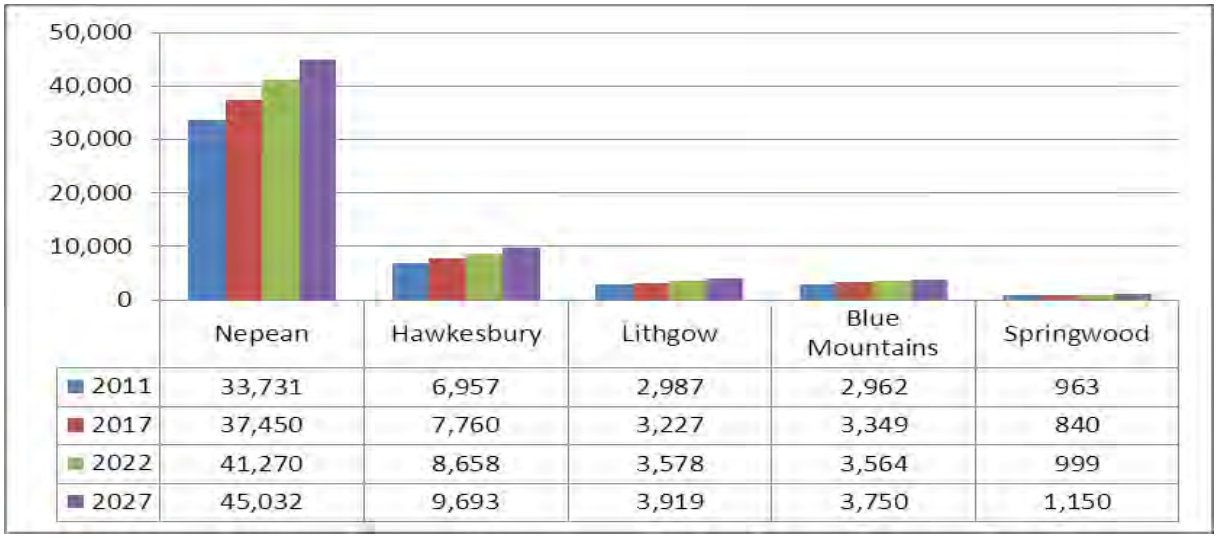


Source: Acute Inpatient Modelling (aIM2012)
Notes: Excludes admit and discharge from Emergency Department, renal dialysis, chemotherapy and unqualified neonates.

Acute (All Ages) Projected Activity by Hospital

Acute inpatient activity across all ages is projected to increase in all NBMLHD hospitals from 2010/11 to 2021/22, requiring an additional 166 beds to accommodate the projected activity increases and a total of 244 beds for projected acute inpatient activity increase to 2026/27. Figure 6.4 and Figure 6.5 show the increase in separations and bed days for NBMLHD hospitals to 2021/22.

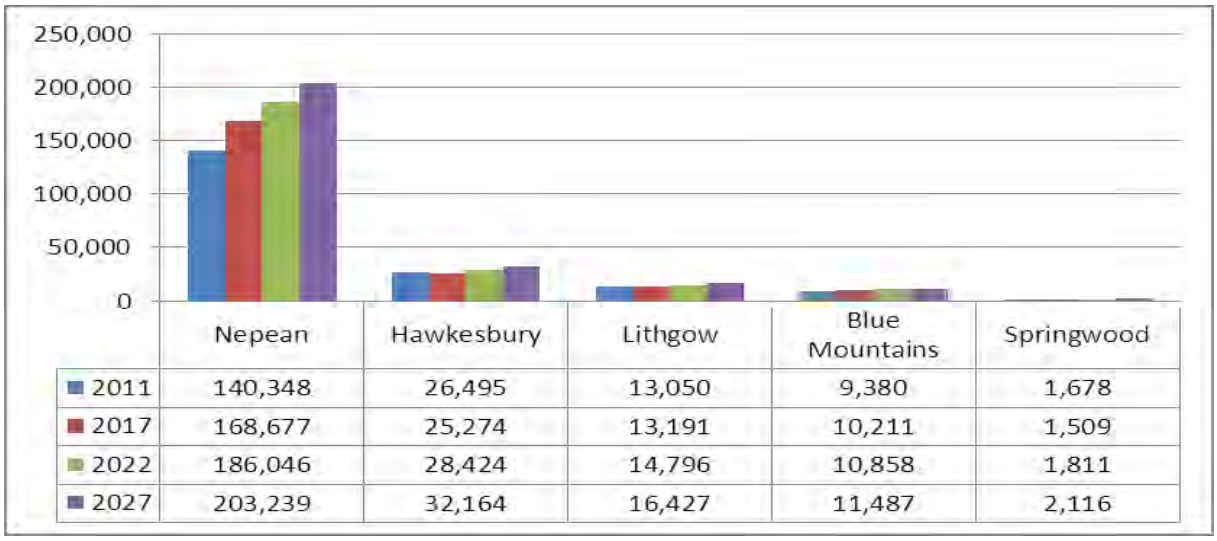
Figure 6.4 Projected Acute Inpatient Activity by NBMLHD Hospitals for All Ages from 2010/11 to 2026/27, Separations



	Nepean	Hawkesbury	Lithgow	Blue Mountains	Springwood
2011	33,731	6,957	2,987	2,962	963
2017	37,450	7,760	3,227	3,349	840
2022	41,270	8,658	3,578	3,564	999
2027	45,032	9,693	3,919	3,750	1,150

Source: Acute Inpatient Modelling (aIM2012)
Notes: Total acute public activity includes all ages, excluding admit and discharge from Emergency Department, renal dialysis, chemotherapy and unqualified neonates.

Figure 6.5 Projected Acute Inpatient Activity by NBMLHD Hospitals for All Ages from 2010/11 to 2026/27, Bed days



	Nepean	Hawkesbury	Lithgow	Blue Mountains	Springwood
2011	140,348	26,495	13,050	9,380	1,678
2017	168,677	25,274	13,191	10,211	1,509
2022	186,046	28,424	14,796	10,858	1,811
2027	203,239	32,164	16,427	11,487	2,116

Source: Acute Inpatient Modelling (aIM2012)
Notes: Total acute public activity includes all ages, excluding admit and discharge from Emergency Department, renal dialysis, chemotherapy and unqualified neonates.

Nepean Hospital

Nepean Hospital is projected to have the largest increase in acute inpatient activity for all ages to 2021/22 in the NBMLHD. This includes:

- An increase (22%) in separations, from 33,731 separations in 2010/11 to 41,270 separations in 2021/22
- An increase (33%) in bed days, from 140,348 bed days in 2010/11 to 186,046 bed days in 2021/22
- An increase (25%) in cost weighted separations undiscounted, from 54,863 in 2010/11 to 68,383 cost weighted separations undiscounted in 2021/22
- An increase (33%) in bed equivalent requirements with an additional 148 beds of acute inpatient activity, from 452 bed equivalents in 2010/11 to 600 bed equivalents in 2021/22.

Blue Mountains District ANZAC Memorial Hospital

Blue Mountains District ANZAC Memorial Hospital is projected to have an increase in acute inpatient activity for all ages to 2021/22. This includes:

- An increase (20%) in separations, from 2,962 separations in 2010/11 to 3,564 separations in 2021/22
- An increase (16%) in bed days, from 9,380 bed days in 2010/11 to 10,858 bed days in 2021/22
- An increase (23%) in cost weighted separations undiscounted, from 2,917 in 2010/11 to 3,586 cost weighted separations undiscounted in 2021/22
- An increase (16%) in bed equivalent requirements, with an additional 6 beds of acute inpatient activity from 34 bed equivalents in 2010/11 to 40 bed equivalents in 2021/22.

Lithgow Hospital

Lithgow Hospital is projected to have an increase in acute inpatient activity for all ages to 2021/22. (The following information does not include activity anticipated to shift to Lithgow Hospital from the change in the role of Lithgow Private Hospital overnight bed capacity.) This includes:

- An increase (20%) in separations, from 2,987 separations in 2010/11 to 3,578 separations in 2021/22
- An increase (13%) in bed days, from 13,050 bed days in 2010/11 to 14,796 bed days in 2021/22
- An increase (22%) in cost weighted separations undiscounted, from 3,715 in 2010/11 to 4,518 cost weighted separations undiscounted in 2021/22
- An increase (13%) in bed equivalent requirements with an additional 6 beds of acute inpatient activity, from 48 bed equivalents in 2010/11 to 54 bed equivalents in 2021/22.

Hawkesbury Hospital

Hawkesbury Hospital is projected to have an increase in acute inpatient activity for all ages to 2021/22. This includes:

- An increase (24%) in separations, from 6,957 separations in 2010/11 to 8,658 separations in 2021/22
- An increase (7%) in bed days, from 26,495 bed days in 2010/11 to 28,424 bed days in 2021/22
- An increase (27%) in cost weighted separations undiscounted, from 8,407 in 2010/11 to 10,665 cost weighted separations undiscounted in 2021/22
- An increase (7%) in bed equivalent requirements, an additional 6 beds of acute inpatient activity from 91 bed equivalents in 2010/11 to 97 bed equivalents in 2021/22.

Acute (Adult) Projected Activity

For adult acute inpatient activity in NBMLHD hospitals from 2010/11 to 2021/22 there is anticipated to be:

- *Separations:* An increase (23%) in acute inpatient separations, from 41,932 separations in 2010/11 to 51,498 separations. (Refer to Figure 6.6 and Figure 6.7.)
- *Bed days:* An increase (27%) in acute inpatient bed days, from 170,952 separations in 2010/11 to 216,911 separations in 2021/22
- *Bed equivalents:* This equates to an additional 150 beds to accommodate the projected adult acute activity increases.

Day Only and Overnight

Projected increases in adult day only and overnight acute inpatient activity are expected in NBMLHD from 2010/11 to 2021/22.

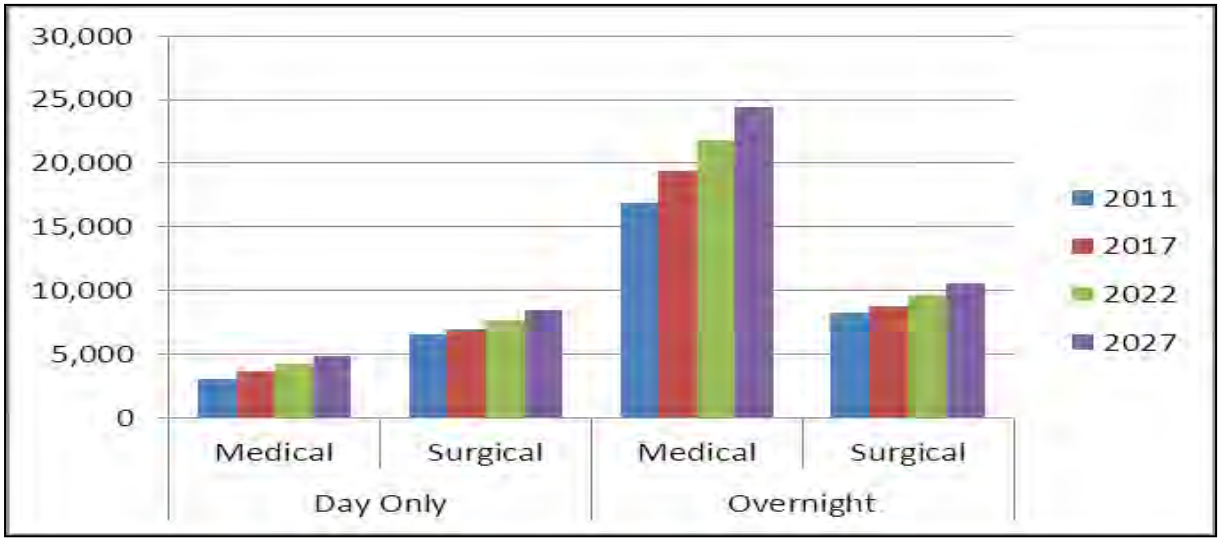
- *Day Only:* An increase (25%) is anticipated for day only acute inpatient activity, from 10,623 separations to 13,249 separations
- *Overnight:* An increase (22%) in adult overnight acute inpatient activity, from 31,322 separations to 38,259 separations.

Medical and Surgical

Larger increases are projected in medical adult acute inpatient activity than surgical acute inpatient activity to 2021/22 in NBMLHD hospitals.

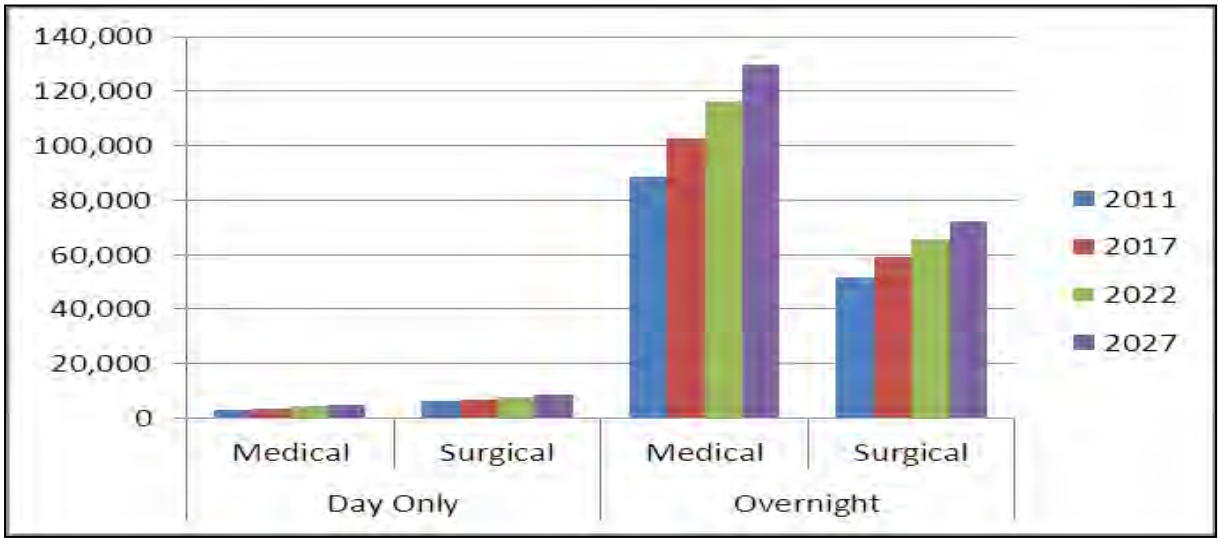
- *Medical and Surgical:* By 2021/22 it is projected that 60% of total adult acute inpatient activity in NBMLHD hospitals will focus on medical activity and 40% on surgical activity.
- *Day Only:* There is projected to be a 41% increase in medical day only acute inpatient separations compared to a 17% increase in surgical day only acute inpatient separations to 2021/22 in NBMLHD hospitals.
- *Overnight:* There is projected to be an increase of 29% in medical overnight acute inpatient separations compared to a 17% increase for surgical overnight acute inpatient separations from 2010/11 to 2021/22 in NBMLHD hospitals.
- *Overnight bed days:* There is projected to be a 31% increase in medical overnight acute bed days compared to a 27% increase in surgical overnight acute bed days in NBMLHD hospitals to 2021/22.

Figure 6.6 Projected Adult Acute Adult Medical and Surgical/ Procedural and Day Only and Overnight Activity from 2010/11 to 2026/27, Separations



Source: Acute Inpatient Modelling (aIM2012)
Notes: Total acute public activity includes all ages, excluding admit and discharge from Emergency Department, renal dialysis, chemotherapy and unqualified neonates.

Figure 6.7 Projected Adult Acute Adult Medical and Surgical/ Procedural and Day Only and Overnight Activity from 2010/11 to 2026/27, Bed days



Source: Acute Inpatient Modelling (aIM2012)
Notes: Total acute public activity includes all ages, excluding admit and discharge from Emergency Department, renal dialysis, chemotherapy and unqualified neonates. Day only bed days = Day only separations.

Acute (Adult) Projected Activity by Hospital

As mentioned above there is projected to be an increase in adult acute inpatient activity in the order of 27% in NBMLHD from 2010/11 to 2021/22, requiring an additional 150 beds to accommodate the projected activity increases. Figure 6.8 and Figure 6.9 show the increase in separations and bed days for NBMLHD hospitals to 2021/22.

Nepean Hospital

Nepean Hospital is projected to have the largest increase in adult acute inpatient activity to 2021/22 in the NBMLHD. This includes:

- An increase (23%) in separations, from 29,363 separations in 2010/11 to 36,176 separations in 2021/22
- An increase (33%) in bed days, from 123,515 bed days in 2010/11 to 163,836 bed days in 2021/22
- An increase (25%) in cost weighted separations undiscounted (from 48,283 in 2010/11 to 60,577 cost weighted separations undiscounted in 2021/22
- An increase (33%) in bed equivalent requirements (an additional 130 beds of adult acute inpatient activity from 398 bed equivalents in 2010/11 to 528 bed equivalents in 2021/22).

Blue Mountains District ANZAC Memorial Hospital

Blue Mountains District ANZAC Memorial Hospital is projected to have an increase in adult acute inpatient activity to 2021/22. This includes:

- An increase (20%) in separations, from 2,670 separations in 2010/11 to 3,216 separations in 2021/22
- An increase (16%) in bed days, from 12,171 bed days in 2010/11 to 14,141 bed days in 2021/22
- An increase (23%) in cost weighted separations undiscounted, from 3,408 in 2010/11 to 4,181 cost weighted separations undiscounted in 2021/22
- An increase (16%) in bed equivalent requirements, with an additional 8 beds of adult acute inpatient activity, from 44 bed equivalents in 2010/11 to 52 bed equivalents in 2021/22.

Lithgow Hospital

Lithgow Hospital is projected to have an increase in adult acute inpatient activity to 2021/22. (The following information does not include activity anticipated to shift to Lithgow Hospital from the change in the role of Lithgow Private Hospital overnight bed capacity.) This includes:

- An increase (21%) in separations, from 2,769 separations in 2010/11 to 3,349 separations in 2021/22
- An increase (16%) in bed days, from 9,047 bed days in 2010/11 to 10,511 bed days in 2021/22

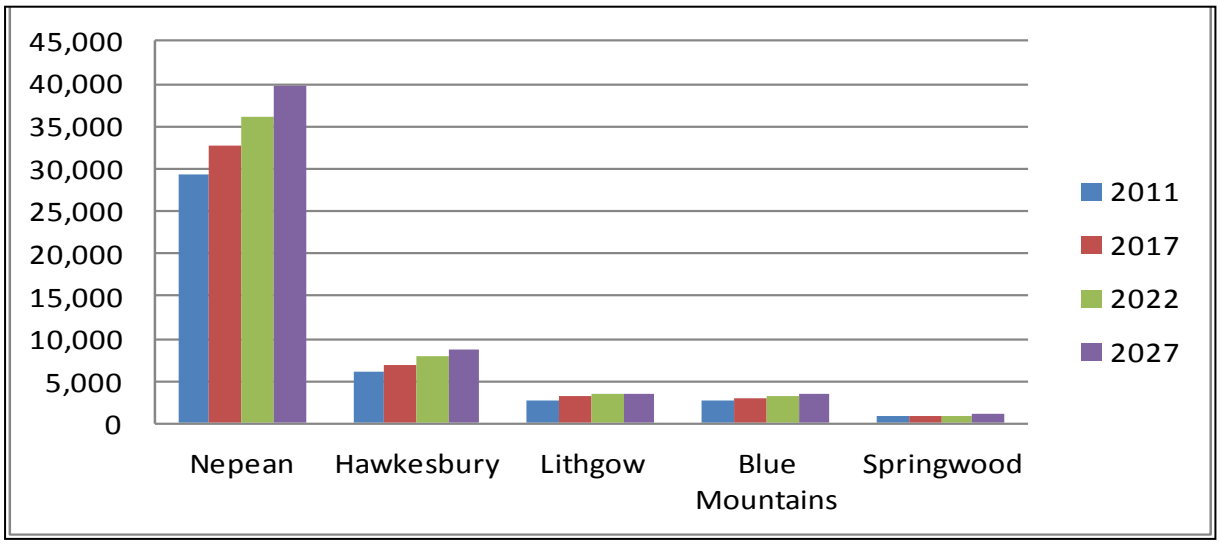
- An increase (23%) in cost weighted separations undiscounted, from 2,762 in 2010/11 to 3,409 cost weighted separations undiscounted in 2021/22
- An increase (16%) in bed equivalent requirements, with an additional 5 beds of acute inpatient activity from 33 bed equivalents in 2010/11 to 38 bed equivalents in 2021/22.

Hawkesbury Hospital

Hawkesbury Hospital is projected to have an increase in adult acute inpatient activity to 2021/22. This includes:

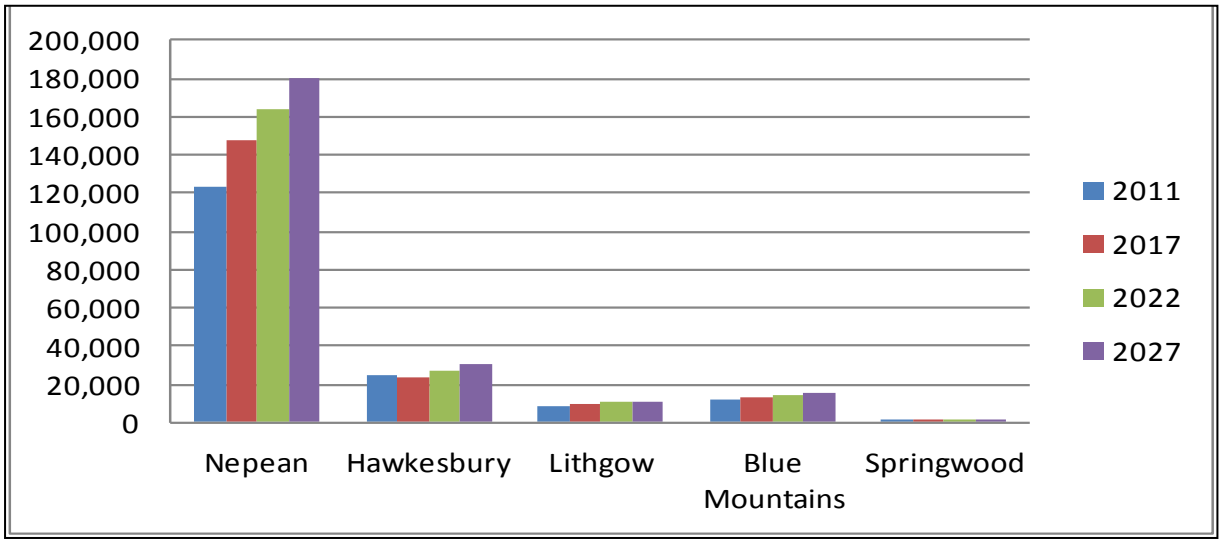
- An increase (26%) in separations, from 6,209 separations in 2010/11 to 7,810 separations in 2021/22
- An increase (8%) in bed days, from 24,583 bed days in 2010/11 to 26,664 bed days in 2021/22
- An increase (28%) in cost weighted separations undiscounted, from 7,659 in 2010/11 to 9,831 cost weighted separations undiscounted in 2021/22
- An increase (8%) in bed equivalent requirements, with an additional 7 beds of adult acute inpatient activity from 84 bed equivalents in 2010/11 to 91 bed equivalents in 2021/22.

Figure 6.8 Adult Acute Projected Activity for NBMLHD Hospitals from 2010/11 to 2026/27, Separations



Source: Acute Inpatient Modelling (aIM2012)
Notes: Total acute public activity includes all ages, excluding admit and discharge from Emergency Department, renal dialysis, chemotherapy and unqualified neonates.

Figure 6.9 Adult Acute Projected Activity for NBMLHD Hospitals from 2010/11 to 2026/27, Bed days



Source: Acute Inpatient Modelling (aIM2012)
Notes: Total acute public activity includes all ages, excluding admit and discharge from Emergency Department, renal dialysis, chemotherapy and unqualified neonates.

Acute (Adult) Projected Activity by Service Related Groups

Adult inpatient activity across all of the service related groups is expected to increase in the NBMLHD to 2021/22 (refer to Figure 6.10, Figure 6.11, Figure 6.12 and Figure 6.13).

For *separations*, the top five service related groups for adult acute inpatient activity for NBMLHD to 2021/22 are:

- Obstetrics (12% increase from 7,134 separations in 2010/11 to 7,989 separations in 2021/22)
- Orthopaedics (23% increase from 3,247 separations in 2010/11 to 4,007 separations in 2021/22)
- Cardiology (36% increase from 3,198 separations in 2010/11 to 4,358 separations in 2021/22)
- Respiratory medicine (21% increase from 2,796 separations in 2010/11 to 3,373 separations in 2021/22).
- Gastroenterology (31% increase from 2,759 separations in 2010/11 to 3,613 separations in 2021/22)

For *bed days*, the top five service related groups for adult acute inpatient activity for NBMLHD t0 2021/22 are:

- Orthopaedics (17% increase from 20,226 bed days in 2010/11 to 23,758 bed days in 2021/22)
- Obstetrics (11% increase from 20,906 bed days in 2010/11 to 23,163 bed days in 2021/22)
- Respiratory medicine (23% increase from 16,832 bed days in 2010/11 to 20,755 bed days in 2021/22)
- Non-subspecialty medicine (32% increase from 15,091 bed days in 2010/11 to 19,864 bed days in 2021/22)
- Cardiology (35% increase from 10,709 bed days in 2010/11 to 14,427 bed days in 2021/22).

The *largest percentage increases in separations* for adult acute inpatient activity by service related groups to 2021/22 are:

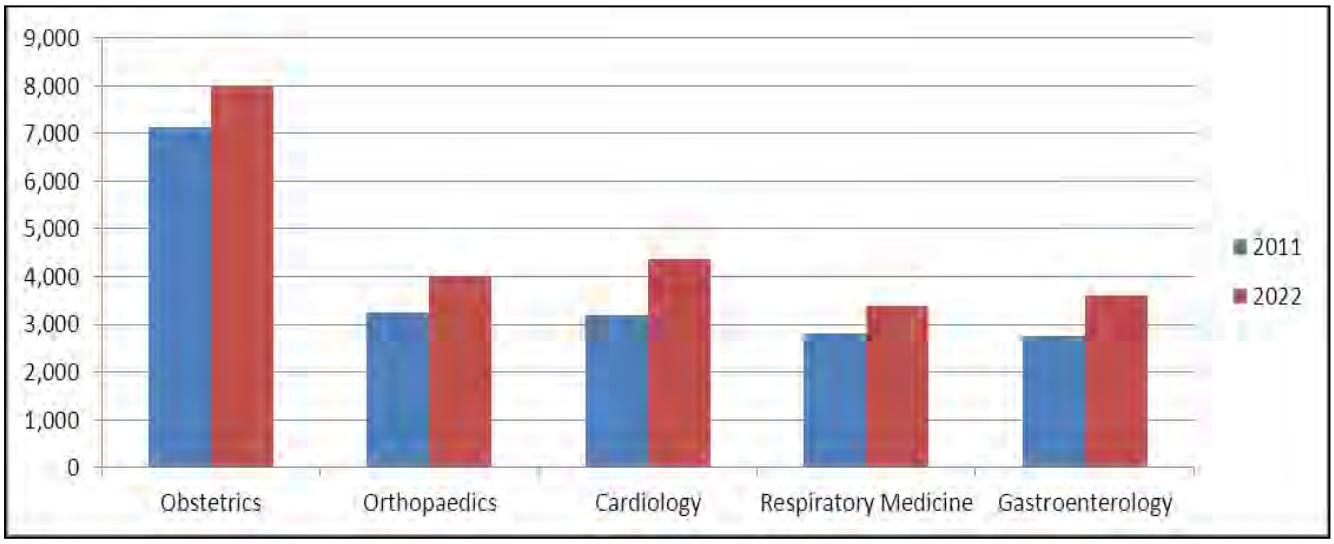
- Oncology (89% increase from 417 separations in 2010/11 to 789 separations in 2021/22)
- Non-subspecialty medicine (43% increase from 2,319 separations in 2010/11 to 3,322 separations in 2021/22)
- Neurology (38% increase from 1,598 separations in 2010/11 to 2,209 separations in 2021/22)
- Cardiology (36% increase from 3,198 separations in 2010/11 to 4,358 separations in 2021/22).
- Interventional cardiology (36% increase from 991 separations in 2010/11 to 1,349 separations in 2021/22).

The *largest percentage increases in bed days* for adult acute inpatient activity by service related groups to 2021/22 are:

- Interventional cardiology (81% increase from 3,469 bed days in 2010/11 to 6,293 bed days in 2021/22)

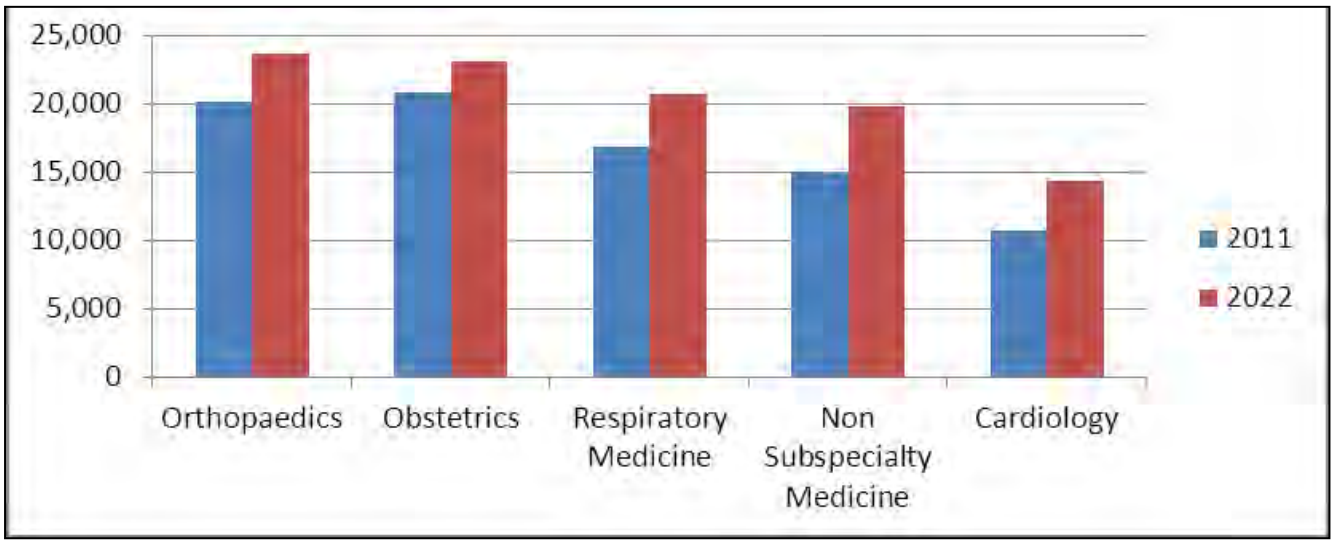
- Oncology (71% increase from 3,243 bed days in 2010/11 to 5,546 bed days in 2021/22)
- Colorectal surgery (51% increase from 3,340 bed days in 2010/11 to 5,054 bed days in 2021/22).
- Neurology (39% increase from 7,447 bed days in 2010/11 to 10,331 bed days in 2021/22)
- Gastroenterology (38% increase from 8,751 bed days in 2010/11 to 12,087 bed days in 2021/22).

Figure 6.10 Top Five Service Related Groups by Separations for Adult Acute Inpatient Activity for NBMLHD from 2010/11 to 2021/22



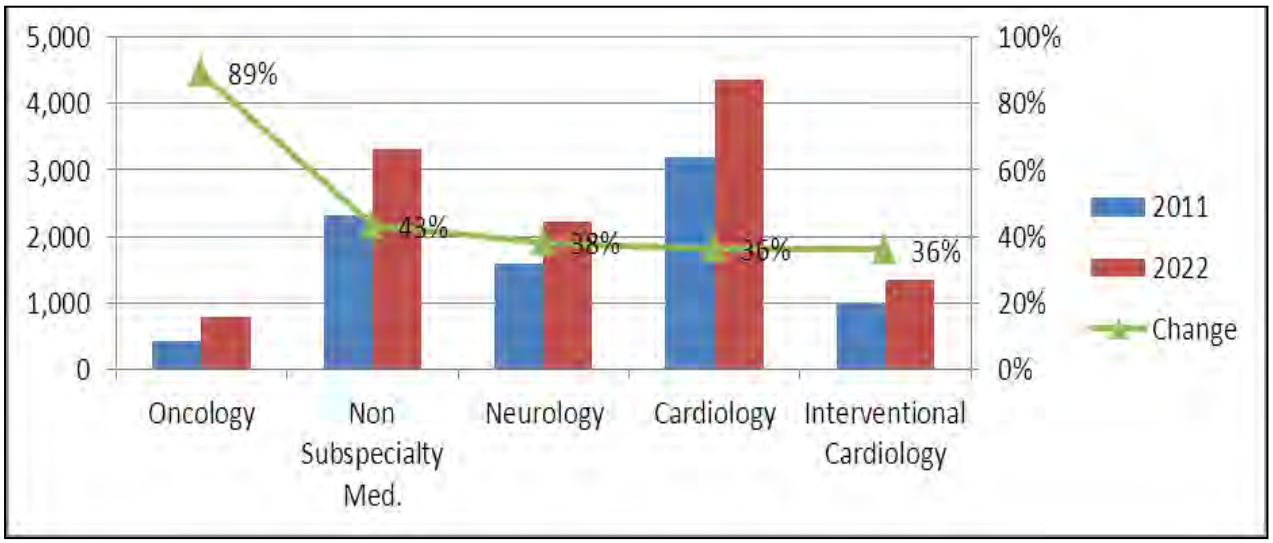
Source: Acute Inpatient Modelling (aIM2012)
Notes: Acute, public supply activity, age 16yrs+. Excludes Emergency Department admit and discharge, Renal Dialysis, Chemotherapy.

Figure 6.11 Top Five Service Related Groups by Bed days for Adult Acute Inpatient Activity for NBMLHD from 2010/11 to 2021/22



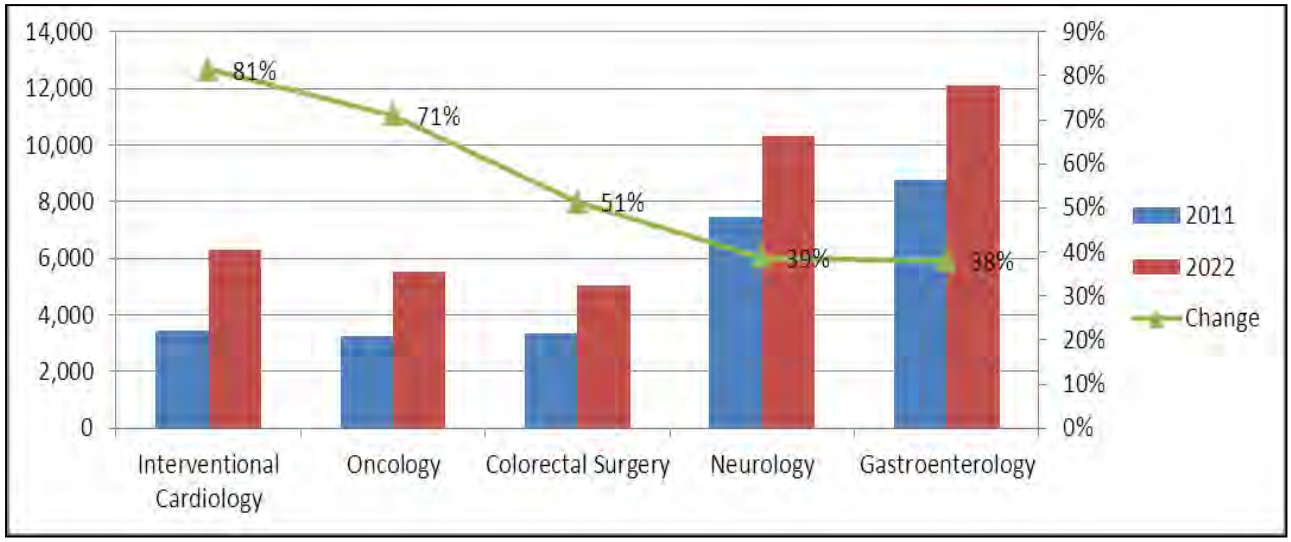
Source: Acute Inpatient Modelling (aIM2012)
Notes: Acute, public supply activity, age 16yrs+. Excludes Emergency Department admit and discharge, Renal Dialysis, Chemotherapy.

Figure 6.12 Largest Percentages Increases in Separations for Adult Acute Inpatient Activity by Service Related Groups for NBMLHD from 2010/11 to 2021/22



Source: Acute Inpatient Modelling (aIM2012)
Notes: Acute, public supply activity, age 16yrs+. Excludes Emergency Department admit and discharge, Renal Dialysis, Chemotherapy.

Figure 6.13 Largest Percentages Increases in Bed days for Adult Acute Inpatient Activity by Service Related Groups for NBMLHD from 2010/11 to 2021/22



Source: Acute Inpatient Modelling (aIM2012)
Notes: Acute, public supply activity, age 16yrs+. Excludes Emergency Department admit and discharge, Renal Dialysis, Chemotherapy.

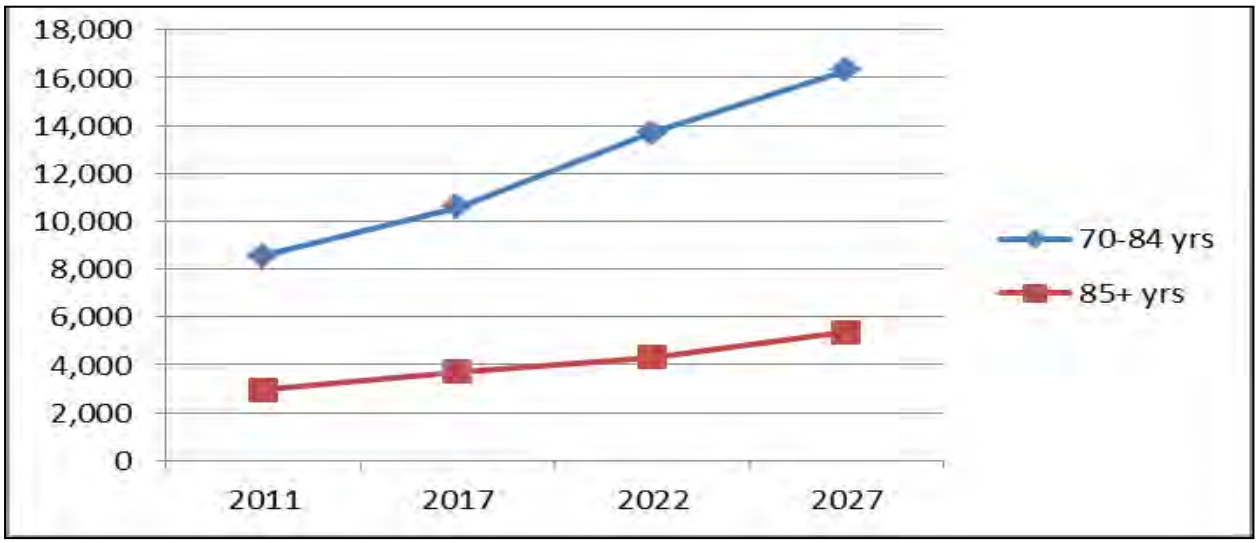
Acute (Older People) Projected Activity

There is projected to be a 56% increase in acute inpatient activity for older people in the NBMLHD to 2021/22, from 11,510 separations in 2010/11 to 17,997 separations in 2021/22 and from 72,124 bed days in 2010/11 to 106,133 bed days in 2021/22 (refer to Figure 6.14 and Figure 6.15).

By Age Group

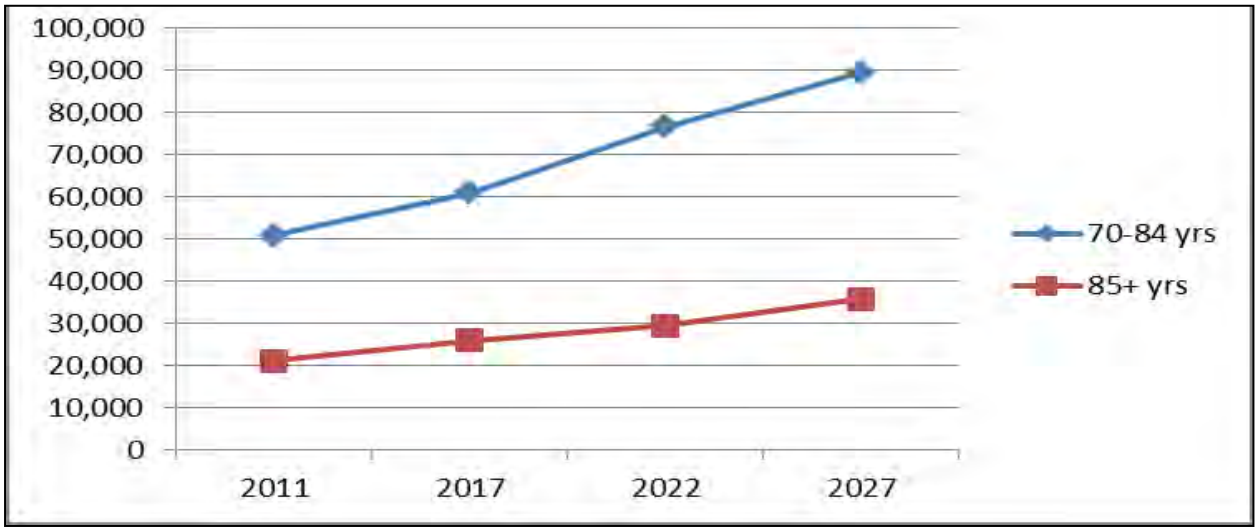
The projected increases for acute inpatient activity for older people in the NBMLHD are anticipated to be larger among the 70 to 84 year old age group (60% for separations from 2010/11 to 2021/22 and 50% for bed days over the same period), than the 85 plus year age group (46% for separations from 2010/11 to 2021/22 and 39% for bed days over the same period).

Figure 6.14 Projected Acute Inpatient Activity (Separations) for NBMLHD for Older People (70+ Years) from 2010/11 to 2026/27



Source: Acute Inpatient Modelling (aIM2012)
Notes: Acute, public supply activity, aged 70+years. Excludes Emergency Department admit and discharge, Renal Dialysis, Chemotherapy.

Figure 6.15 Projected Acute Inpatient Activity (Bed days) for NBMLHD for Older People (70+ Years) from 2010/11 to 2026/27



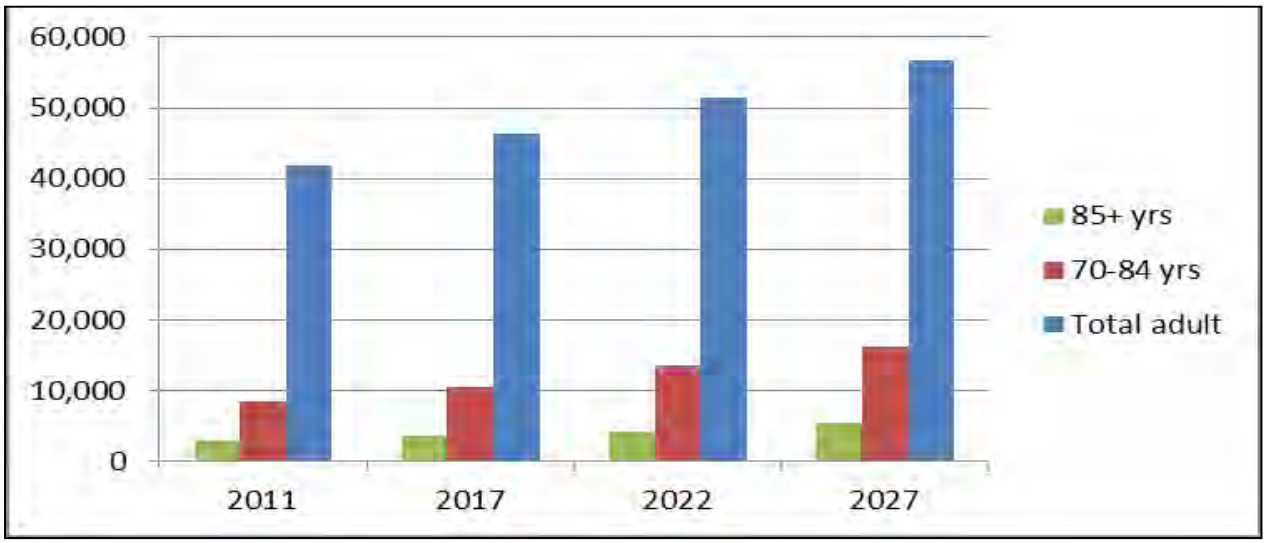
Source: Acute Inpatient Modelling (aIM2012)
Notes: Acute, public supply activity, aged 70+years. Excludes Emergency Department admit and discharge, Renal Dialysis, Chemotherapy.

Comparison with Adult Acute Inpatient Activity

The projected increases in acute inpatient activity for older people (70 plus years) are much higher than those for adults (16 - 69 years) in the NBMLHD (23% increase for separations to 2020/21 compared to the figures above and 27% for bed days to 2021/22).

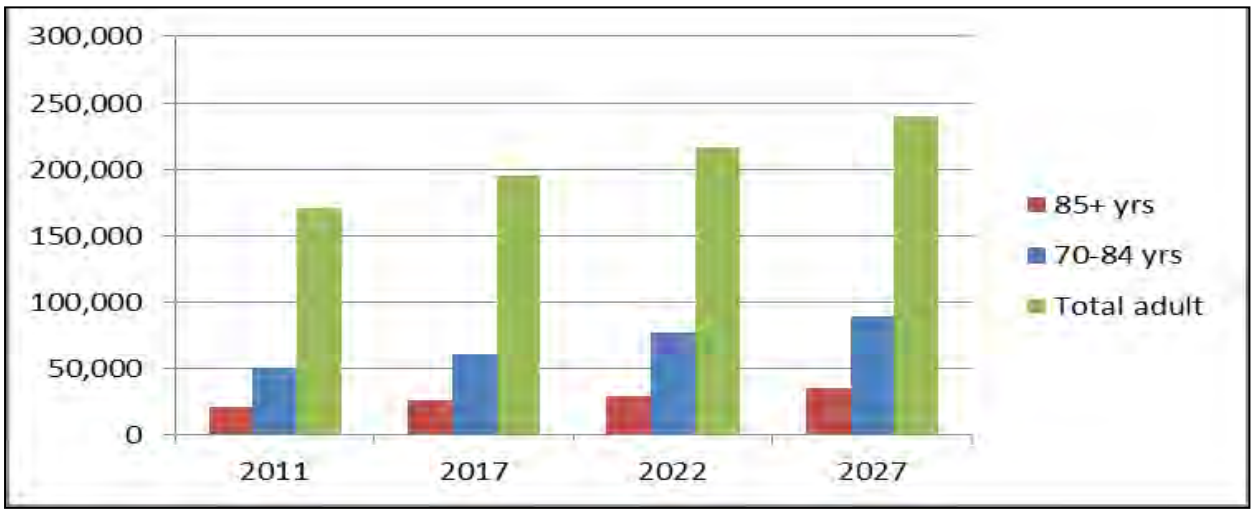
In 2010/11 the older age group (70 years and over) comprised 27% of separations and 42% of bed days of acute inpatient activity for adults and older people combined. By 2021/22 this will increase to 35% of separations and 49% of bed days (refer to Figure 6.16 and Figure 6.17).

Figure 6.16 Projected Acute Inpatient Activity for NBMLHD to 2026/27 Comparing Older People (70+ Years) with Adults (16+Years) from 2010/11 to 2026/27, Separations



Source: Acute Inpatient Modelling (aIM2012)
Notes: Acute, public supply activity. Excludes Emergency Department admit and discharge, Renal Dialysis, Chemotherapy

Figure 6.17 Projected Acute Inpatient Activity for NBMLHD to 2026/27 Comparing Older People (70+ Years) with Adults (16+ Years) from 2010/11 to 2026/27, Bed days



Source: Acute Inpatient Modelling (aIM2012)
Notes: Acute, public supply activity. Excludes Emergency Department admit and discharge, Renal Dialysis, Chemotherapy.

Acute (Older People) Projected Activity by Service Related Groups

Aged 70 to 84 years

Acute inpatient activity across all of the service related groups is expected to experience an increase for older people aged 70 to 84 years in the NBMLHD to 2021/22. (Refer to Figure 18, Figure 19, Figure 20 and Figure 21.)

For separations, the top five service related groups for acute inpatient activity for older people aged 70 to 84 years for NBMLHD to 2027 are:

- Cardiology (63% increase from 1,001 separations in 2010/11 to 1,631 separations in 2021/22)
- Respiratory medicine (57% increase from 930 separations in 2010/11 to 1,456 separations in 2021/22)
- Non-subspecialty medicine (71% increase from 739 separations in 2010/11 to 1,265 separations in 2021/22)
- Gastroenterology (68% increase from 706 separations in 2010/11 to 1,187 separations in 2021/22)
- Orthopaedics (53% increase from 715 separations in 2010/11 to 1,093 separations in 2021/22).

For bed days, the top five service related groups for acute inpatient activity for older people aged 70 to 84 years for NBMLHD to 2027 are:

- Respiratory medicine (40% increase from 7,048 bed days in 2010/11 to 9,899 bed days in 2021/22)
- Orthopaedics (25% increase from 7,858 bed days in 2010/11 to 9,797 bed days in 2021/22)
- Non-subspecialty medicine (51% increase from 5,685 bed days in 2010/11 to 8,599 bed days in 2021/22)
- Cardiology (61% increase from 4,076 bed days in 2010/11 to 6,550 bed days in 2021/22)
- Gastroenterology (76% increase from 2,553 bed days in 2010/11 to 4,498 bed days in 2021/22)

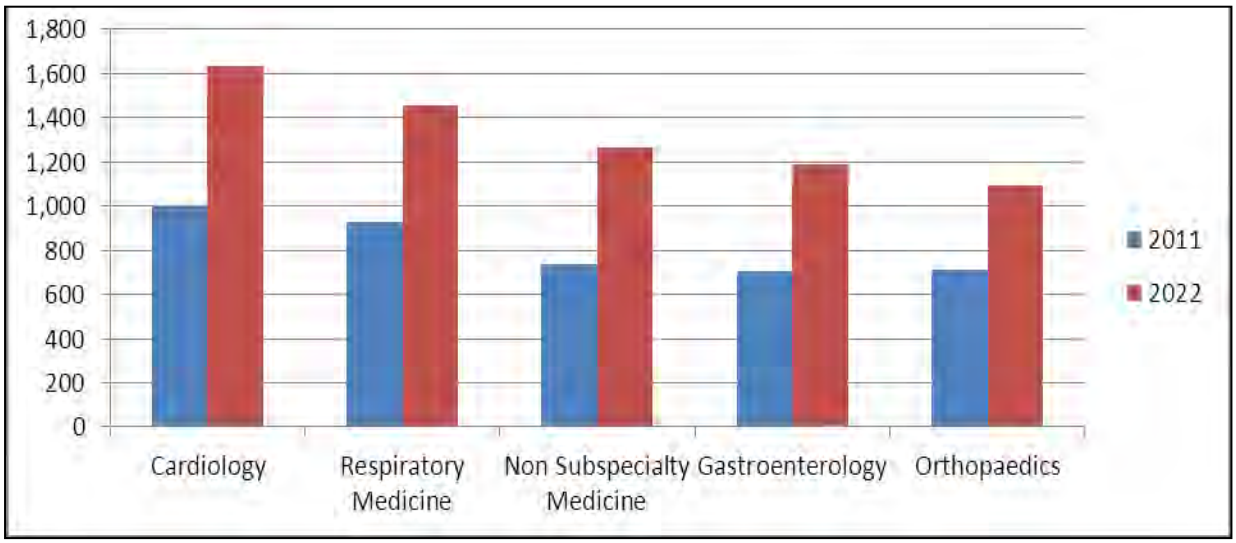
The largest percentage increases in acute inpatient activity (separations) by service related groups for older people aged 70 to 84 years are:

- Oncology (135% increase from 140 separations in 2010/11 to 329 separations in 2021/22)
- Diagnostic GI endoscopy (90% increase from 333 separations in 2010/11 to 634 separations in 2021/22)
- Non-subspecialty medicine (71% increase from 739 separations in 2010/11 to 1,265 separations in 2021/22)
- Non-subspecialty surgery (69% increase from 466 separations in 2010/11 to 786 separations in 2021/22)
- Cardiology (63% increase from 1,001 separations in 2010/11 to 1,631 separations in 2021/22).

The largest percentage increases in acute inpatient activity (bed days) by service related groups for older people aged 70 to 84 years are:

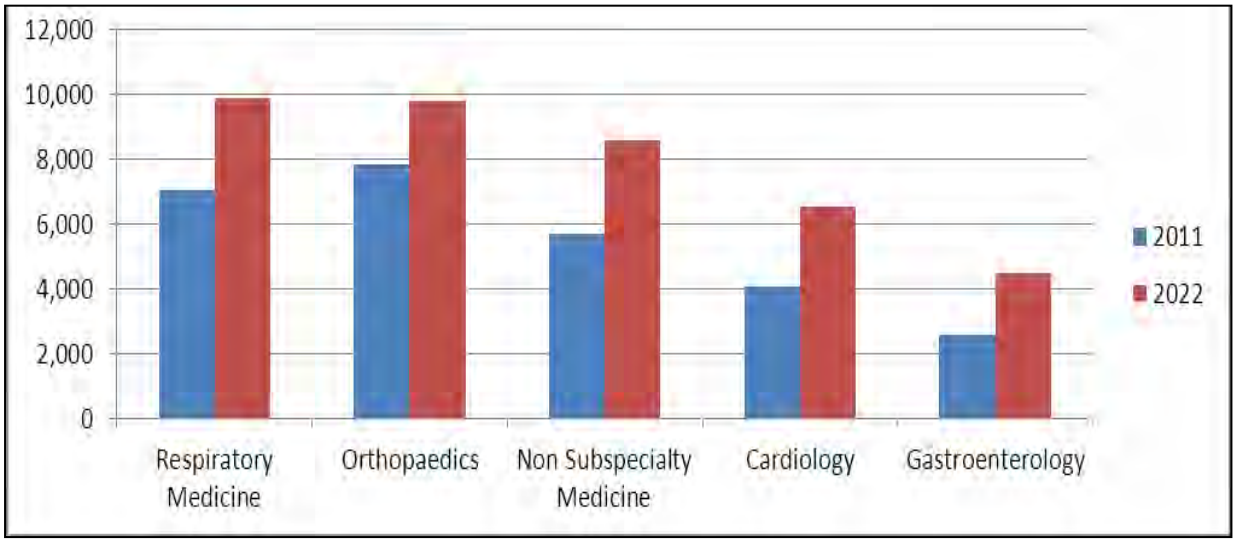
- Interventional cardiology (124% increase from 1,337 bed days in 2010/11 to 3,078 bed days in 2021/22)
- Oncology (102% increase from 1,274 bed days in 2010/11 to 2,580 bed days in 2021/22)
- Haematology (87% increase from 889 bed days in 2010/11 to 1,663 bed days in 2021/22)
- Gastroenterology (76% increase from 2,553 bed days in 2010/11 to 4,498 bed days in 2021/22)
- Diagnostic GI endoscopy (68% increase from 647 bed days in 2010/11 to 1,088 bed days in 2021/22).

Figure 6.18 Top Five Service Related Groups for Older Adult Acute Inpatient Care (70-84 years), from 2010/11 to 2021/22, Separations



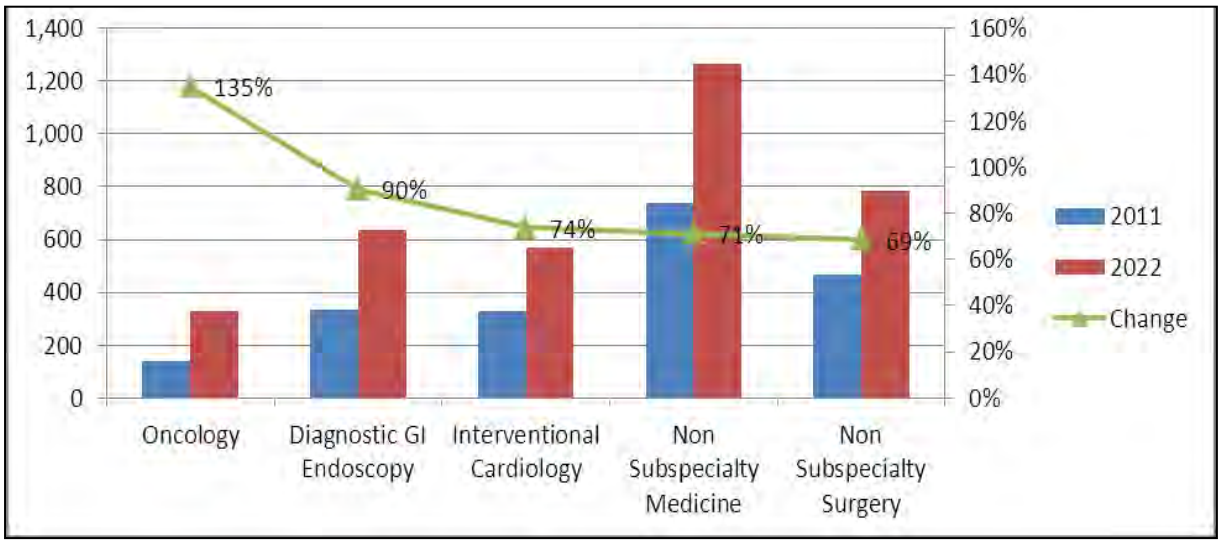
Source: Acute Inpatient Modelling (aIM2012)
Notes: Acute, public supply activity, ages 70-84 years. Excludes Emergency Department admit and discharge, Renal Dialysis, Chemotherapy.

Figure 6.19 Top Five Service Related Groups for Older Adult Acute Inpatient Care (70-84 years), from 2010/11 to 2021/22, Bed days



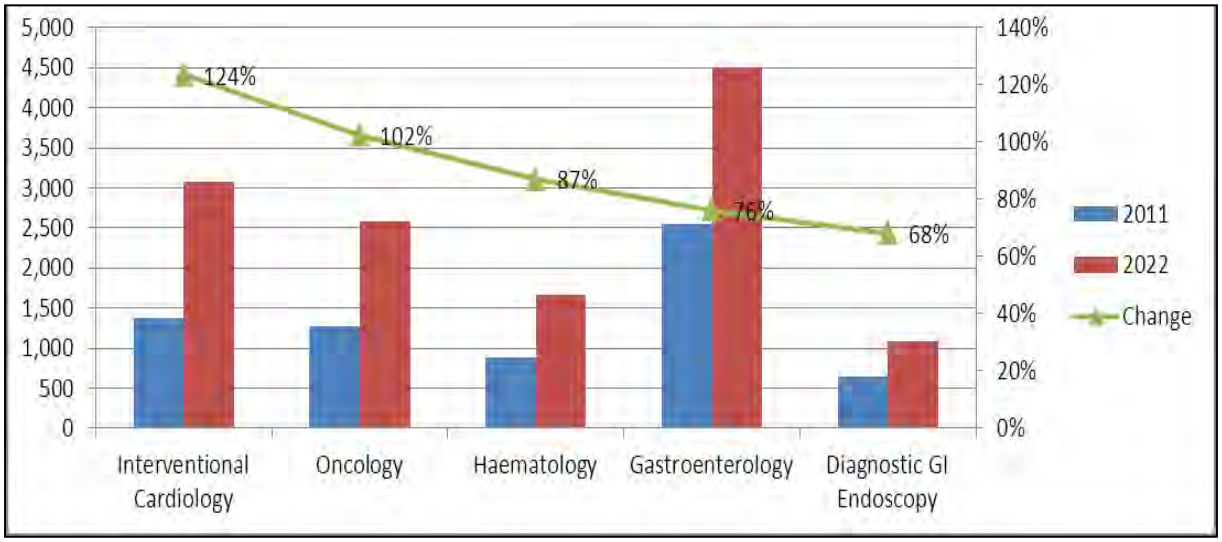
Source: Acute Inpatient Modelling (aIM2012)
Notes: Acute, public supply activity, ages 70-84 years. Excludes Emergency Department admit and discharge, Renal Dialysis, Chemotherapy.

Figure 6.20 Largest Percentage Increases Service Related Groups Acute Inpatient Care for Older People (70-84 years), from 2010/11 to 2021/22, Separations



Source: Acute Inpatient Modelling (aIM2012)
Notes: Acute, public supply activity, ages 70-84 years. Excludes Emergency Department admit and discharge, Renal Dialysis, Chemotherapy.

Figure 6.21 Largest Percentage Increases in Service Related Groups Acute Inpatient Care for Older People (70-84 years), 2010/11 to 2021/22, Bed days



Source: Acute Inpatient Modelling (aIM2012)
Notes: Acute, public supply activity, ages 70-84 years. Excludes Emergency Department admit and discharge, Renal Dialysis, Chemotherapy.

Aged 85 plus years

Acute inpatient activity across all of the service related groups is expected to experience an increase for older people aged 85 plus year age group in the NBMLHD to 2021/22 (refer to Figure 6.22, Figure 6.23, Figure 6.24 and Figure 6.25).

For separations, the top five service related groups for acute inpatient activity for older people aged 85 plus years for NBMLHD to 2027 are:

- Non-subspecialty medicine (69% increase from 402 separations in 2010/11 to 681 separations in 2021/22)
- Cardiology (46% increase from 427 separations in 2010/11 to 625 separations in 2021/22)
- Respiratory medicine (25% increase from 404 separations in 2010/11 to 505 separations in 2021/22)
- Orthopaedics (45% increase from 281 separations in 2010/11 to 406 separations in 2021/22)
- Gastroenterology (55% increase from 235 separations in 2010/11 to 363 separations in 2021/22).

For bed days, the top five service related groups for acute inpatient activity for older people aged 85 plus years for NBMLHD to 2027 are:

- Non-subspecialty medicine (46% increase from 3,492 bed days in 2010/11 to 5,113 bed days in 2021/22)
- Orthopaedics (24% increase from 3,686 bed days in 2010/11 to 4,579 bed days in 2021/22)
- Respiratory medicine (25% increase from 2,953 bed days in 2010/11 to 3,698 bed days in 2021/22)
- Cardiology (25% increase from 2,713 bed days in 2010/11 to 3,395 bed days in 2021/22)
- Neurology (63% increase from 1,156 bed days in 2010/11 to 1,885 bed days in 2021/22).

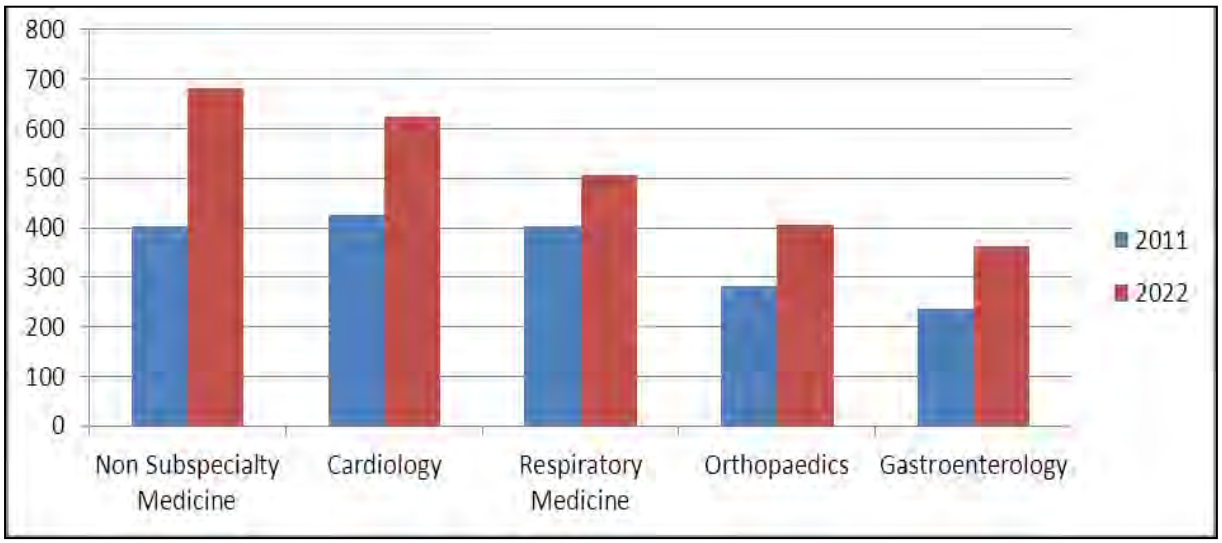
The largest percentage increases in acute inpatient activity (separations) by service related groups for older people aged 85 plus years are:

- Renal medicine (108% increase from 37 separations in 2010/11 to 77 separations in 2021/22)
- Urology (78% increase from 60 separations in 2010/11 to 107 separations in 2021/22)
- Non-subspecialty medicine (69% increase from 402 separations in 2010/11 to 681 separations in 2021/22).
- Diagnostic GI Endoscopy (67% increase from 50 separation in 2010/11 to 84 separations in 2021/22)
- Interventional cardiology (64% increase from 62 separations in 2010/11 to 102 separations in 2021/22).

The largest percentage increases in acute inpatient activity (bed days) by service related groups for older people aged 85 plus years are:

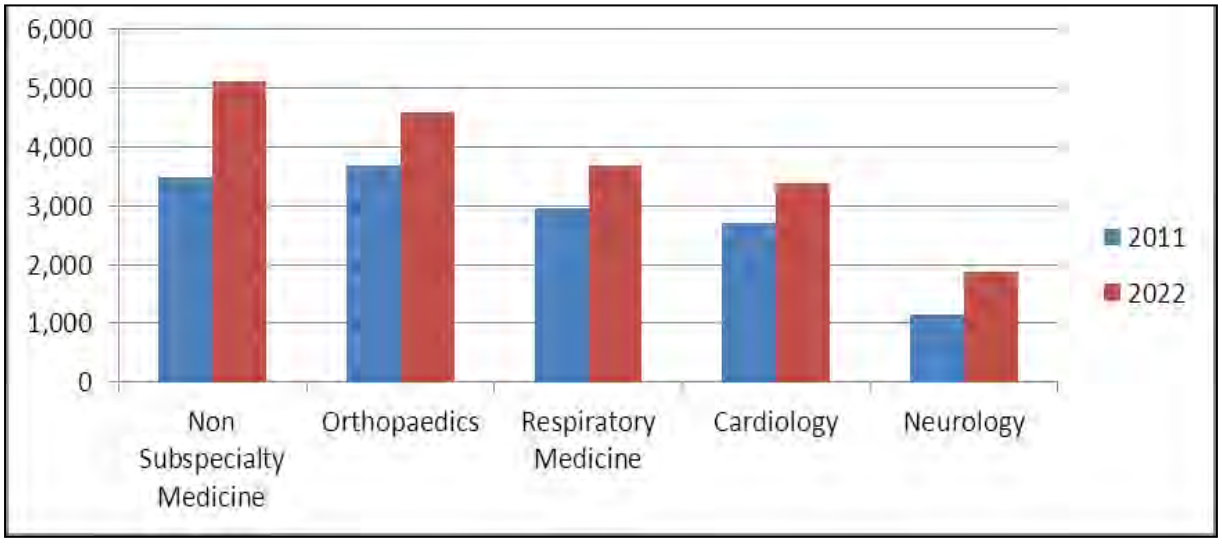
- Interventional cardiology (159% increase from 238 bed days in 2010/11 to 617 bed days in 2021/22)
- Haematology (113% increase from 200 bed days in 2010/11 to 427 bed days in 2021/22)
- Renal medicine (113% increase from 203 bed days in 2010/11 to 432 bed days in 2021/22)
- Neurosurgery (70% increase from 604 bed days in 2010/11 to 1027 bed days in 2021/22)
- Vascular Surgery (70% increase from 517 bed days in 2010/11 to 878 bed days in 2021/22).

Figure 6.22 Top Five Service Related Groups for Older People (85+ years) acute inpatient Activity in NBMLHD from 2010/11 to 2021/22, Separations



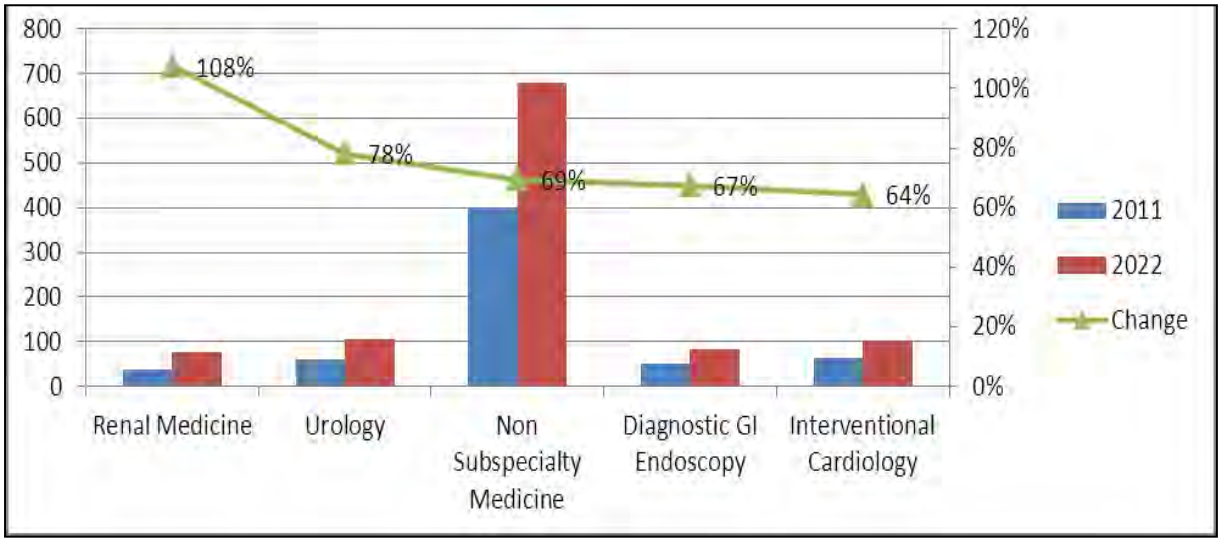
Source: Acute Inpatient Modelling (aIM2012)
Notes: Acute, public supply activity, age 85+ years. Excludes Emergency Department admit and discharge, Renal Dialysis, Chemotherapy.

Figure 6.23 Top Five Service Related Groups for Older People (85+ years) acute inpatient Activity in NBMLHD from 2010/11 to 2021/22, Bed days



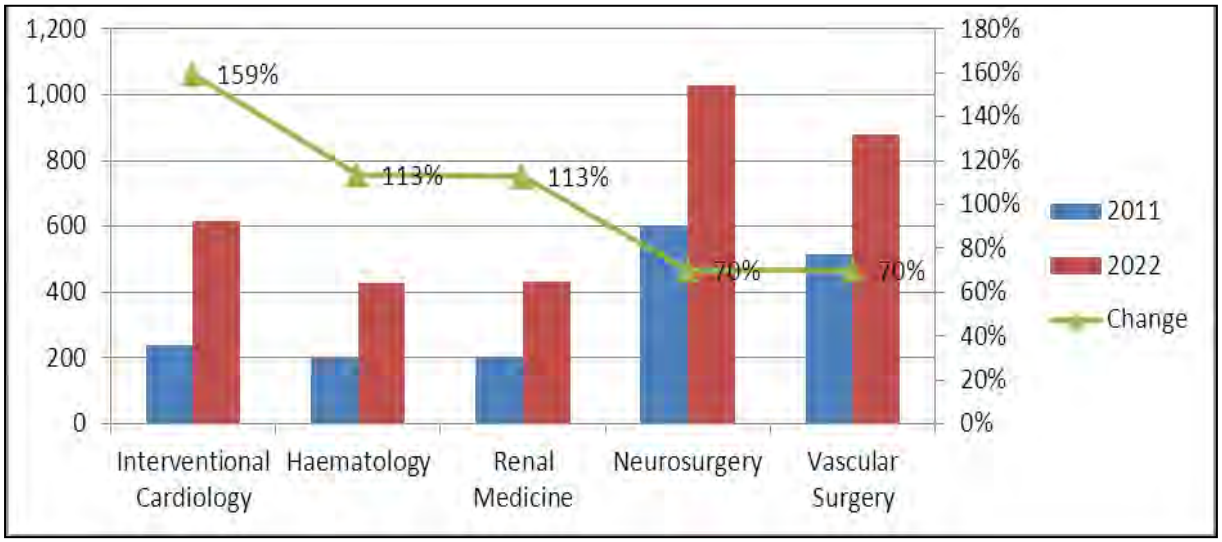
Source: Acute Inpatient Modelling (aIM2012)
Notes: Acute, public supply activity, age 85+ years. Excludes Emergency Department admit and discharge, Renal Dialysis, Chemotherapy.

Figure 6.24 Largest Percentage Increases Service Related Groups Acute Inpatient Care for Older People (85+years), Separations, from 2010/11 to 2021/22



Source: Acute Inpatient Modelling (aIM2012)
Notes: Acute, public supply activity, age 85+ years. Excludes Emergency Department admit and discharge, Renal Dialysis, Chemotherapy.

Figure 6.25 Largest Percentage Increases Service Related Groups Acute Inpatient Care for Older People (85+ years), Bed days, from 2010/11 to 2021/22



Source: Acute Inpatient Modelling (aIM2012)
Notes: Acute, public supply activity, age 85+ years. Excludes Emergency Department admit and discharge, Renal Dialysis, Chemotherapy.

Obstetric (All Ages) Projected Activity

Increases are projected in obstetrics acute inpatient activity in NBMLHD hospitals from 2010/11 to 2021/22. This includes:

- *Separations:* A 12% increase in obstetrics acute inpatient activity, from 7,147 separations in 2010/11 to 7,999 separations in 2021/22 (Refer to Figure 6.26)
- *Bed days:* Similar increases in bed days for acute obstetrics inpatient activity, with an 11% increase from 20,968 bed days in 2010/11 to 23,197 bed days in 2021/22.

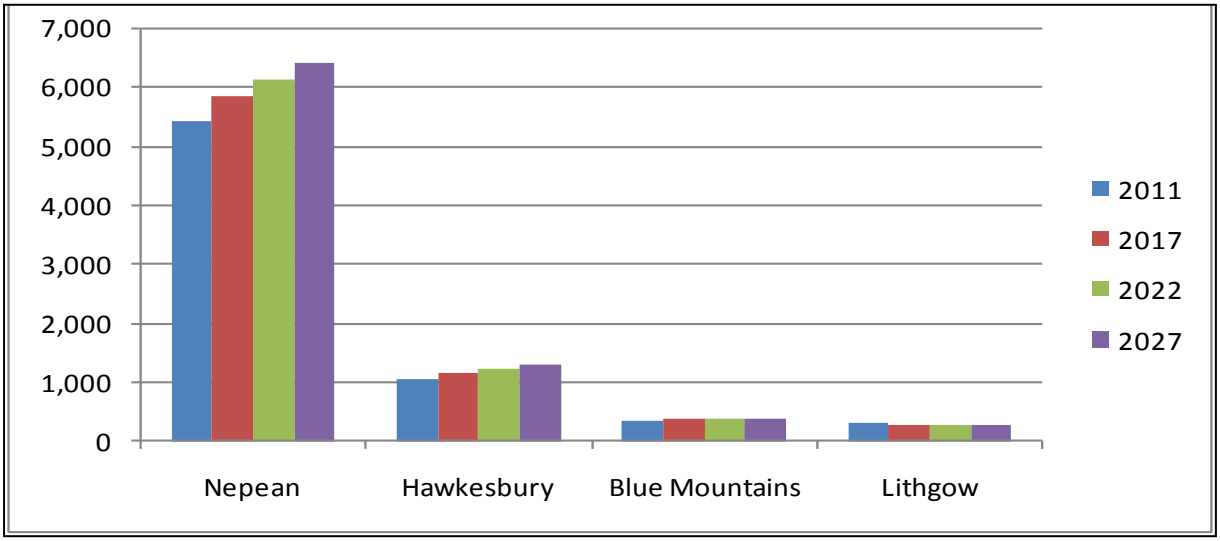
Day Only and Overnight

- *Day Only:* Large increases are anticipated in day only obstetric inpatient acute activity, with a 23% increase in separations to 2021/22 in NBMLHD hospitals (from 1,024 separations in 2010/11 to 1,263 separations in 2021/22).
- *Overnight:* By comparison, there is anticipated to be a 10% increase in overnight separations and bed days for acute obstetrics care in NBMLHD hospitals to 2021/22 (from 6,123 separations in 2010/11 to 6,736 separations in 2021/22 and from 19,994 bed days in 2010/11 to 21,934 bed days in 2021/22).

By Hospital

- *Nepean Hospital:* By NBMLHD hospitals, most of the projected increase in volume for acute obstetric activity is anticipated at Nepean Hospital, with 13% increase in separations from 5,423 separations in 2010/11 to 6,140 separations in 2021/22 and a 14% increase in bed days from 15,977 bed days in 2010/11 to 18,161 bed days in 2021/22.
- *Hawkesbury Hospital:* There is also anticipated to experience a 14% increase in separations for obstetric acute activity from 1,065 separations in 2010/11 to 1,219 separations in 2021/22 and a 5% increase in bed days to 3,363 over the same time period to 2021/22.
- *Blue Mountains Hospital:* There is projected to be a modest increase (7%) in acute obstetrics activity from 351 separations in 2010/11 to 374 separations in 2021/22 and a 1% increase in bed days to 1,004 bed days over the same time period to 2021/22.
- *Lithgow Hospital:* There is projected to be a modest decrease (14%) in acute obstetrics activity from 308 separations in 2010/11 to 265 separations in 2021/22 and a 15% decrease in bed days to 669 bed days over the same time period to 2021/22. These figures do not include the impact of the change in role of the overnight beds at Lithgow Private Hospital.

Figure 6.26 Projected Obstetric Activity in NBMLHD Hospitals for All Ages from 2010/11 to 2026/27, Separations



Source: Acute Inpatient Modelling (aIM2012)
Notes: Total acute public activity includes all ages, SRG=Obstetrics.

Projected Deliveries

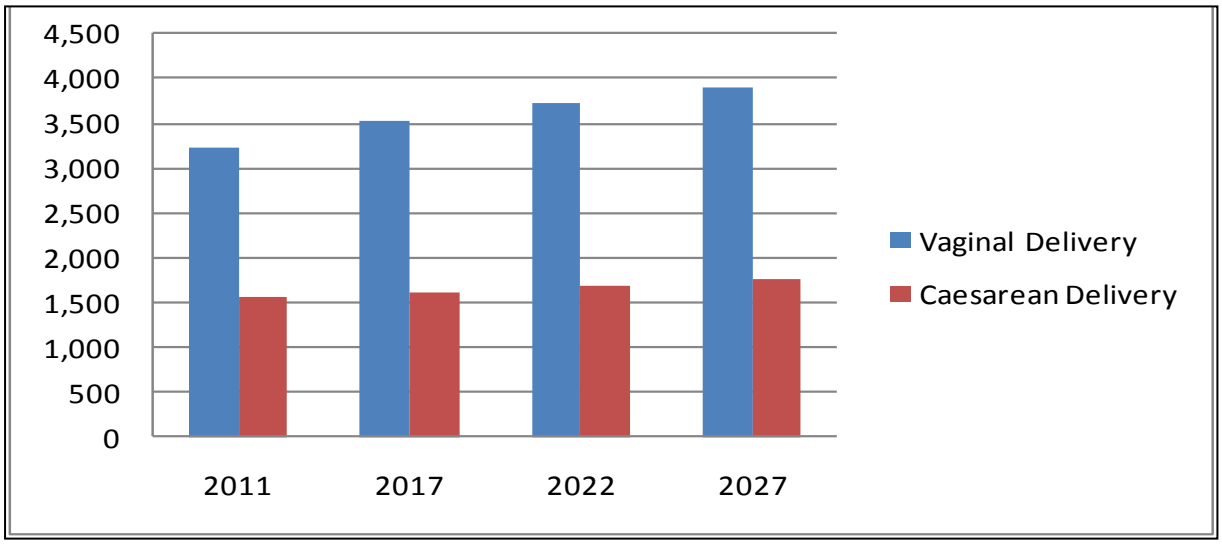
Overall there is projected to be a 12% increase in deliveries in NBMLHD hospitals from 2010/11 to 2021/22, from 4,783 deliveries in 2010/11 by NBMLHD hospitals to 5,422 deliveries in 2021/22.

Vaginal and Caesarean Deliveries

The larger volume and percentage increase over this timeframe in the NBMLHD is anticipated in vaginal deliveries, with increases also anticipated in caesarean deliveries. (Refer to Figure 6.27)

- *Vaginal deliveries:* There is projected to be a 15% increase in vaginal deliveries (from 3,230 separations in 2010/11 to 3,727 separations in 2021/22).
- Corresponding bed days also show an increase of 17% for vaginal deliveries from 8,832 bed days in 2010/11 to 10,305 bed days in 2021/22.
- *Caesarean deliveries:* There is projected to be a 9% in caesarean deliveries (from 1,553 in 2010/11 to 1,696 separations in 2021/22) in NBMLHD hospitals to 2021/22.
- There is projected to be an 11% increase in bed days for caesarean deliveries from 7,128 bed days in 2010/11 to 7,885 bed days in 2021/22.

Figure 6.27 Projected Deliveries in NBMLHD from 2010/11 to 2026/27

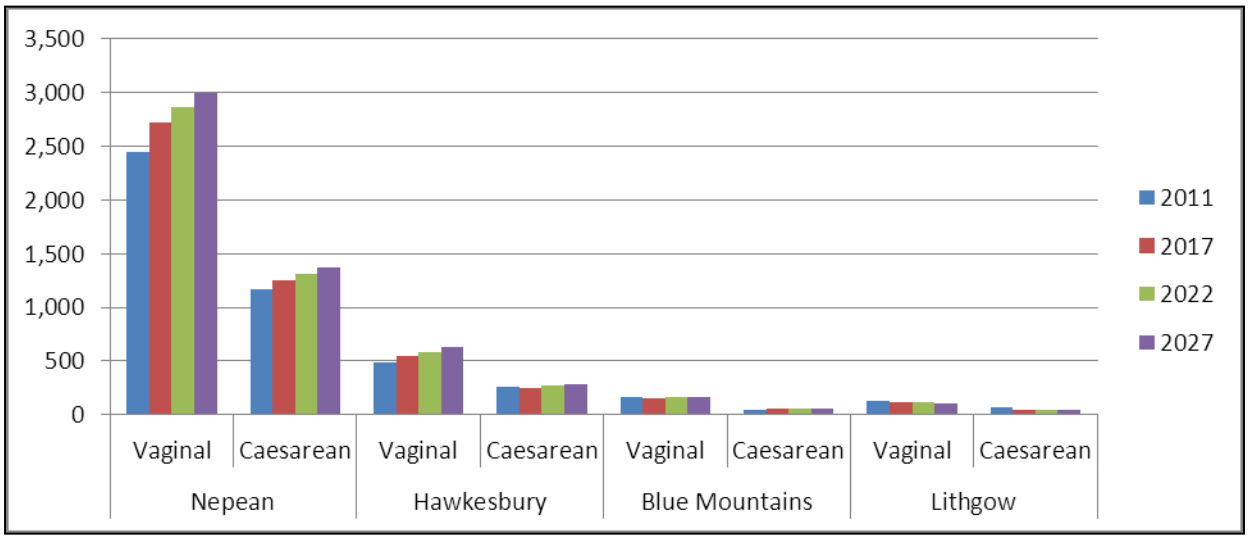


Source: Acute Inpatient Modelling (aIM2012)
Notes: Acute, public supply, all ages for SRG Obstetrics. Figures do not include impact of deliveries shifting to Lithgow Hospital from change in role of overnight capacity at Lithgow Private Hospital.

Deliveries by Hospital

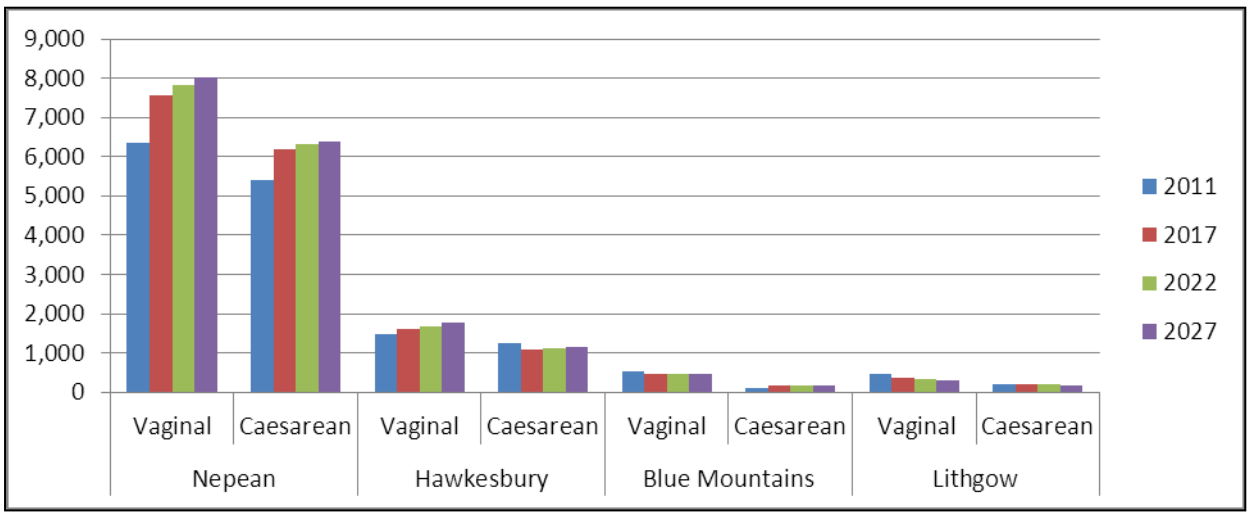
Nepean and Hawkesbury hospitals are projected to have increases in vaginal deliveries over and above increases in caesarean section deliveries (17% compared to 12% increase and 20% compared to 3% increase respectively). By comparison, although the numbers are smaller, Blue Mountains hospital is anticipated to have larger increases in caesarean section deliveries than vaginal deliveries (50% increase compared to 3% decline) (refer to Figure 6.28 and Figure 6.29).

Figure 6.28 Projected Deliveries by NBMLHD Hospital from 2010/11 to 2026/27, Separations



Source: Acute Inpatient Modelling (aIM2012)
Notes: Acute, public supply, all ages for SRG Obstetrics. Figures do not include impact of deliveries shifting to Lithgow Hospital from change in role of overnight capacity at Lithgow Private Hospital.

Figure 6.29 Projected Deliveries by NBMLHD Hospital from 2010/11 to 2026/27, Bed days



Source: Acute Inpatient Modelling (aIM2012)
Notes: Acute, public supply, all ages for SRG Obstetrics. Figures do not include impact of deliveries shifting to Lithgow Hospital from change in role of overnight capacity at Lithgow Private Hospital.

Other Obstetric Activity

There is also anticipated to be an increase in ante and postnatal admissions in NBMLHD to 2021/22.

The following figures do not yet incorporate the impact of private birthing activity shifting from Lithgow Private to Lithgow Hospital. There were 65 deliveries in Lithgow Private Hospital in 2010/11.

Antenatal Admissions

For antenatal admissions in the NBMLHD, there is projected to be a 9% in separations, from 2,149 in 2010/11 to 2,347 in 2021/22 and a slight decline is projected for bed days from 4,472 in 2010/11 to 4,414 bed days in 2021/22.

Postnatal Admissions

For postnatal admissions in the NBMLHD, there is projected to be a 7% in separations, from 215 in 2010/11 to 229 in 2021/22 and an increase in projected bed days from 536 in 2010/11 to 594 bed days in 2021/22.

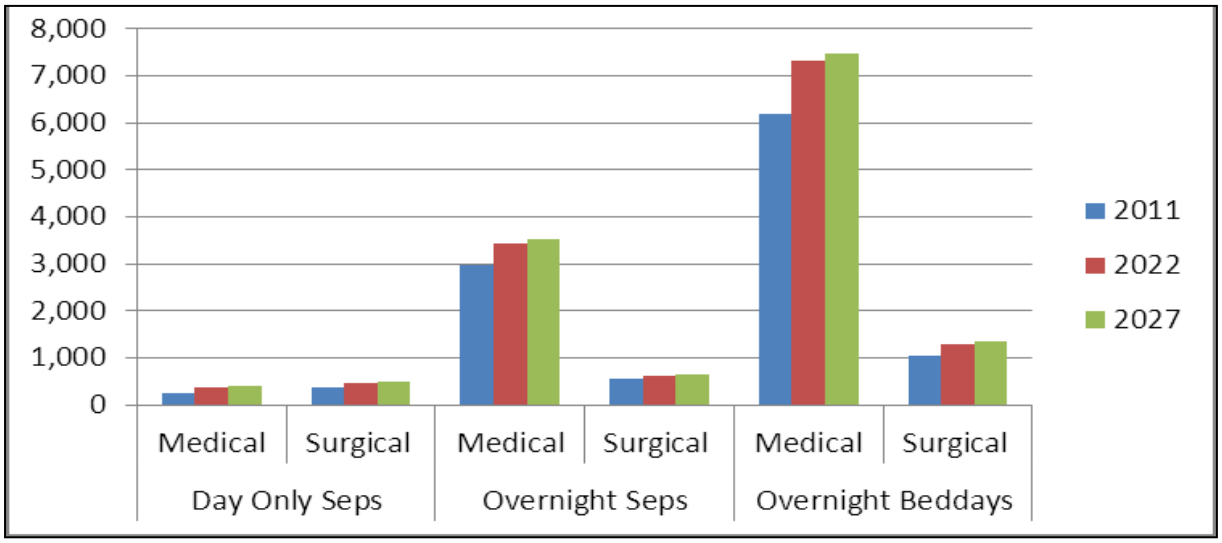
Paediatric Acute Projected Activity

There is projected to be an 18% increase in paediatric acute inpatient separations in NBMLHD hospitals from 2010/11 to 2021/22 (from 4,157 separations in 2010/11 to 4,886 separations in 2021/22); and a 20% increase in paediatric acute inpatient bed days (from 7,860 bed days in 2010/11 to 9,464 bed days in 2021/22). This equates to an increase of an additional 5 bed equivalents of paediatric acute inpatient activity projected to 2021/22. (Refer to Figure 6.30).

The largest increase is anticipated in day only medical paediatric acute inpatient activity in NBMLHD hospitals (an increase of 50% from 258 separations in 2010/11 to 386 separations in 2021/22), followed by day only surgical paediatric acute inpatient activity (an increase of 25% from 363 separations in 2010/11 to 455 separations in 2021/22).

The largest volume of activity is for medical overnight paediatric activity, with an increase from 2,986 separations in 2010/11 to 3,419 in 2021/22 (14% increase). The overnight medical bed days are expected to increase by 19%, from 6,179 bed days to 7,328. Surgical overnight separations are projected to increase by 14% from 550 separations in 2010/11 to 626 separations in 2021/22. Surgical overnight bed days are projected to increase by 22% from 1,060 bed days in 2010/11 to 1,295 bed days by 2021/22.

Figure 6.30 Projected Paediatric Acute Activity for NBMLHD Hospitals from 2010/11 to 2026/27



Source: Acute Inpatient Modelling (aIM2012)
Notes: Age <16yrs, acute, public supply activity excluding Emergency Department only, qualified and unqualified neonates, perinatology.

Paediatric Acute Projected Activity by Hospital

Paediatric acute inpatient activity is projected to increase in the NBMLHD, with an additional 5 beds of paediatric acute inpatient activity projected to 2021/22. Nepean Hospital is projected to experience the largest increase in paediatric acute inpatient activity in the NBMLHD. Hawkesbury and Lithgow Hospitals are projected to experience an increase in paediatric acute inpatient separations though the bed base is expected to remain the same to 2021/22. In Blue Mountains ANZAC District Memorial Hospital there is projected to be an increase in separations and a decline in bed days, with the bed base to remain the same to 2021/22. Figure 6.31 and Figure 6.32 show the increase in separations and bed days for NBMLHD hospitals to 2026/27.

Nepean Hospital

Nepean Hospital is projected to have the largest increase in paediatric acute inpatient activity to 2021/22 in the NBMLHD. This includes:

- 18% increase in separations (from 2,970 separations in 2010/11 to 3,518 separations in 2021/22)
- 28% increase in bed days (from 5,518 bed days in 2010/11 to 7,065 bed days in 2021/22)
- 19% increase in cost weighted separations undiscounted (from 2,687 in 2010/11 to 3,210 cost weighted separations undiscounted in 2021/22)
- 28% increase in bed equivalent requirements (an additional 5 beds of paediatric acute inpatient activity from 18 bed equivalents in 2010/11 to 23 bed equivalents in 2021/22).

Blue Mountains District ANZAC Memorial Hospital

Blue Mountains District ANZAC Memorial Hospital is projected to have a slight increase in paediatric acute inpatient activity to 2021/22, with reduced bed days. This includes:

- 19% increase in separations (from 278 separations in 2010/11 to 330 separations in 2021/22)
- 13% reduction in bed days (from 622 bed days in 2010/11 to 540 bed days in 2021/22)
- 16% increase in cost weighted separations undiscounted (from 248 in 2010/11 to 288 cost weighted separations undiscounted in 2021/22)
- 13% decrease in bed equivalent requirements (from 2.3 bed equivalents in 2010/11 to 2 bed equivalents in 2021/22).

Lithgow Hospital

Lithgow Hospital is projected to require the same bed base for paediatric acute inpatient activity to 2021/22. The following figures do not include activity anticipated to shift to Lithgow Hospital from the change in role of Lithgow Private Hospital overnight bed capacity. This includes:

- 12% increase in separations (from 178 separations in 2010/11 to 200 separations in 2021/22)
- 8% increase in bed days (from 275 bed days in 2010/11 to 297 bed days in 2021/22)

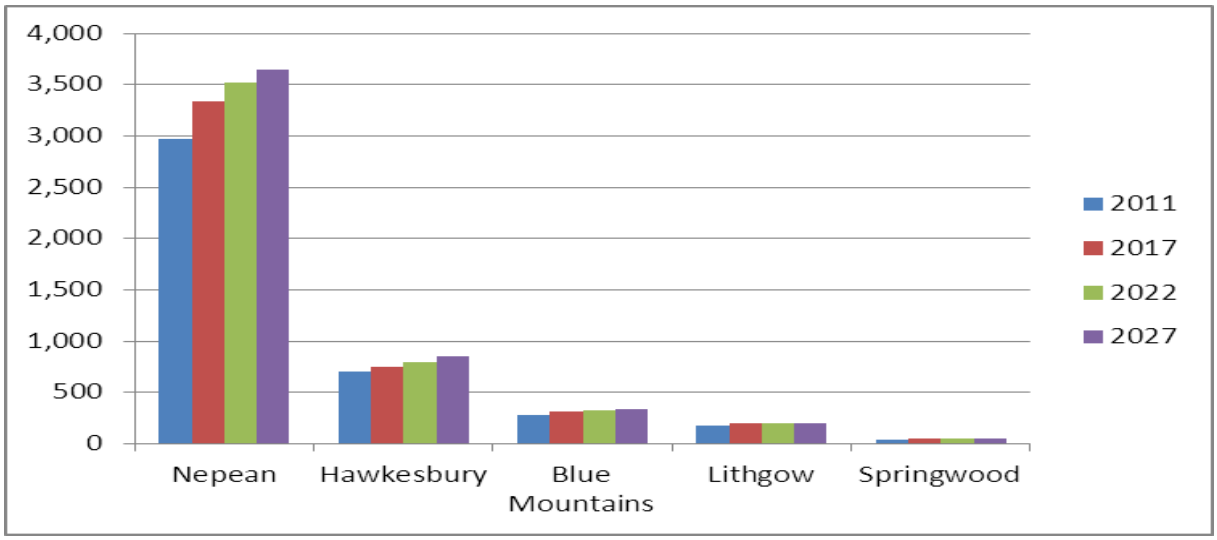
- 15% increase in cost weighted separations undiscounted (from 140 in 2010/11 to 160 cost weighted separations undiscounted in 2021/22)
- 8% increase in bed equivalent requirements (with the same bed base equivalent (1 bed) anticipated to meet future paediatric acute inpatient activity requirements in 2021/22).

Hawkesbury Hospital

Hawkesbury Hospital is projected to have an increase in paediatric acute inpatient activity, a slight reduction in bed days, with the bed base expected to remain the same to 2021/22 (refer to Figure 6.30). This includes:

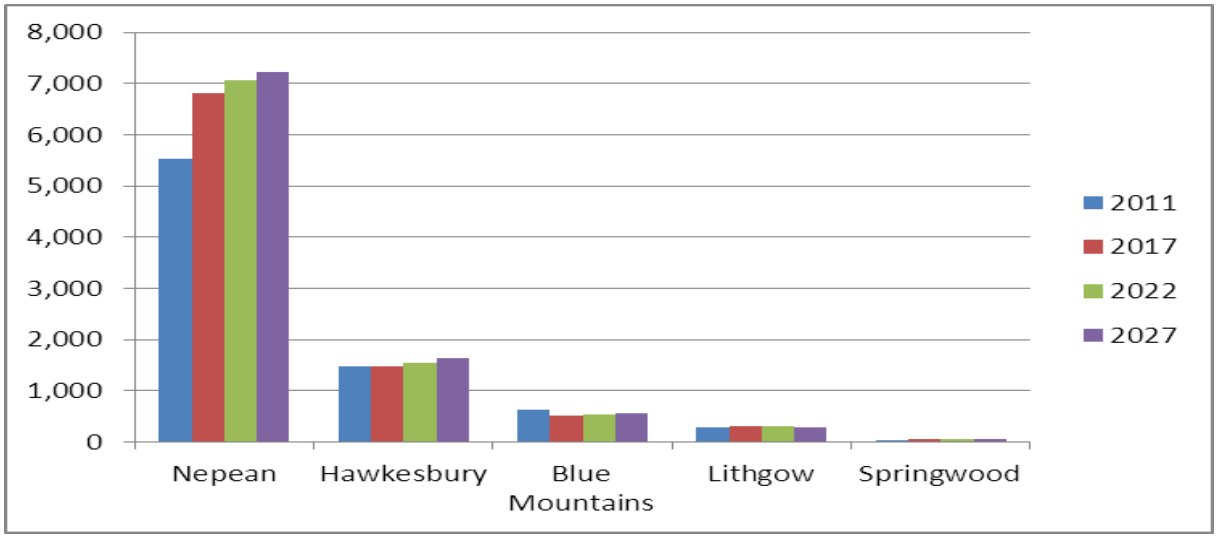
- 13% increase in separations (from 702 separations in 2010/11 to 796 separations in 2021/22)
- 5% increase in bed days (from 1,465 bed days in 2010/11 to 1,544 bed days in 2021/22)
- 11% increase in cost weighted separations undiscounted (from 653 in 2010/11 to 726 cost weighted separations undiscounted in 2021/22)
- 5% increase in bed equivalent requirements (a slight increase from 5 bed equivalents in 2010/11 to 5.3 bed equivalents in 2021/22).

Figure 6.31 Projected Activity in NBMLHD Hospitals for Paediatric acute activity (aged <16 years) from 2010/11 to 2026/27, Separations



Source: Acute Inpatient Modelling (aIM2012)
Notes: Age <16 years, acute, public supply activity. Excludes Emergency Department only, qualified and unqualified neonates, perinatology.

Figure 6.32 Projected Activity in NBMLHD Hospitals for Paediatric acute activity (aged <16 years) from 2010/11 to 2026/27, Bed days



Source: Acute Inpatient Modelling (aIM2012)
Notes: Age <16 years, acute, public supply activity. Excludes Emergency Department only, qualified and unqualified neonates, perinatology.

Paediatric Acute Projected Activity by Service Related Group

Acute inpatient activity across all of the service related groups is expected to experience an increase for Paediatric acute activity (aged < 16 years) in the NBMLHD to 2021/22 (refer to Figure 6.33, Figure 6.34, Figure 6.35 and Figure 6. 36).

For separations, the top five service related groups for paediatric acute inpatient activity for NBMLHD to 2021/22:

- Respiratory medicine (18% increase from 1,039 separations in 2010/11 to 1,226 separations in 2021/22)
- ENT and Head and Neck (9% increase from 875 separations in 2010/11 to 953 separations in 2021/22)
- Orthopaedics (16% increase from 519 separations in 2010/11 to 603 separations in 2021/22)
- Gastroenterology (23% increase from 376 separations in 2010/11 to 464 separations in 2021/22)
- Non-subspecialty Surgery (18% increase from 319 separations in 2010/11 to 375 separations in 2021/22).

For bed days, the top five service related groups for paediatric acute inpatient activity for NBMLHD to 2021/22 are:

- Respiratory medicine (10% increase from 2,345 bed days in 2010/11 to 2,576 bed days in 2021/22)
- ENT and Head and Neck (3% increase from 1,224 bed days in 2010/11 to 1,259 bed days in 2021/22)
- Orthopaedics (25% increase from 881 bed days in 2010/11 to 1,102 bed days in 2021/22)
- Non-subspecialty medicine (30% increase from 747 bed days in 2010/11 to 973 bed days in 2021/22)
- Gastroenterology (33% increase from 681 bed days in 2010/11 to 909 bed days in 2021/22).

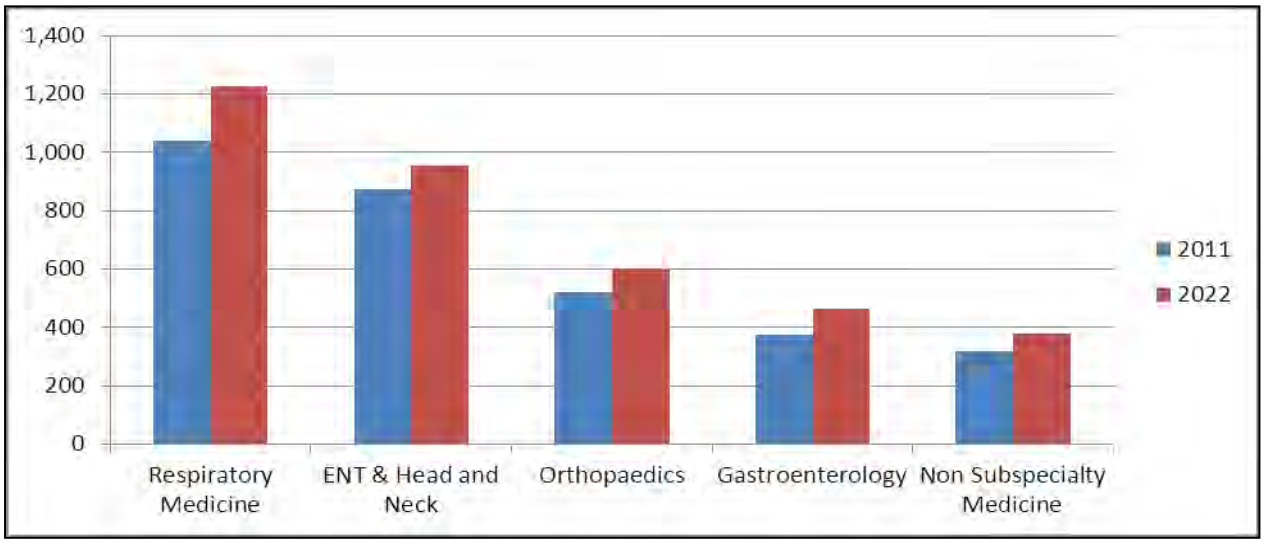
The largest percentage increases in paediatric acute inpatient activity (separations) by service related groups are:

- Dentistry (102% increase from 25 separations in 2010/11 to 51 separations in 2021/22)
- Endocrinology (44% increase from 30 separations in 2010/11 to 43 separations in 2021/22)
- Immunology and infections (30 % increase from 239 separations in 2010/11 to 312 separations in 2021/22)
- Cardiology (30% increase from 23 separations in 2010/11 to 30 separations in 2021/22)
- Plastic and reconstructive surgery (29% increase from 41 separations in 2010/11 to 53 separations in 2021/22).

The largest percentage increases in paediatric acute inpatient activity (bed days) by service related groups are:

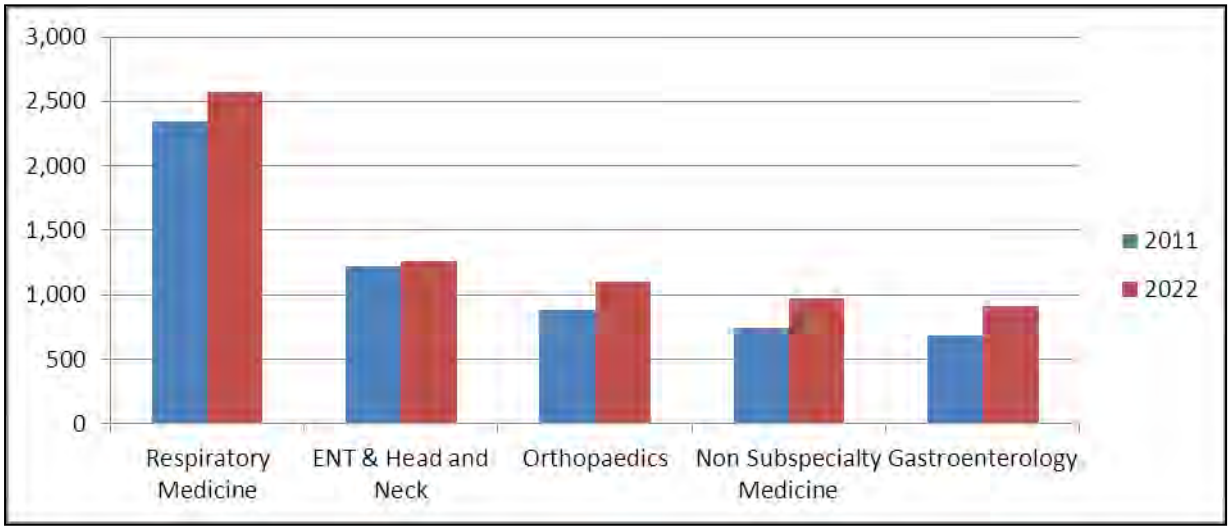
- Endocrinology (163% increase from 42 bed days in 2010/11 to 110 bed days in 2021/22)
- Dentistry (100% increase from 26 bed days in 2010/11 to 52 bed days in 2021/22)
- Cardiology (85% increase from 35 bed days in 2010/11 to 65 bed days in 2021/22)
- Dermatology (56% increase from 72 bed days in 2010/11 to 113 bed days in 2021/22)
- Neurosurgery (39% increase from 56 bed days in 2010/11 to 78 bed days in 2021/22).

Figure 6.33 Top Five Service Related Groups for Paediatric Acute Inpatient Activity for NBMLHD from 2010/11 to 2021/22, Separations



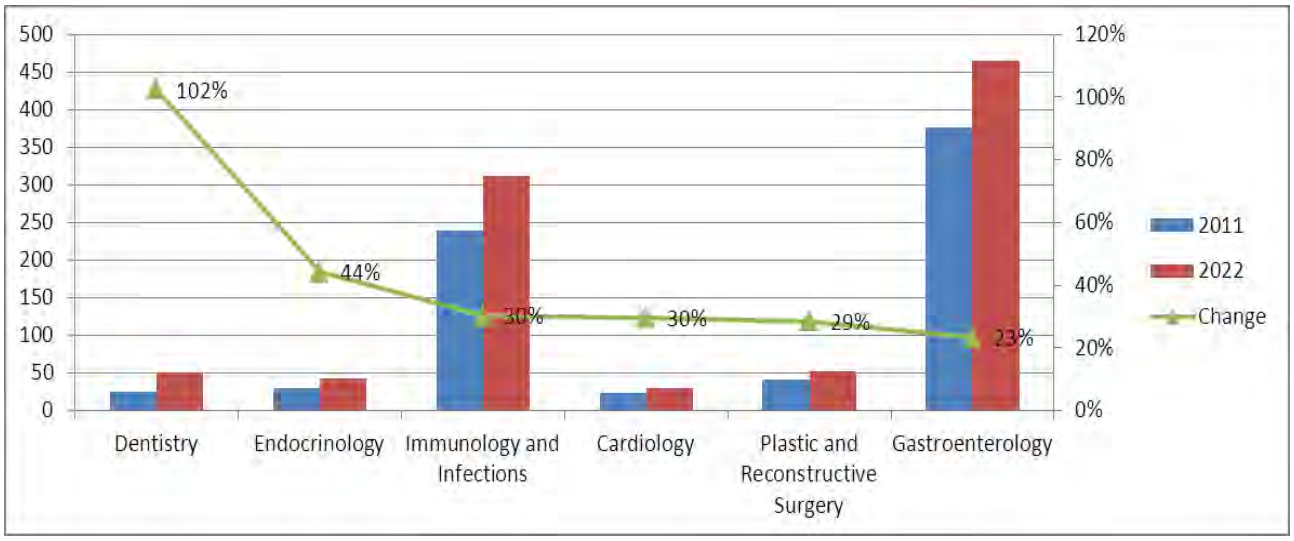
Source: Acute Inpatient Modelling (aIM2012)
Notes: Age <16 years, acute, public supply activity. Excludes Emergency Department only, qualified and unqualified neonates, perinatology.

Figure 6.34 Top Five Service Related Groups for Paediatric Acute Inpatient Activity for NBMLHD from 2010/11 to 2021/22, Bed days



Source: Acute Inpatient Modelling (aIM2012)
Notes: Age <16 years, acute, public supply activity. Excludes Emergency Department only, qualified and unqualified neonates, perinatology.

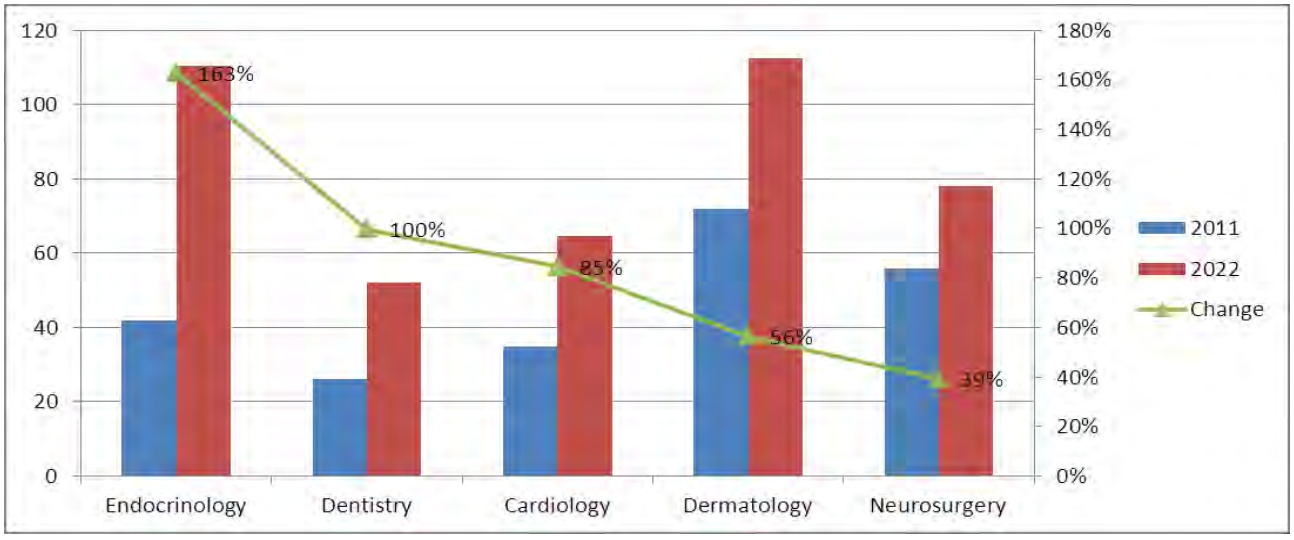
Figure 6.35 Largest Percentage Increases by Service Related Groups for Acute Inpatient Care for Paediatric (Aged <16 years) from 2010/11 to 2021/22, Separations



Source: Acute Inpatient Modelling (aIM2012)

Notes: Age <16 years, acute, public supply activity excluding Emergency Department only, qualified and unqualified neonates, perinatology.

Figure 6. 36 Largest Percentage Increases by Service Related Groups for Acute Inpatient Care for Paediatric (Aged <16 years) from 2010/11 to 2021/22, Bed days



Source: Acute Inpatient Modelling (aIM2012)

Notes: Age <16 years, acute, public supply activity excluding Emergency Department only, qualified and unqualified neonates, perinatology.

Perinatology and Qualified Neonates Projected Activity

For perinatal care including qualified neonates, there is anticipated to be a 12% increase in acute inpatient care in NBMLHD hospitals to 2021/22, from 1,498 separations in 2010/11 to 1,673 separations in 2021/22 and a 29% increase in bed days, from 12,077 bed days in 2010/11 to 15,526 bed days in 2021/22. This equates to an increase in 15 bed equivalents for perinatology and qualified neonates.

Neonatal Intensive Care Service

Neonatal Intensive Care services are recognised as statewide services in NSW. Therefore planning for future requirements for these services rests with the Ministry of Health. The context for future planning for Neonatal services in NSW is provided by the *NSW Neonatal Intensive Care Services Plan*.

Neonatal Intensive Care services within NBMLHD are based at Nepean Hospital and comprise:

- 10 ventilated cots
- 25 non-ventilated cots.

The anticipated increase in perinatology care in NBMLHD to 2021/22 (12% increase in separations and 23% increase in bed days to 2021/22) will impact on the need for additional neonatal intensive care spaces.

Sub-Acute Inpatient Care Projections

NBMLHD hospitals are projected to experience increases in sub-acute care inpatient activity for all ages to 2021/22 (refer to Figure 6.37 and Figure 6.37).

- *Separations*: A 47% increase in sub-acute inpatient separations for all ages from 1,697 separations in 2010/11 to 2,498 separations in 2021/22.
- *Bed days*: An increase in sub-acute inpatient bed days (of 36%) for all ages from 29,042 bed days in 2010/11 in NBMLHD hospitals to 39,353 bed days in 2021/22.
- *Bed equivalents*: This equates to an additional 32 sub-acute inpatient beds required for NBMLHD hospitals by 2021/22.

Although extending beyond the ten-year timeframe of the NBMLHD Healthcare Services Plan, providing a vision for projected sub-acute health care requirements out to 2026/27 is important for well advanced capital planning.

In the above context projected sub-acute activity requirements for NBMLHD hospitals continue to increase from 2021/22 to 2026/27.

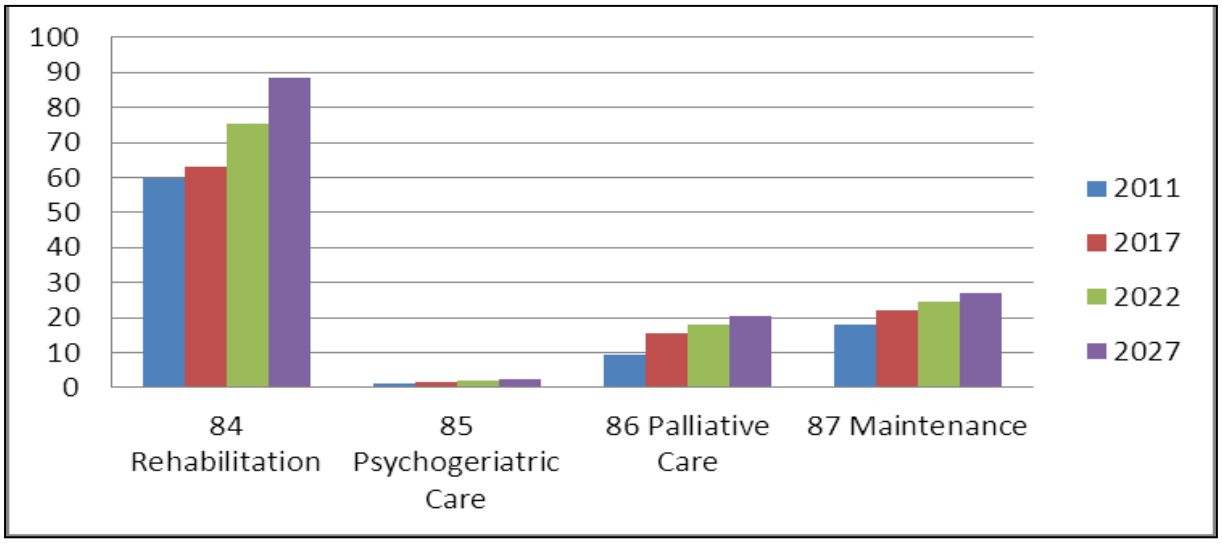
- *Separations:* A further 19% increase for sub-acute inpatient separations for NBMLHD hospital for all ages to 2026/27 (from 2,498 separations in 2021/22 to 2,982 separations in 2026/27) is anticipated.
- *Bed days*: There is expected to be a 15% in sub-acute inpatient bed days for NBMLHD hospitals for all ages to 2026/27 (from 39,353 bed days in 2021/22 to 45,317 bed days in 2026/27).
- *Bed equivalents*: A corresponding 15% increase in bed equivalents (from 120 bed equivalents in 2021/22 to 138 bed equivalents in 2026/27).
- This equates to an additional 18 beds required for NBMLHD for sub-acute all ages inpatient activity from 2021/22 to 2026/27.
- Or a total of 50 additional beds for sub-acute inpatient all ages activity for NBMLHD hospitals from 2010/11 to 2026/27.

Sub-Acute Care Projected Activity by Care Type

Most sub-acute care provided in NBMLHD hospitals in 2010/11 was in the rehabilitation category. Projected growth for rehabilitation sub-acute care is the largest of the four sub-acute care categories. This is followed by Maintenance Care, Palliative Care then Psychogeriatric Care. (Refer to Figure 6.37.)

- *Rehabilitation:* For separations, the projected increase (59%) is from 984 separations in 2010/11 to 1,563 separations in 2021/22. For bed days, the projected increase (26%) is from 19,711 bed days in 2010/11 to 24,738 bed days in 2021/22.
- *Psychogeriatric care:* For separations, the projected increase (14%) is from 24 separations in 2010/11 to 27 separations in 2021/22. For bed days, the projected increase (92%) is from 352 bed days in 2010/11 to 675 bed days in 2021/22.
- *Palliative care:* For separations, the projected increase (54%) is from 309 separations in 2010/11 to 476 separations in 2021/22. For bed days, the projected increase (90%) is from 3,087 bed days in 2010/11 to 5,868 bed days in 2021/22.
- *Maintenance:* For separations, the projected increase (14%) is from 380 separations in 2010/11 to 432 separations in 2021/22. For bed days, the projected increase (37%) is from 5,892 bed days in 2010/11 to 8,071 bed days in 2021/22.

Figure 6.37 Projected Sub-acute Bed Equivalents by SRG at NBMLHD Hospitals from 2010/11 to 2026/27



Source: Sub-acute Inpatient Modelling (SiAM2012)
Notes: All ages, sub and non-acute activity. Excludes admit and discharge from Emergency Department.

Sub-Acute Care Projected Activity by Hospital

Sub-acute inpatient activity is projected to increase in NBMLHD hospitals from 2010/11 to 2021/22, requiring an additional 32 beds to accommodate the projected activity increases and a total of 50 beds for projected sub-acute inpatient all ages activity increases to 2026/27.

Nepean Hospital

Nepean Hospital is projected to have the largest increase in sub-acute inpatient activity for all ages to 2021/22 in the NBMLHD. This includes:

- An increase (65%) in separations, from 797 separations in 2010/11 to 1,317 separations in 2021/22
- An increase (65%) in bed days, from 12,549 bed days in 2010/11 to 20,752 bed days in 2021/22
- An increase (65%) in bed equivalent requirements with an additional 25 beds of sub-acute inpatient activity, from 38 bed equivalents in 2010/11 to 63 bed equivalents in 2021/22.

Springwood Hospital

Springwood Hospital is projected to have an increase in sub-acute inpatient activity for all ages to 2021/22. This includes:

- An increase (32%) in separations, from 412 separations in 2010/11 to 542 separations in 2021/22
- An increase (11%) in bed days, from 8,173 bed days in 2010/11 to 9,043 bed days in 2021/22
- An increase (11%) in bed equivalent requirements with an additional 3 beds of sub-acute inpatient activity, from 25 bed equivalents in 2010/11 to 28 bed equivalents in 2021/22.

Blue Mountains District ANZAC Memorial Hospital

Blue Mountains District ANZAC Memorial Hospital is projected to have an increase in sub-acute inpatient activity for all ages to 2021/22. This includes:

- An increase (20%) in separations, from 420 separations in 2010/11 to 502 separations in 2021/22
- An increase (13%) in bed days, from 7,273 bed days in 2010/11 to 8,199 bed days in 2021/22
- An increase (13%) in bed equivalent requirements with an additional 3 beds of sub-acute inpatient activity, from 22 bed equivalents in 2010/11 to 25 bed equivalents in 2021/22.

Lithgow Hospital

Lithgow Hospital provides a small sub-acute care service. Given the ageing of the population in the Lithgow LGA and the closure of Lithgow Private Hospital, there is a potential benefit in enhancing sub-acute care delivery from Lithgow Hospital. This increase in sub-acute care activity has not been included in the information presented in this section.

Lithgow Hospital is projected to have an increase in sub-acute inpatient activity for all ages to 2021/22. This includes:

- An increase (98%) in separations, from 67 separations in 2010/11 to 133 separations in 2021/22
- An increase (24%) in bed days, from 1,044 bed days in 2010/11 to 1,296 bed days in 2021/22
- An increase (24%) in bed equivalent requirements, with an additional 1 bed of sub-acute inpatient activity from 3 bed equivalents in 2010/11 to 4 bed equivalents in 2021/22.

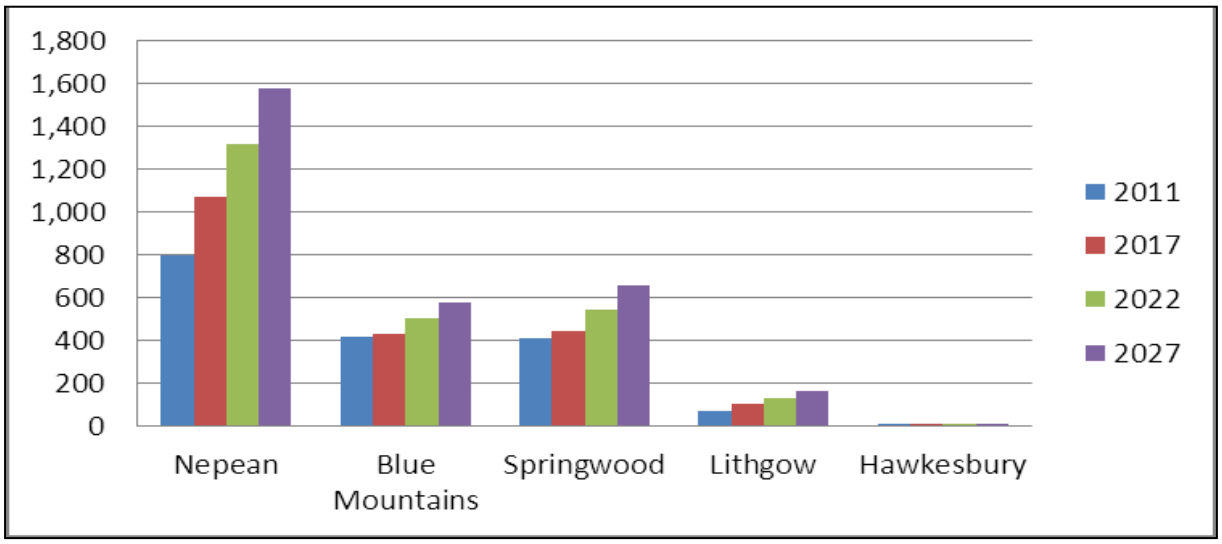
Hawkesbury Hospital

Hawkesbury Hospital has not provided a sub-acute care service under the contract with Hawkesbury District Health Service within the timeframe to June 2011. In 2011/12 Hawkesbury Hospital introduced two sub-acute rehabilitation beds through Commonwealth of Australian Government Sub-Acute Care Program. There is potential for enhancing the provision of sub-acute care activity at Hawkesbury Hospital in future years.

Sub-Acute Projected Activity by Hospital and by Care Type

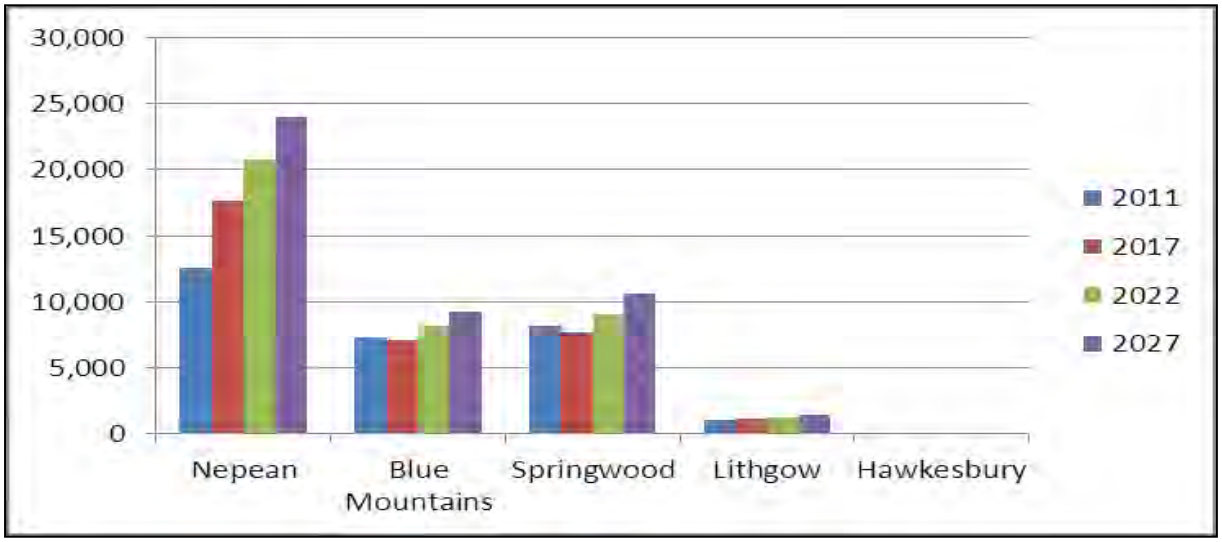
Further information is provided on the breakdown of projected sub-acute activity by sub-acute care type (rehabilitation, psychogeriatric care, palliative care and maintenance care) at Nepean, Blue Mountains and Springwood hospitals. Hawkesbury and Lithgow hospitals are not shown due to their low levels of sub-acute care current and projected activity. (Refer to Figure 6.41, Figure 6.42 and Figure 6.43.) Figure 6.38, Figure 6.39 and Figure 6.40 show the increase in separations, bed days and bed equivalents for NBMLHD hospitals to 2021/22.

Figure 6.38 Sub-Acute Activity Projections in NBMLHD Hospitals from 2010/11 to 2026/27, Separations



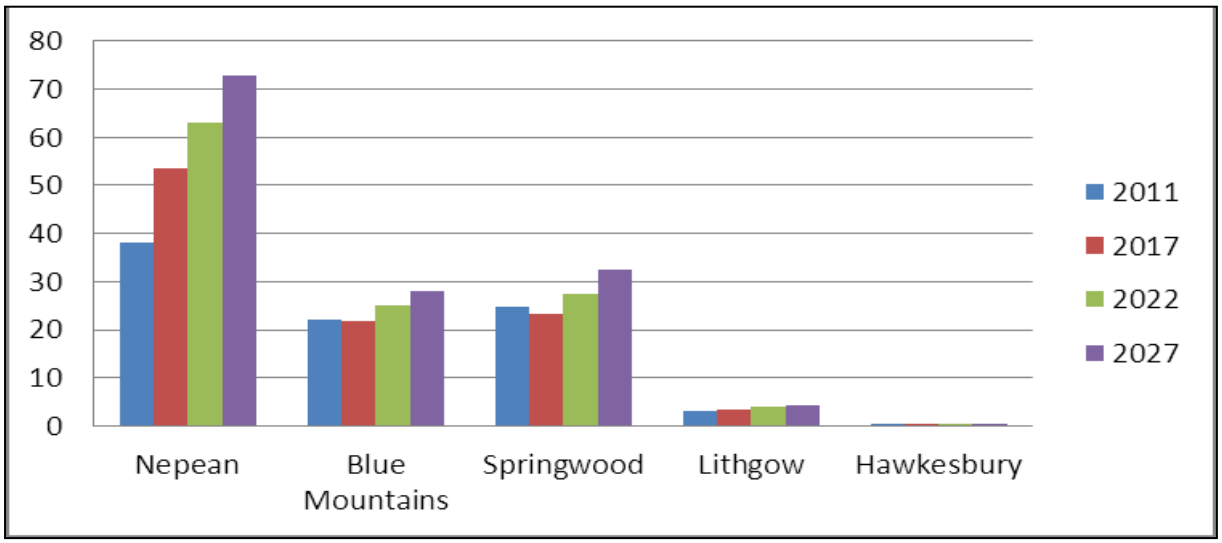
Source: Sub-acute Inpatient Modelling (SiAM2012)
Notes: All ages, sub and non-acute activity. Excludes admit and discharge from Emergency Department.

Figure 6.39 Sub-Acute Activity Projections in NBMLHD Hospitals from 2010/11 to 2026/27, Bed days



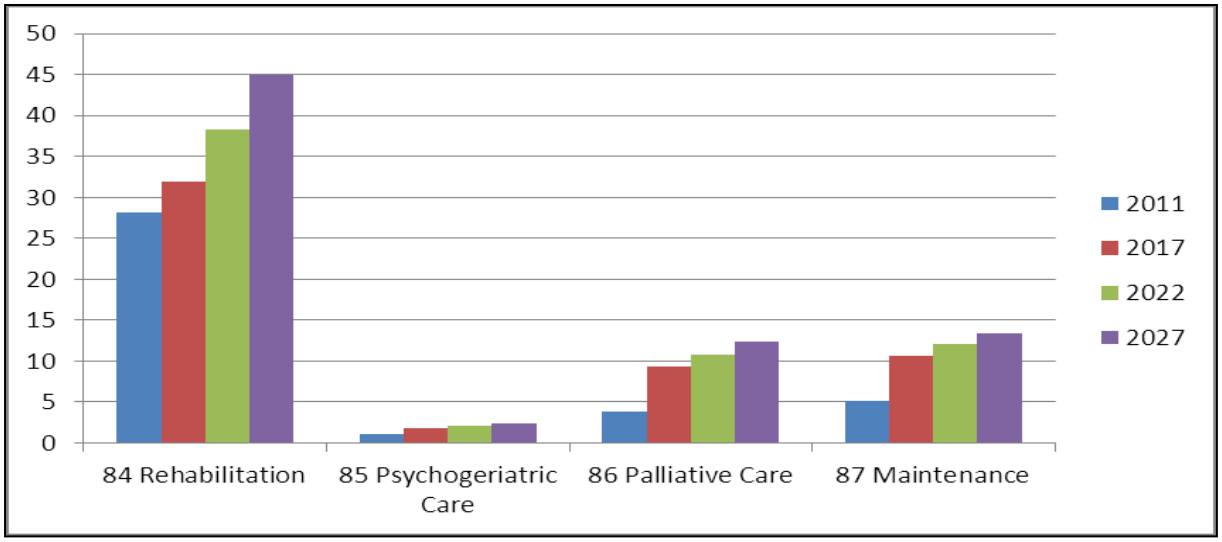
Source: Sub-acute Inpatient Modelling (SiAM2012)
Notes: All ages, sub and non-acute activity. Excludes admit and discharge from Emergency Department.

Figure 6.40 Sub-Acute Activity Projections in NBMLHD Hospitals from 2010/11 to 2026/27, Bed Equivalents



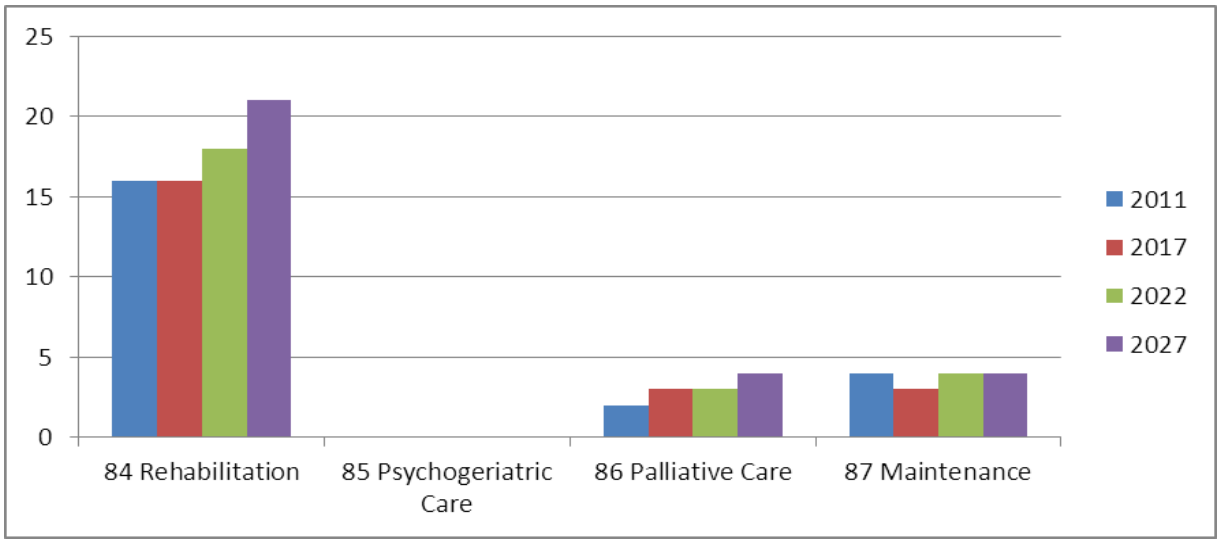
Source: Sub-acute Inpatient Modelling (SiAM2012)
Notes: All ages, sub and non-acute activity. Excludes admit and discharge from Emergency Department, Bed equivalent = bed days/365/90% occupancy rate.

Figure 6.41 Nepean Hospital Sub-Acute Care Activity Projections by Care Type from 2010/11 to 2026/27



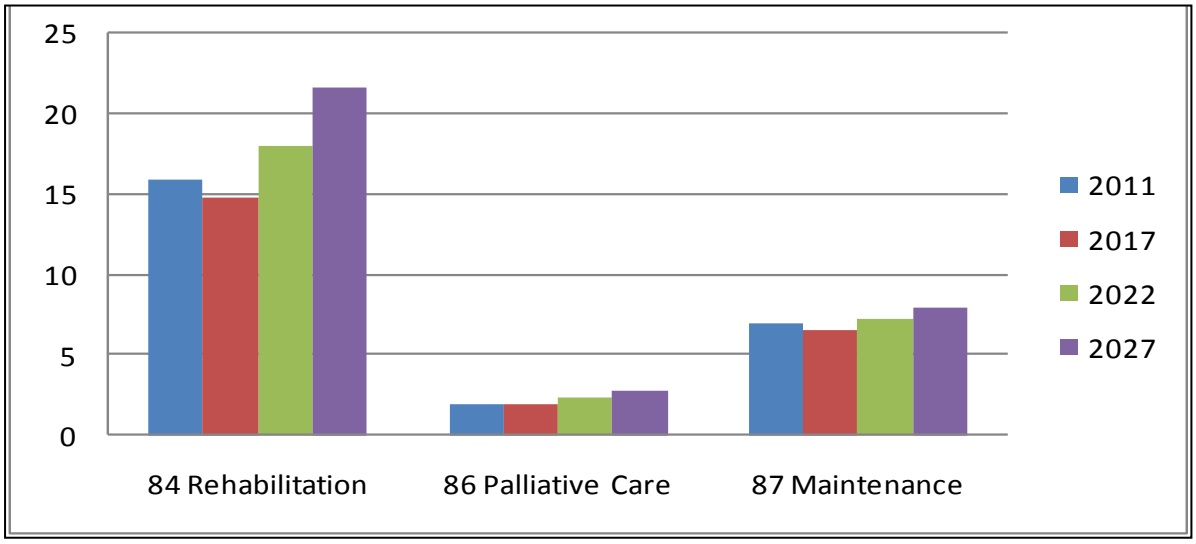
Source: Sub-acute Inpatient Modelling (SiAM2012)
Notes: All ages, sub and non-acute activity. Excludes admit and discharge from Emergency Department.

Figure 6.42 Blue Mountains Hospital Sub-Acute Care Activity Projections by Care Type from 2010/11 to 2026/27



Source: Sub-acute Inpatient Modelling (SiAM2012)
Notes: All ages, sub and non-acute activity. Excludes admit and discharge from Emergency Department.

Figure 6.43 Springwood Hospital Sub-Acute Care Activity Projections by Care Type from 2010/11 to 2026/27



Source: Sub-acute Inpatient Modelling (SiAM2012)
Notes: All ages, sub and non-acute activity. Excludes admit and discharge from Emergency Department, Bed equivalent = bed days/365/90% occupancy rate.

Sub-Acute Care Projected Activity by Local Government Area of Residence

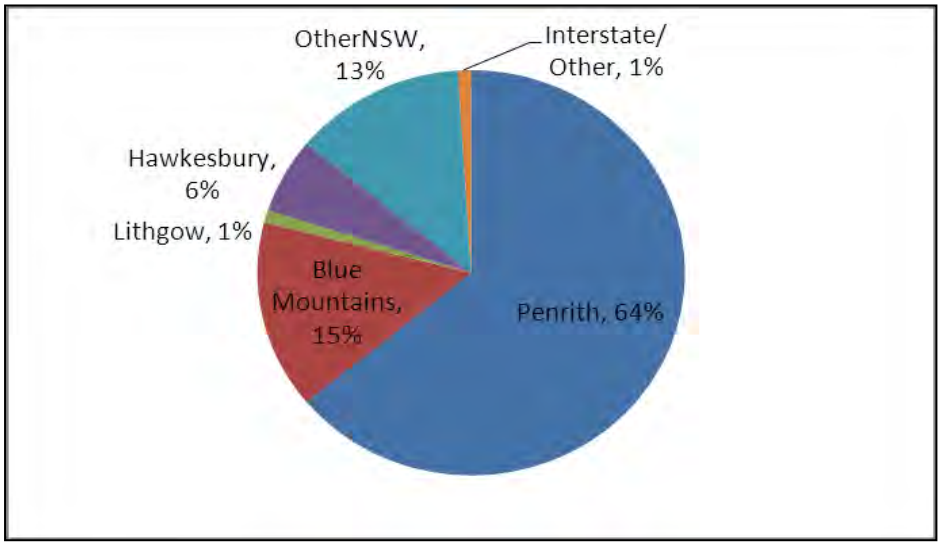
The following information provides an overview of the place of residence (local government area) of patients receiving sub-acute inpatient care in NBMLHD hospitals in 2010/11.

Nepean Hospital: 64% of sub-acute care activity is provided for the residents of Penrith LGA, 15% for Blue Mountains LGA residents and 6% for the Hawkesbury LGA (refer to Figure 6.44).

Blue Mountains Hospital: 74% of sub-acute care activity is provided for the residents of Blue Mountains LGA, 12% for Penrith LGA residents and 6% for residents from the Lithgow LGA (refer to Figure 6.45).

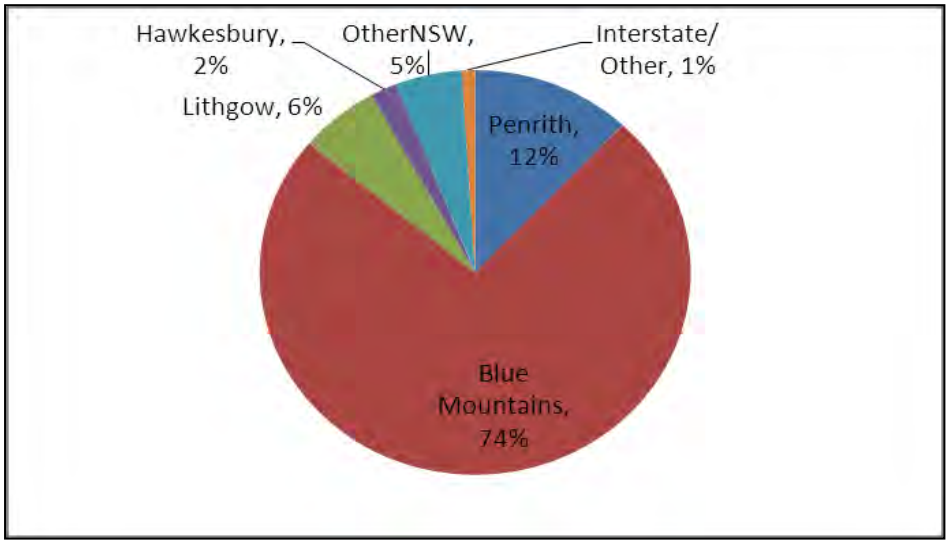
Springwood Hospital: 52% of sub-acute care activity is provided for the residents of Penrith LGA, 36% for Blue Mountains LGA residents and 2% for the Hawkesbury LGA (refer to Figure 6.46).

Figure 6.44 Nepean Hospital Sub-Acute Care Provision by LGA of Residence in 2010/11



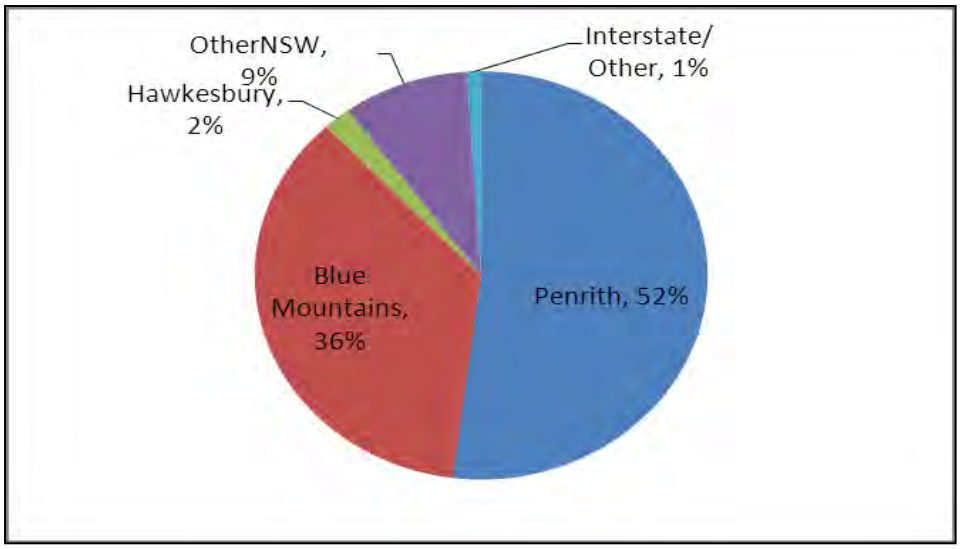
Source: Sub-acute Inpatient Modelling (SiAM2012)
Notes: All ages, sub and non-acute activity. Excludes admit and discharge from Emergency Department.

Figure 6.45 Blue Mountains Hospital Sub-Acute Care Provision by LGA of Residence in 2010/11



Source: Sub-acute Inpatient Modelling (SiAM2012)
Notes: All ages, sub and non-acute activity. Excludes admit and discharge from Emergency Department

Figure 6.46 Springwood Hospital Sub-Acute Care Provision by LGA of Residence in 2010/11



Source: Sub-acute Inpatient Modelling (SiAM2012)
Notes: All ages, sub and non-acute activity. Excludes admit and discharge from Emergency Department.

Intensive Care and Trauma Services

Intensive Care Services

Intensive Care services are recognised as statewide services in NSW. Therefore planning for future requirements for these services rests with the Ministry of Health. Intensive Care Services within NBMLHD are based at Nepean Hospital and comprise:

- Capacity for 24 intensive care beds including high dependency beds.

Intensive care unit capacity at Nepean Hospital was enhanced through the Nepean Hospital Stage 3 Development.

Trauma Services

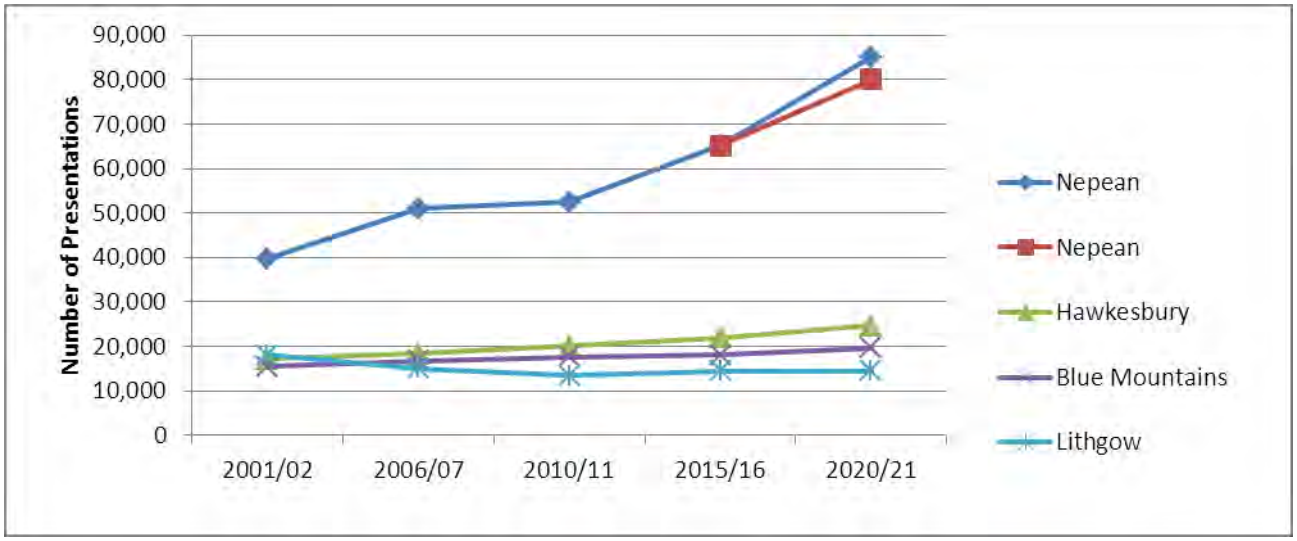
Planning for Trauma services in NSW is guided through the Ministry of Health and is outlined in the NSW Trauma Services. Nepean Hospital has been identified as a regional trauma centre in the statewide Plan. In late 2012 Nepean Hospital was identified to be a pilot site for the implementation of a revised response system by Ambulance teams for trauma services.

Emergency Department Presentations

The context and methodology for projecting Emergency Department presentations has been provided by the Ministry of Health. This information has been used along with an historical analysis of Emergency Department presentations to NBMLHD facilities to determine projected Emergency Department presentations to 2022.

There is projected to be an increase of 33% in Emergency Department presentations across NBMLHD Hospitals from 2010/11 to 2020/21 from 103,582 to 143,860 presentations. The largest increase (54%) is projected for Emergency Department presentations to Nepean Hospital by 2021 from 52,360 in 2010/11 to 80 to 85,000 presentations by 2020/21. (Refer to Figure 6.47 and Table 6.4.) The main driver of the increase in presentations is growth and ageing of the population. For Nepean Hospital introducing the National Emergency Access Target is considered to have a further impact.

Figure 6.47 Projected Emergency Department Presentations to NBMLHD Hospitals to 2020/21



Source: Heath Information Exchange

Table 6.4 Projections for Emergency Department Presentations to NBMLHD Hospitals to 2020/21

Hospitals/ Year	2001/02	2006/07	2010/11	2015/16	2020/21
Nepean	39,772	50,995	52,360	65,156	80-85,000
Hawkesbury	17,198	18,292	20,103	22,028	24,658
Blue Mountains	15,500	16,786	17,629	18,134	19,717
Lithgow	18,045	15,037	13,490	14,450	14,485
NBMLHD	**73,317**	**101,110**	**103,582**	**119,768**	**143,860**

Source: Heath Information Exchange

Mental Health

Significant increases are projected in mental health inpatient and community based activity in the NBMLHD to 2021/22. A proportion of the additional mental health activity requirements to 2021 will be met through the Nepean Hospital Stage 3A Development. The main drivers of these increases are population growth and a range of other factors in society identified as impacting on mental health and mental illness.

The Mental Health Clinical Care and Prevention (MHCCP) tool has been developed by the Mental Health and Drug and Alcohol Branch, Ministry of Health to project future mental health activity for inpatient and community based care. The terms 100% and 80% MHCCP are used below referring to the use of either 80% or 100% of the figures generated using this tool.

By 2016

By 2016 NBMLHD is projected to require a total of 118 mental health inpatient beds comprising 71 acute and 48 non-acute inpatient beds, at 80% of MHCCP (refer to Figure 6.48 and Table 6.5). At 100% of MHCCP, NBMLHD is projected to require a total of 148 inpatient (acute and non-acute) mental health beds. This includes 88 acute and 60 non-acute inpatient beds. Further breakdowns of projected inpatient bed requirements by age group in NBMLHD to 2016 are outlined in the Reference Data Book.

In addition NBMLHD is projected to require 220.9 FTE for Community Mental Health services and 211.4 FTE for Inpatient Mental Health services (at 80% MHCCP).

By 2021

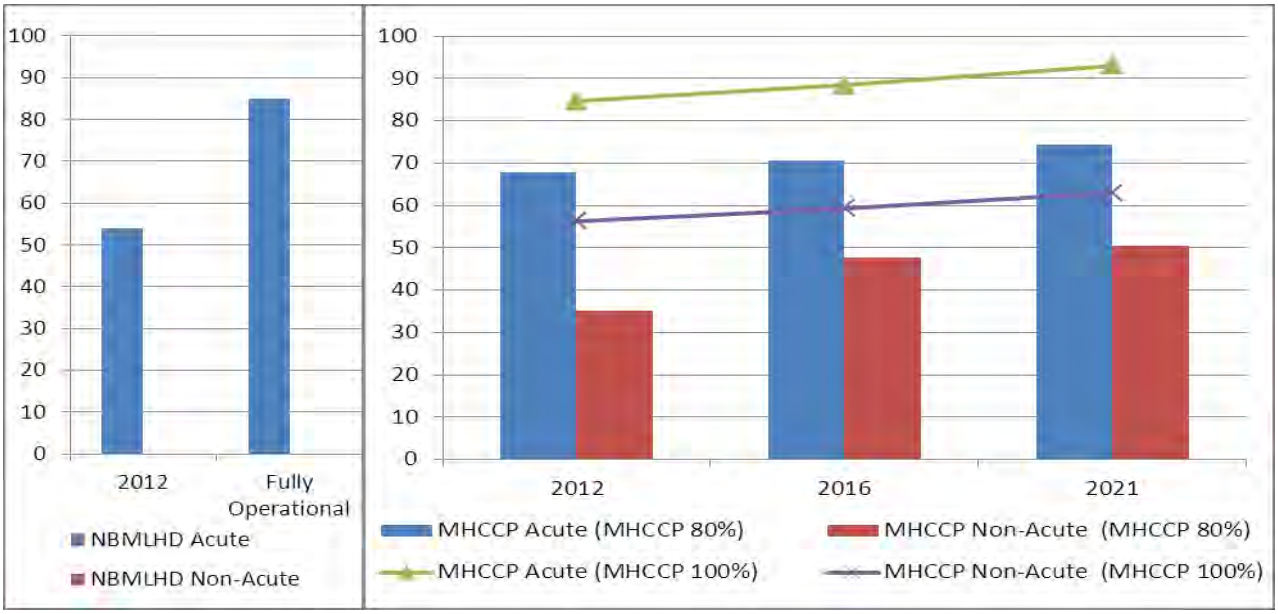
By 2021 NBMLHD is projected to require a total of 125 mental health inpatient beds comprising 74 acute and 51 non-acute inpatient beds, at 80% of MHCCP (refer to Figure 6.47). At 100% of MHCCP, NMBLHD is projected to require a total of 156 inpatient (acute and non-acute) mental health beds comprising 93 acute and 63 non-acute inpatient beds. Further breakdowns of projected inpatient bed requirements in NBMLHD by age group to 2016 are outlined in the Reference Data Book.

In addition NBMLHD is projected to require 231.6 FTE for Community Mental Health services and 223.1 FTE for Inpatient Mental Health services (at 80% MHCCP).

Mental Health Services in NBMLHD

NBMLHD has two dedicated mental health facilities based at Nepean Hospital (capacity for 64 acute inpatient gazetted beds due to be finished in early 2013) and Blue Mountains District ANZAC Memorial Hospital (15 acute inpatient gazetted beds). Enhanced capacity for acute inpatient mental health capacity will in part be met through the Nepean Hospital Redevelopment Stage 3A for Mental Health. However, it must be noted that NBMLHD does not have any capacity for non-acute mental health beds. Child and adolescent mental health acute inpatient capacity will continue to be met through referrals to Redbank House, Westmead Hospital.

Figure 6.48 Projected Mental Health Bed Requirements in NBMLHD from 2012 to 2021



Source: Mental Health Clinical Care and Prevention Tool MHCCP v2
Notes: MHCCP 80% was used. There are '0' Non-Acute Mental Health Beds in NBMLHD in 2012. Mental Health acute beds in 2012 reflect actual beds in NBMLHD including Psychiatric Emergency Care beds.

Table 6.5 Projected Mental Health Inpatient Beds, Acute and Non-Acute, NBMLHD by LGA and Age Group to 2016 and 2021 at 80% of Mental Health Clinical Care and Prevention Tool

Projected Year		2016			2021		
Local Government Area	**Age Group**	**Acute inpatient beds**	**Non-acute beds**	**Inpatient Beds**	**Acute inpatient beds**	**Non acute beds**	**Inpatient Beds**
Blue Mountains	0-17	0.7	0.6	1.39	0.8	0.7	1.5
	18-64	11.6	7.1	18.67	11.8	7.2	19
	65+	3.1	2.9	5.94	3.6	3.3	6.9
Blue Mountains	All Ages	15.4	10.6	26.01	16.2	11.2	27.4
Hawkesbury	0-17	0.7	0.6	1.33	0.8	0.7	1.4
	18-64	10.3	6.2	16.5	10.8	6.5	17.3
	65+	2.1	1.9	4	2.5	2.3	4.8
Hawkesbury	All Ages	13.1	8.8	21.84	14	9.5	23.5
Penrith	0-17	2.1	1.8	3.99	2.2	1.9	4.2
	18-64	30.7	18.6	49.29	31.6	19.2	50.8
	65+	5.1	4.8	9.92	6.1	5.7	11.9
Penrith	All Ages	37.9	25.3	63.21	40	26.9	66.8
Lithgow	0-17	0.2	0.1	0.32	0.2	0.1	0.3
	18-64	3	1.8	4.81	2.9	1.7	4.6
	65+	1	1	2	1.2	1.1	2.3
Lithgow	All Ages	4.2	2.9	7.13	4.2	3	7.2
Total LHD	0-17	3.8	3.2	7.04	3.9	3.4	7.4
	18-64	55.6	33.8	89.28	57.1	34.7	91.7
	65+	11.3	10.6	21.87	13.4	12.5	25.9
Total LHD	**All Ages**	**70.6**	**47.6**	**118.19**	**74.4**	**50.6**	**124.9**

Source: MH-CCP v2
Notes: Inpatient beds include Acute, Non-Acute and Very Long Stay (for 18-64 years and 65+ years only). Program places are excluded. NSW Health Population Projections Series 1.2009, Department of Planning and Statewide Services Development Branch, NSW Health, March 2009.

Operating Theatres and Procedure Rooms

The *Planning Guidelines for Operating Theatres* developed by the Ministry of Health provide a context for projecting operating theatre requirements in NSW. This tool will be updated in 2013 and detailed theatre projections will then be undertaken. In the interim, estimates of operating theatre requirements have been based on applying a rate of activity growth. Two scenarios have been used; one using activity growth for surgical and procedural activity for Nepean Hospital (all ages) estimated at 2% (rounded up) and the other scenario applying a higher rate of growth (6%) to approximate the projected activity which informed the East Block theatre expansion at Nepean Hospital. The latter is assumed to be a maximum scenario. These estimates also assume growth in operating theatre activity remains at Nepean Hospital, noting that some activity could be redistributed within the LHD.

It is noted that additional operating theatre capacity requirements to 2016 (14 theatres in total) have been met through the Nepean Hospital Stage 3 Development.

There is projected to be an increased need for operating theatres in the NBMLHD from 2012 to 2021/22. The projected increase mainly relates to Nepean Hospital, with a projected 2 to 6 operating theatres estimated to be required by 2021/22. For Blue Mountains District ANZAC Memorial and Lithgow Hospitals there is capacity for growth for operating theatre capacity within the current operating theatres.

There is an increased need for endoscopy procedure rooms in NBMLHD facilities from 2012 to 2021/22. This estimated growth mainly impacts on Nepean Hospital, with clinician feedback indicating 4 procedure rooms are required by 2016. Further expansion to 2022 is anticipated but has not been modelled, pending the update of the Ministry of Health's operating theatre guidelines with further advice regarding the balance of theatre and procedural room activity.

The enhancement of Springwood Hospital in future years has been flagged in the *Nepean Blue Mountains Local Health District Asset Strategic Plan 2012 to 2021*. This has included enhancing the capacity for Springwood Hospital for undertaking procedures for low complexity patients. Planning for this new and enhanced facility may need to address the potential shift of a proportion of activity from Nepean Hospital to Springwood Hospital in future years. This shift in activity has not been included within the information presented in this section.

Public services from Hawkesbury Hospital are provided under a contract with Hawkesbury District Health Service to 2016. There is potential to increase the number of operating theatres at Hawkesbury Hospital and shift appropriate services to an Ambulatory Procedures Centre model in future years. This issue has been flagged in the *Nepean Blue Mountains Local Health District Asset Strategic Plan 2012 to 2021*. The increase and shift in activity to Hawkesbury Hospital has not been included within the information presented in this section.

Table 6.6 Projected Operating Theatres and Procedural Rooms in NBMLHD Facilities to 2021/22

Facility	Number of Operating Theatres	
	2012	**2022**
Nepean Hospital	14	**16-20**
Hawkesbury Hospital	4	**4**
Blue Mountains Hospital	2	**2**
Springwood Hospital	1	**1-2**
Lithgow Hospital	4	**4**
Total	**25**	**27-30**

Renal Dialysis

The number of patients receiving dialysis therapy (home and facility based) in the Western Renal Service (across NBM and WS LHDs) is projected to increase from 568 patients in 2011 to 864 dialysis patients in the Western Renal Service by 2016 to 1,086 patients by 2021. This equates to approximately 7% growth per annum. The projections incorporate inter-District patient flows that occur in supporting patients to access the unit/ service that is closest to their home and meets their care needs. Population growth and ageing are the major drivers for this expected increase in the number of patients who will require dialysis support in future years in the NBMLHD.

There are currently 23 facility based haemodialysis spaces in NBMLHD and 75 across the Western Renal Service, comprising 15 satellite spaces and 8 in-centre spaces in the NBMLHD. It is estimated that 132 spaces (an additional 63 spaces) will be required across NBMLHD and Western Sydney Local Health District by 2021 to support the expected growth in the number of patients requiring facility based dialysis, based on the maximum ratio of 4 patients per space (refer to Table 6.7). A proportion of the additional inpatient renal dialysis capacity requirements in the NBMLHD to 2021 have been met through the Nepean Hospital Stage 3 Development.

The proposed staged development for renal dialysis services in the NBM and WS LHDs includes:

- Establishing a new renal dialysis satellite unit in the Blue Mountains LGA
- Establishing a new satellite renal dialysis unit in the rapidly growing Blacktown or Hawkesbury LGA
- Expanding in-centre capacity at Nepean Hospital and establishing an in-centre service at Blacktown Hospital to meet current and projected demand and to support the level of subspecialty care that is provided by each facility.

Providing additional dialysis capacity in the NBMLHD will improve the balance of capacity across the Western Sydney and NBMLHD service region (currently distorted to the eastern and central zones). It will also enable patients treated by peritoneal dialysis who would be better treated by satellite haemodialysis to transition to this modality.

Table 6.7 Proposed Development of Facility-Based Dialysis Capacity (spaces) across the Western Renal Service to 2021

LHD	Type	Facility	Current		Projected	
			2011	2013	2016	2021
WSLHD	Satellite	Blacktown Regional Dialysis Centre	22	22	22	22
		Auburn Community Dialysis Centre	15	15	15	15
	Hospital	Westmead	15	15	15	15
		Blacktown (Note 2)		4	8	12
		Total	52	56	60	64
NBMLHD	Satellite	Penrith Community Dialysis Centre	15	15	22	22
		Blue Mountain Community Dialysis Centre		6	6	12
	Hospital	Nepean (Note 3)	2	5	5	12
	Total		17	29	36	46
Both	Satellite	Potential Locations : Rouse Hill, Mount Druitt, and/or Windsor (Note 4)			12	22
Total Western Renal Service			**69**	**85**	**108**	**132**
Projected patient numbers* (as per table 4)			23	311	420	542
Space requirements (1:4 patients) (Note 5)			60	78	105	136
Space requirements (1:3.2 patients) (Note 5)			74	97	131	169
Private Dialysis	Satellite	Norwest private Hospital				
		Patients (Note 6)	15	30	45	60
		Chair Capacity (Note 7)	15	15	15	15
Public and private chair capacity			84	100	123	147
Patient Numbers excluding private dialysis capacity (Note 8)			**223**	**281**	**375**	**482**
Space requirements (1:4 patients)			**56**	**70**	**94**	**121**
Space requirements (1:3.2 patients)			**70**	**88**	**117**	**151**

* Estimated number patients with chronic kidney disease living in Western Renal Service LGAs who will require facility based dialysis care. Excludes patients who require acute dialysis treatment as part of an acute inpatient episode of care.

Notes

1. Location of Auburn Community Dialysis Centre (in Auburn Hospital) is interim. Suitable alternative location needed by 2021.
2. Blacktown Mount Druitt Hospital Expansion Stage 1 includes 4 spaces with expansion to 8 and potential expansion to 12 spaces by 2021. Estimated completion for Stage 1 is 2015/16, with shortfall in in-centre capacity.
3. Potential for further expansion of Nepean Hospital Renal in-Centre unit to 12 spaces i.e. Unit location provides potential to expand into adjacent area, requiring relocation of incumbent services.
4. Need to establish new centre(s) to cater for these areas anticipated. Requirements will be reviewed annually.
5. Number of spaces required is shown based on 1 space per 4 patients (operating 6 days per week, 2 shifts per day; representing maximum utilisation) and 1 space per 3.2 patients noting the following:
    - NSW average use is 2.5 patients per space. Projections are based on 1: 4 may underestimate future requirements.
    - Current average across Western Renal Service is 1: 3.2. A more realistic estimate of throughput and allows capacity to manage peaks in demand i.e. to manage the variability in acute dialysis activity.
        - Level of throughput may vary at centres e.g. establishing a service in Blue Mountains will improve local access but may operate at a lower throughput level dependent on patient numbers.
        - Throughput of 2 shifts per day is a compromise between efficiency (staff and capital) to provide dialysis at socially acceptable times. Operating a third evening shift would be more efficient but not patient focused.
6. Assumes a steady increase in patients accessing private haemodialysis treatment at Norwest Private Hospital.
7. Assumes no increase in private dialysis capacity within the Western Renal Service region to 2021.

Cancer: Chemotherapy and Radiation Oncology

There is projected to be a 31% increase in the incidence of cancers from 2011 to 2021 in the NBMLHD. The largest increase in cancer will be in prostate cancer (growth of 141 new cases). The highest percentage growth in the incidence of cancer will be for cancers of the thyroid and other endocrine (49%), prostrate (47%) and colon (34%). There is no increase projected in cervical cancer to 2021.

Chemotherapy Services

Chemotherapy is currently provided at Nepean Cancer Care Centre (15 chairs), with a satellite service operating at Lithgow Hospital (2 chairs operating on a part-time basis).

Chemotherapy as a form of treatment for patients with cancer has traditionally been provided primarily intravenously. There is a potential international shift from this modality to chemotherapy being administered orally as well. At this point in time, it is too early to predict the impact that this shift may have on projected chemotherapy requirements in NBMLHD facilities to 2022. The impact of these trends will continue to be monitored.

In order to determine future capacity requirements for chemotherapy, two scenarios have been used, based on the Ministry of Health *Service Planning Guideline for Intravenous Chemotherapy Services*. This methodology is based on projected new cancer cases for NBMLHD LGAs (as supplied by Ministry of Health , State wide and Rural Health Services and Capital Planning), with a rate applied to project future service requirements for both the chemotherapy and non-chemotherapy (e.g. infusions) activities that occur in a 'chemotherapy day ward' setting. One scenario uses an estimate of 1.2 treatments per day per chair (as per the above Guidelines) while the second scenario is based on 2.1 treatments per day, which is more closely resembling current clinical practice. This then provides a range of chair requirements which may be needed into the future.

There is projected to be an increase in demand for chemotherapy in the NBMLHD from:

- 37 chairs in 2011 to 49 chairs by 2021/22 based on 1.2 treatments per day
- 21 chairs in 2011 to 28 chairs by 2021 assuming a higher throughput of 2.1 treatments per day.

It should be noted that current capacity is significantly less than the estimated requirement to meet current demand (in both scenarios), with 15 chairs at Nepean Cancer Care Centre and 2 at Lithgow Hospital. Additional chair requirements from the current capacity will therefore range from 11 chairs (under scenario 2) to 32 chairs (under scenario 1) – refer to Table 6.38, below. To meet future capacity requirements, enhancements will be required to the Nepean Cancer Centre.

There is also potential for a satellite chemotherapy service to be located at Blue Mountains District Anzac Memorial Hospital akin to that operating at Lithgow Hospital.

Table 6.8 Projected Chemotherapy Requirements in the NBMLH to 2021

Scenario	Chairs			Additional chair requirement from current (15 NCCC, 2 Lithgow)		
	2011	**2016**	**2021**	**2011**	**2016**	**2021**
Scenario 1 (Chemo + non-Chemo Chairs at 1.2 treatments per day)	37	43	49	20	26	32
Scenario 2 (Chemo + non-Chemo Chairs at 2.1 treatments per day)	21	24	28	4	7	11

Note: NCCC = Nepean Comprehensive Cancer Centre. Chemo = chemotherapy.

Radiation Oncology

Radiotherapy Services in NSW Strategic Plan to 2016 developed by the Ministry of Health provides the context for planning future radiotherapy requirements in NSW including the NBMLHD. The Cancer Network operates across NBM and Western Sydney Local Health Districts.

Two linear accelerators providing radiation oncology are operating at Nepean Hospital in 2012. It is anticipated that there could be a need to increase from 2 to 3 linear accelerators at Nepean Hospital in future years. This increase is dependent on the establishment of radiation oncology services at the Blacktown Comprehensive Cancer Centre and the extent to which radiation oncology requirements for NBMLHD patients are met in future years.

Table 6.9 Projected Cancer Incidence in NBMLHD, 2011 to 2021

Cancer Type	2011	2016	2021
Head and Neck	38	40	42
Upper GI	119	136	156
Colon	125	145	168
Rectum	83	96	110
Lung	136	153	173
Melanoma	154	179	209
Breast	202	218	233
Cervix	9	8	9
Ovarian	18	19	20
Prostate	298	374	439
Brain	23	25	29
Thyroid and other endocrine	39	48	58
Non-Hodgkin's lymphoma	62	72	81
Leukaemia	39	44	49
Unknown primary	58	62	66
Myelodysplasia	30	33	38
Other	236	267	300
All cancer	**1,669**	**1,920**	**2,179**

Source: Tracey E. Central Cancer Registry 2008 data, 2009, version 2, Health Related Population projections, March 2011.

7. Strategic Directions

Contents

7. Strategic Directions

Summary

The strategic service directions for the services across NBMLHD to 2022 are outlined in this chapter. These are considered in the broader context of NBMLHD overall directions and national and state health reforms. NBMLHD services are and will continue to be delivered in networked arrangements of service providers in collaboration with the NBM Medicare Local, general practitioners, nursing homes, community pharmacists, community transport, non-government organisations and private hospitals and private practitioners including allied health practitioners, and in consultation with consumers and their carers to ensure the delivery of patient centred care.

The key issues impacting on and driving healthcare service delivery in the NBMLHD to 2022 are:

- Significant population growth and ageing of the population
- Significant growth in health care demand
- Continuing to strengthen collaborations with the NBM Medicare Local
- Capital stock not sufficient for health service delivery and ageing infrastructure
- Lack of private hospital capacity including closure of Lithgow Community Private Hospital overnight acute inpatient capacity
- Lower self-sufficiency in health care provision for NBMLHD residents, particularly for mental health and paediatric district level care (and potentially planned surgery)
- Potential to identify and implement new models of care that can mitigate against rising hospital inpatient demand
- Further exploration of issues impacting on the Hawkesbury LGA and uncertainty regarding the volume and type of future service provision from Hawkesbury Hospital
- Potential for one new hospital in the Blue Mountains to replace older and inadequate for purpose facilities of Blue Mountains District ANZAC Memorial Hospital and Springwood Hospital
- High levels of Aboriginal and disadvantaged populations
- A mix of rural, remote, regional and metropolitan localities
- Potential to identify and devolve health care delivery within the NBMLHD through networked service delivery arrangements, such as devolving projected increase of sub-acute care activity from Nepean Hospital to district level hospitals
- Separation from Western Sydney Local Health District and implications for service delivery.

Nepean Hospital provides tertiary level care and is supported by NBMLHD district level hospitals - Blue Mountains District ANZAC Memorial, Lithgow and Hawkesbury Hospitals with sub and non-acute care provided at Springwood Hospital and Portland Tabulam Health Centre. Nepean Hospital will continue to provide higher level tertiary services for the residents of the NBMLHD and beyond, as part of statewide network of high complexity tertiary level services, while recognising that quaternary level services, such as burns, spinal injuries and transplants will continue to be provided outside the NBMLHD. Community based services in the NBMLHD of Community Health, Drug and Alcohol, Mental Health and Oral Health have an integral role in supporting hospital acute and sub-acute care, continuity of care and hospital avoidance. Population health services in the NBMLHD including Aboriginal Health, Health Promotion, HIV and Related Programs, Multicultural Health and Public Health, are important in the promotion and protection of health of the NBMLHD community.

Hospitals in the NBMLHD

Nepean Hospital

Nepean Hospital is the principal referral hospital for the NBMLHD and is a teaching hospital of the University of Sydney and the University of Western Sydney. Nepean Hospital provides high-level inpatient and outpatient care including emergency, critical care, acute medicine, planned and emergency surgery, maternity, neonatal, paediatric medicine and minor surgery, Mental Health (gazetted), aged care, rehabilitation services, drug and alcohol, and a broad range of specialist outpatient clinics and services. Inpatient services at Nepean Hospital generally have the capacity to manage high complexity patients who require specialist care. Nepean Hospital is a major referral centre for a range of sub-specialty medical, surgical, women's, neonatal, drug and alcohol and Mental Health services. All services are networked to facilitate access to specialist input and consultation 24 hours, 7 days per week.

Strategic service developments for Nepean Hospital to 2022 are:

- New Ambulatory Medical models of care supporting emergency department avoidance strategies
- New and enhanced Short Stay models of care (Acute Medical, Paediatric, Cardiology, Aged Care)
- New Comprehensive Clinical Centre models (Cardiology, Renal, Respiratory with Sleep Laboratory, Aged Care, Neurosciences, Gastroenterology)
- Enhance Comprehensive Cancer Centre including Chemotherapy, Radiation oncology and Palliative care
- Enhance Obstetrics and Gynaecology (Birthing, Inpatient, Assessment Areas, Clinics, Close Observation)
- Enhance Paediatric care (surgery and medicine in collaboration with Children's Hospital, Westmead)
- Enhance Emergency Department models including Waiting Room Assessment Care and Fast Track
- Enhance Sub-Acute care (Rehabilitation, Aged and Palliative/ Hospice Care)
- New and enhanced Mental Health (Acute and Rehabilitation and Recovery on and off campus)
- Enhance Endoscopy Procedure Centre
- Enhance Surgery (Operating Theatres, Special Imaging Suite, Robotic surgery, Bariatric surgery, Surgical Discharge Lounge)
- Strengthen Critical Care including Trauma role
- New Allied Health Therapy models and capacity
- New Research Institute with links to the Nepean Clinical School
- Enhance ICT (Infrastructure, Telehealth and electronic Medical Records)
- Enhance Medical Imaging and Pathology
- Enhance Mortuary with bariatric capacity
- Develop innovative strategies to better manage patients waiting for guardianship and nursing home placement and those who require a period of non-weight bearing.
- Explore Medi-Hotel model of care.

Blue Mountains District ANZAC Memorial Hospital

Blue Mountains District ANZAC Memorial Hospital will continue to provide district level care to the residents of the mid to upper Blue Mountains and sub-acute care and surgery to residents in Penrith and Hawkesbury localities. Blue Mountains District ANZAC Memorial Hospital is an older hospital that opened in the 1920s. The Nurses' Home was built in the 1940s. There is future potential to merge with Springwood Hospital and provide services from one new facility in the mid-Blue Mountains.

The strategic service developments for Blue Mountains District ANZAC Memorial Hospital to 2022 include:

- New and strengthened Aged Care (including secure Dementia area) and Rehabilitation focus, Transitional Care, Palliative and hospice care
- New Satellite Renal Dialysis service
- Revise Mental Health models of care across hospital, including new Mental Health Rehabilitation and Recovery service and Safe Assessment Room model, and mental health care in the community and across age groups
- Establish satellite chemotherapy service
- Continue surgery for low complexity patients with links to Nepean Hospital
- Continue birthing for low complexity patients with links to Nepean Hospital
- Establish paediatric short stay and ambulatory care models
- Reconfigure Emergency Department service delivery including revised Outpatients and Consultation model complementary to Emergency Department operations
- Develop innovative strategies for patients waiting for guardianship, nursing home placement and non-weight bearing
- Enhance ICT with Telehealth capacity
- Expand Mortuary with bariatric capacity.

Springwood Hospital

Springwood Hospital will continue to provide community level care with a focus on sub-acute care for the residents of the NBMLHD. Springwood Hospital is an older facility that was built in the 1970s and is no longer fit for purpose and delivery of contemporary models of care. There is future potential to merge with Blue Mountains District ANZAC Memorial Hospital and provide services from one new facility in the mid-Blue Mountains.

Strategic service developments for Springwood Hospital to 2022 include:

- New and enhanced Rehabilitation, Aged Care (with Dementia Secure Area) and Palliative/ Hospice Care with new Rehabilitation Therapy model
- Develop innovative strategies to better manage patients waiting for guardianship and nursing home placement and those who require a period of non-weight bearing
- New Outpatient/ Consultation model with Telehealth capacity and potential for New High Volume Day Procedure Centre, potentially including Ophthalmology and Endoscopy (low risk).

One New Hospital in the Blue Mountains

There is much to recommend the amalgamation of services provided at Springwood and Blue Mountains District ANZAC Memorial Hospitals on a single, new site, in the mid Blue Mountains. The rationale for this are that both facilities are ageing and require considerable capital input to bring them to a standard which is fit for purpose and delivery of contemporary models of care, the benefits to be achieved from improved economies of scale and efficiencies in the rationalisation of operations (services and administration) with significant impact on operational costs. There is also potential for the co-location of Lawson Community Health Centre on the new site.

Lithgow Hospital

Lithgow Hospital will continue as a district level hospital providing services to the residents of Lithgow LGA. Lithgow Hospital is a teaching hospital of the University of Notre Dame. The hospital provides inpatient and outpatient services for all ages, managing lower complexity patients who do not require sub-specialty care. Services include 24 hour emergency department, paediatrics, maternity, low-risk surgery and general medicine, with on call medical services.

The announcement that Lithgow Community Private Hospital have reduced their service provision to day and, potentially, extended day procedures and specialist medical centre will have a significant impact on Lithgow Hospital. Private patients requiring inpatient admission are being transferred to Lithgow Hospital, impacting on current, as well as projected, service activity levels at Lithgow Hospital.

In summary, the strategic service developments for Lithgow Hospital to 2022 include:

- Incorporate private patients from change of role of overnight acute capacity at Lithgow Community Private Hospital
- Revise Mental Health models of care across hospital and community and across age groups
- Enhance paediatric services, with a focus on short stay and ambulatory care and consultation
- Continue to provide Aged Care and enhance Rehabilitation, Transitional care with capacity for Dementia secure models
- Continue birthing for low complexity patients
- Continue surgery for low complexity patients
- Enhance capacity for Telehealth services
- Continue to strengthen links with University of Notre Dame.

Portland Tabulam Health Centre

Portland Tabulam Health Centre to continue as is, providing residential aged care services and sub-acute care. Continue co-location of the Health Centre with the Aged Day Care program and general practice unit.

Hawkesbury Hospital

Hawkesbury Hospital is a district level hospital with community health services, providing health care services for the population of the Hawkesbury LGA. Hawkesbury Hospital opened in 1996, and is owned and operated by Hawkesbury District Health Service Pty Ltd, a part of Catholic Health Care Services. Hawkesbury Hospital provides public hospital services in the Hawkesbury area under a contract with NBMLHD. It is a teaching hospital of the University of Notre Dame. Services include emergency care, medical, surgical, maternity, neonatal, palliative, intensive and coronary care as well as diagnostics services. The contract with Hawkesbury District Health Service concludes in 2016. The Hawkesbury Hospital capital asset reverts to ownership of the Health Administration Corporation at this time.

Subject to contract negotiations, it is envisaged that the future role of Hawkesbury Hospital will be enhanced to include new and expanded models of care and services, with potential capital implications. It should be noted that if these service enhancements are not delivered by Hawkesbury Hospital, increased capacity will be required at Nepean and Springwood Hospitals to meet the shortfall.

In summary, the service development requirements for Hawkesbury Hospital to 2022 include:

- Enhance Emergency Department models including new Fast Track
- New Ambulatory Procedures Centre with Day Only and Extended Day Only models
- New Sub-Acute Rehabilitation service (inpatient beds and therapy unit), Aged Care and Palliative/ Hospice Care
- Revise Mental Health models of care across hospital and community and across age groups
- Potential for satellite chemotherapy service
- Enhance ICT including Telehealth capacity
- Strengthen links with University of Notre Dame, with the establishment of the new Clinical School.

Community Based Services

Drug and Alcohol Services

- Continue to deliver drug and alcohol services including population strategies to prevent substance abuse, outpatient programs and inpatient detoxification services for those with severe dependence issues, focusing on providing equitable services to all of the community including marginalised groups.
- Establish outpatient withdrawal management model of care.
- Strengthen integration with primary health care providers and residential aged care facilities and enhance consumer participation.
- Establish shared care models of treatment specific to the Opioid Treatment Program (OTP).

Mental Health Services

- Continue delivery of mental health services and revise models of care across hospital and community settings and across age groups, with a focus on person centred recovery.
- Continue shared specialty services and projects with Western Sydney Local Health District including Rupertswood (Specialised Mental Health Services for Older People), Redbank Family Program (Child and Adolescent Mental Health Service), Training and Supervision for child, adolescent and older people's mental health.
- Develop and implement Telephone Access Line/ Triage 1800 and a 24/7 Assessment Centre as an emergency department avoidance strategy.
- Establish non-acute services including inpatient step-down, rehabilitation and a community partnership recovery program.
- Develop and implement assertive acute response teams and care coordination and case management teams.
- Establish Perinatal and Infant Mental Health Care.
- Strengthen access and services for Aboriginal people.

Oral Health Services

- Continue delivery of Oral Health services across the NBMLHD in a hub and spoke arrangement, with the Nepean Oral Health Centre as the central hub and satellite Oral Health services across the District co-located with Community Health services at Springwood, Lithgow and Hawkesbury and at Blue Mountains Hospital.
- Enhance Oral Health services to full capacity at the new Nepean Oral Health Centre.
- Continue and strengthen capacity in satellite Oral Health services.
- Enhance capacity to further support Oral Health workforce training requirements and strengthen research.
- Continue to implement initiatives that support and enhance Oral Health care for early childhood, Aboriginal population and culturally and linguistically diverse populations.

Primary Care and Community Health

- Continue delivery of Primary Care and Community Health in service streams of Child and Family Health, Complex, Chronic and Aged Care and Integrated Violence Prevention and Response, focusing on preventing inappropriate hospital admissions and readmissions and the delivery of ante and post natal care.
- Strengthen the interface between community health services and acute facilities.
- Enhance hours of service delivery to seven days and after hours, strengthen targeted services for minority groups.
- Strengthen partnerships with NBM Medicare Local, non-government organisations and private allied health providers and collaboratively map services and identify opportunities for co-location.
- Implement HealthOne and Connecting Care programs with the NBM Medicare Local.
- Expand the use of technology including telehealth for self-monitoring, shared information systems for care planning and apps to enhance health care delivery.

Satellite Renal Dialysis Services

- Establish the Katoomba Community Dialysis Centre.
- Enhance capacity at Penrith Community Dialysis Centre (Governor Phillip campus).
- Establish new Community Dialysis Service in the North West Growth corridor.

Population Health Services

Aboriginal Health

- The Aboriginal Health Unit will continue to provide leadership in health policy, service and program development to assist staff in the NBMLHD to build capacity to address the health needs of Aboriginal population.
- Continue to identify, implement and strengthen initiatives that engage and improve health outcomes of the Aboriginal community.
- Continue to implement the Aboriginal Connecting Care program and evaluate the Mootang Tarimi Living Longer program.
- Progress implementation of the Aboriginal Maternal and Infant Health Strategy (AMIHS) and Building Strong Foundation (BSF) program.
- Identify and engage external agencies to foster productive partnerships including the Western Sydney Aboriginal Medical Service and NBM Medicare Local.
- Support staff participation in Respecting the Difference training.
- Improve identification of Aboriginality on presentation at all health services including Emergency Departments.

Health Promotion

- Health promotion services will continue to promote the health of the NBMLHD population targeting key risk behaviours.
- Future service priorities for health promotion services are tied to national and state programs targeting healthy weight, tobacco control and falls injury prevention.

HIV and Related Programs (HARP)

- HIV and Related Program services aim to reduce the impact of blood-borne viruses (specifically HIV and Hepatitis C) and Sexually Transmissible Infections on the health and wellbeing of the population. Services are guided by the NSW Strategic Plans for HIV, Sexually Transmissible Infections and Hepatitis C and deliver a program-based response to priority populations.
- Service priorities include HIV/AIDS, sexual health and hepatitis health promotion, Needle and Syringe program, dedicated programs to improve sexual health and to increase access to hepatitis C services among Aboriginal people and increase access to HIV/ Sexual health services for priority populations.

Multicultural Health

- The Multicultural Health Unit will continue to provide leadership in health policy, service and program development to assist staff in the NBMLHD to build capacity to address the health needs of people from culturally and linguistically diverse backgrounds.
- Continue to implement and strengthen initiatives aimed at engaging and supporting the multicultural community in health care including in chronic illness.
- Build and maintain strong partnerships with local non-government organisation services to address culturally and linguistically diverse community health needs.

Public Health

- Public Health services will continue to protect the health of the NBMLHD population NBMLHD by responding to public health aspects of communicable diseases, environmental health and bio-preparedness for major incidents or disasters in the NBMLHD.
- Functions cover the provision of public health services including immunisations, monitoring public health, identifying adverse trends and evaluating the impact of health services.

Introduction

The *Nepean Blue Mountains Local Health District Healthcare Services Plan 2012-2022* has been developed within the context of the National and NSW Health Reform Agendas and reflects the combined goals of:

- Building a health system that is patient focussed
- Adoption of the NSW Health Minister's CORE values for the public health system of Collaboration, Openness, Respect and Empowerment
- Increasing emphasis on coordinated and integrated health care and health promotion to avoid unnecessary hospitalisations
- Strengthened consumer and carer engagement and voice
- A modern, learning and supported health workforce
- Smart use of data, information and communication
- Knowledge-led continuous improvement, innovation and research.

To the above goals NBMLHD has added the implementation of the SAFE values of Safety, Agility, Fairness and Excellence.

NBMLHD has translated the above National and State goals and values into the organisational goals of:

- Improving population health (inequalities and localities)
- Enhancing the patient experience (clinical quality, access and safety)
- Living within our means (service and financial performance).

The *NSW State Plan 2021* contains two goals for which the Minister of Health has direct accountability. These goals are Goal 11: Keep People Healthy and Out of Hospital and Goal 12: Provide World Class Clinical Services with Timely Access and Effective Infrastructure. The goals in *NSW State Plan 2021* provide the strategic directions for health service delivery within the NBMLHD and are further articulated in the annual Service Agreement between NBMLHD and the Ministry of Health and the *Nepean Blue Mountains Local Health District Strategic Plan 2012-2017*.

NBMLHD will actively pursue, develop and implement strategies across all services and facilities to improve the health of the population, reduce and avoid unnecessary hospital admissions, provide high quality acute health care as necessary and deliver sub-acute care where required as part of a continuum of care in a way that is efficient, effective, responsive to the needs of its population and collaborative with its service partners including the NBM Medicare Local, other human service providers and non-government organisations. The NBMLHD also collaborates with statewide health organisations in the planning and delivery of healthcare services including the Ministry of Health, Agency for Clinical Innovation, Clinical Excellence Commission, Health Education and Training Institute, NSW Pathology and HealthShare, including Health Infrastructure and Health Technology.

Placing patients at the centre of care is integral to service delivery across the NBMLHD. Consumer engagement and consultation has highlighted areas of concern that are consistent across all four local government areas. These include transport and communication. Transport is about the use of

public transport, knowing what transport services are available, parking availability at facilities, accessing community transport and patient inter-hospital transfers. Communication relates to communication with the patient and their carer, care planning and discharge information provided between hospitals and care providers including general practice and community expectations. NBMLHD has a role in enhancing health literacy among the local population and beyond the boundaries of the LHD. This includes information about health services, accessing health services and about illness and its management. A community which is health literate makes more intelligent health choices and better use of health services.

The NBMLHD approach to health care will be enhanced by the continuation of a 'No Wrong Door' approach to accessing health services. This approach allows patients, clients, carers and families to enter the health system through any access point. Hospitals and community health centres will continue to provide the bases from which services are delivered. Every facility will provide a gateway to all services provided by NBMLHD, with the added ability to provide referral to other service providers where appropriate.

A broad range of services will continue to be provided within the NBMLHD hospitals, including access to specialist care that can only be provided appropriately in this setting. Hospitals will continue to become more adaptive to meeting and reflecting the needs of the communities they serve. Nepean Hospital will continue to enhance its tertiary role, providing a higher level of services consistent with this role. Blue Mountains, Lithgow and Hawkesbury Hospitals will continue to provide district level services. Springwood Hospital will be required to grow its sub-acute role to support the needs of Nepean Hospital in its tertiary role. Integrated services will continue to be provided at Portland Tabulam Health Centre. New service delivery models will be developed and implemented to alleviate rising inpatient demand. These models will be implemented at NBMLHD hospitals, community health centres, premises located in central business districts, and in the client's home as part of the 'Hospital in the Home' model of care.

Significant Issues Impacting Service Delivery

A number of key issues have been identified throughout the *Nepean Blue Mountains Local Health District Healthcare Services Plan 2012-2022* that will impact, influence and drive healthcare service delivery to 2021/22 in the NBMLHD. These issues are summarised below and set the context for shaping future health service delivery in the hospitals and community based services throughout the NBMLHD.

Significant Population Growth

Significant population growth is projected for the NBMLHD. This includes growth in the older, as well as the younger age groups. The significant increase in the population will be the main driver of increasing health care needs over the next ten years and beyond. The growth in the older and the younger age groups also means that the NBMLHD will need to be poised to provide a comprehensive range of health services across all age groups (hospital and community based). This issue is different to that faced by most Local Health Districts, where the ageing of the population is the main dilemma.

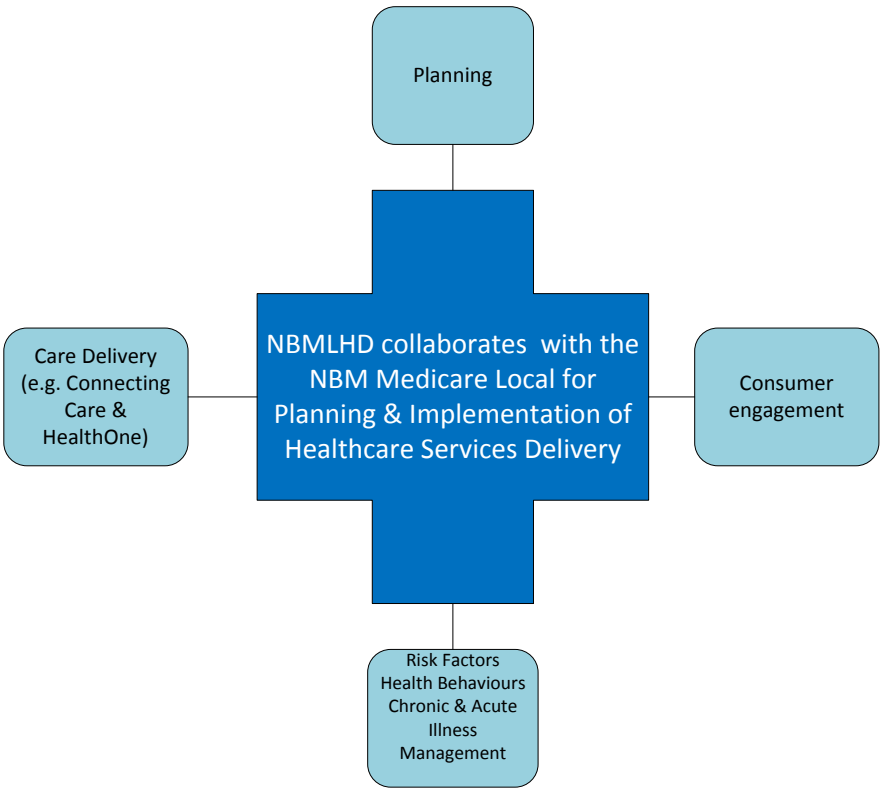
Significant Growth in Health Care Demand

Significant growth in health care services is projected to 2021/22 in the NBMLHD. An additional 198 acute and sub-acute beds are projected to be required to meet the demand for health care in NBMLHD to 2021/22. Further, 51 non-acute Mental Health beds are also required to provide this service in the NBMLHD. Emergency Department presentations are anticipated to continue to increase to 2021/22 across all of the NBMLHD hospitals. There are also projected increases in the demand for satellite and inpatient renal care. Projections in cancer demand show that additional chemotherapy chairs and a new linear accelerator for radiation oncology, based at the Nepean Comprehensive Cancer Centre, will be required.

Continue Collaborations with Nepean Blue Mountains Medicare Local

Continuing to collaborate with the NBM Medicare Local has the capacity to further support the implementation of hospital avoidance and integration of care strategies. Included in the strategies already in place and in development are Connecting Care and HealthOne. Identified priorities for attention include mental health, aged care and general practice after-hours care. The monitoring and management of health risk behaviours and illness (chronic and acute) through general practice can also support new models of care being provided in acute inpatient settings. The integration of care across hospital and community based settings is paramount to the success of hospital avoidance strategies and improved patient outcomes prior to undergoing surgery (such as obesity or smoking) and other inpatient care (such as diabetes).

Figure 7.1 Collaboration between Nepean Blue Mountains Local Health District and Nepean Blue Mountains Medicare Local



Capital Stock Not Sufficient

A proportion of the projected demand for healthcare services in the NBMLHD can be met within existing capital stock and enhanced capacity delivered through the Nepean Hospital Stage 3 and 3A Developments. However, due to the significance of the increase in demand, enhancements to capital stock will be required. This issue is amplified by the state of the older hospitals within the NBMLHD, notably Springwood and Blue Mountains District ANZAC Memorial Hospitals, becoming increasingly not fit for purpose for the delivery of contemporary health service models of care.

Lack of Private Hospital Capacity

There are limited private hospital services available in the NBMLHD, notably Nepean Private Hospital (approximately 100 beds) and St John of God Hospital, (approximately 100 beds, specialising in Mental Health care). Lithgow Community Private Hospital recently announced that it will no longer provide overnight inpatient care. Plans are underway for the shift of this activity to Lithgow Hospital including maternity and birthing services.

Self-sufficiency in Health Care Delivery for the Residents of NBMLHD

NBMLHD is reasonably self-sufficient in providing adult acute inpatient care, sub-acute care and perinatal care to meet the health care demands of its residents. However, NBMLHD has lower self-sufficiency in providing mental health inpatient care (acute and non-acute) and paediatric care required by its residents.

Mental Health: Mental Health acute inpatient care requirements in the NBMLHD will be addressed when the new Mental Health Centre at Nepean Hospital is fully operational. However, there is no capacity to meet Mental Health non-acute inpatient care requirements. NBMLHD is one of several LHDs in NSW without non-acute Mental Health bed capacity. This issue poses considerable demands for the delivery of the spectrum of Mental Health care service requirements for NBMLHD residents.

Paediatric District Level Care: There has been a reduction in the self-sufficiency of the NBMLHD in providing paediatric acute inpatient care for its residents. The issues relate to the proximity of the Children's Hospital, Westmead, and the perception of enhanced paediatric care accessible there. Collaborations are underway with the Children's Hospital, Westmead, to reverse paediatric patient flows from the Children's Hospital, Westmead to Nepean Hospital, consistent with the expectations for district level care and demand. The initial focus is on providing care for children with diabetes and delivery of ENT surgery.

New Models of Care to Address Rising Healthcare Demands

There is capacity to establish and incorporate new models of care by shifting from overnight inpatient care to short stay inpatient care, extended day only and day only models, and from day only to ambulatory and outpatient care. Changing models of care will assist NBMLHD to counter the increasing healthcare needs of its residents. Further changes in healthcare delivery include the implementation of hospital in the home, the use of tele-health service options and the development of hospital avoidance strategies, such as outreach to residential aged care facilities and strengthening community based care. These issues are particularly pertinent for Nepean Hospital. A

range of clinical redesign initiatives are being implemented to support Nepean Hospital in introducing these new models of care. It must be recognised that all these measures have a finite capacity to impact and reverse the upward trend for health care services demand.

Hawkesbury LGA and Hawkesbury Hospital

Hawkesbury Hospital is a private hospital which provides public health services under a contract, initiated in the 1990s, with Hawkesbury District Health Service. The contractual relationship with the Hawkesbury Hospital is unique. The implementation of the contract does not allow for flexibility in the ability to incorporate contemporary models of care, changes in payment structures such as activity based funding or the capacity to monitor service delivery within state and commonwealth key performance indicators and benchmarks. The functioning of the contract inhibits the capacity of Hawkesbury Hospital to meet the increasing health care demands of the Hawkesbury residents locally. The lack of flexibility impacts adversely on services at Nepean Hospital, which is required to provide the short fall in health care needs for the residents of the Hawkesbury LGA. Further exploration into patient flows within the NBMLHD and future role of Hawkesbury Hospital in service provision will be required.

Specific and Disadvantaged Populations

The NBMLHD has a diverse population incorporating a number of disadvantaged groups including Aboriginal and Torres Strait Islander people, culturally and linguistically diverse groups, custodial inmates and a transient population related to the inmate population.

Large Aboriginal and Torres Strait Islander population: While many initiatives have been undertaken to 'Close the Gap' in health outcomes for the Aboriginal and Torres Strait Islander population in the NBMLHD, it is recognised that there is still more to do. The establishment of the NBMLHD Aboriginal Health Unit will drive delivery of culturally appropriate health services that will address the specific health needs Aboriginal and Torres Strait Islander people.

Culturally and linguistically diverse population: In the 2011 Census, 9.9% of the total NBMLHD population indicated that they were born overseas in a non-English speaking country. While the specific population groups are numerically small, the range of countries of origin and languages spoken is large and creates a unique set of challenges.

Inmate and related transient population: There are a number of custodial facilities situated within the boundaries of NBMLHD and cover both juvenile and adult correction centres. NBMLHD and Justice Health will continue to partner to deliver programs to impact positively on the health outcomes of this population. Employment of innovative strategies to deliver services to the associated transient population of inmates' relatives, such as opportunistic immunisation programs and health assessments will assist in improving health service delivery and outcomes to this group.

Lithgow LGA: The Lithgow LGA provides unique challenges for healthcare delivery. In addition to the presence of the disadvantaged groups outlined above, there are also high levels of socio-economic disadvantage and difficulties inherent in delivering the same level of services to what is essentially a rural and remote community. These issues amplify the disparity in health outcomes for this locality when compared with the other LGAs within the NBMLHD.

Rural, Remote, Regional and Metropolitan Localities

The NBMLHD is a unique Local Health District in NSW, comprising metropolitan, regional, rural and remote localities. This provides challenges for the delivery of health care. The establishment of the satellite chemotherapy service at Lithgow Hospital is one innovative and positive shift in providing care closer to home for cancer patients from rural and remote communities, with potential for replication in the Blue Mountains and Hawkesbury localities.

Devolve Projected Increases in Sub-Acute Care Demand from Nepean Hospital to District Level Hospitals in NBMLHD

Preserving the tertiary level role of Nepean Hospital, whilst providing district level care to the residents of the Penrith LGA and lower Blue Mountains, is a challenge to be addressed. Nepean Hospital is supported by the district level hospitals of Blue Mountains District ANZAC Memorial, Lithgow and Hawkesbury Hospitals. Sub-acute and non-acute care is provided by Springwood Hospital and Portland Tabulam Health Centre. Significant growth in acute and sub-acute health care service delivery has been identified for the NBMLHD to 2021/22. One solution is to enhance the district level roles performed by the networked peripheral hospitals in the NBMLHD. This could include relocating a proportion of the growth in sub-acute care and planned surgery to the district level hospitals.

Separation from Sydney West Area Health Service and Implications for Service Delivery

The NBMLHD is a relatively new entity, having formed in 2011, following the separation from the former Sydney West Area Health Service. The NBMLHD structures are largely established. There are, however, residual issues following the separation from Sydney West Area Health Service that impact on comprehensive service delivery. A key example is the delivery of Mental Health care, with non-acute Mental Health beds no longer located or available in the NBMLHD.

Role of Information and Communication Technology

Information technology will continue to play a major role in the provision of healthcare services, including sharing of information between providers, and the Patient Controlled Electronic Health Record (PCeHR). Digitised information such as medical imaging, diagnostics and pathology, coupled with the PCeHR will allow providers, with the patient's permission, to access the total range of clinical information irrespective of where the patient is accessing services. This has tremendous service delivery implications for the role of telehealth initiatives in the provision of services to hospitals and community health services within the NBMLHD catchment, as well as patients in rural and remote locations including supporting isolated services in the west and far west of NSW. NBMLHD has a significant role to play in supporting these Local Health Districts to provide specialist health care access for their communities. The Nepean Telehealth initiative is a significant starting point for providing these services. The realisation of the full potential of telehealth in assisting the shift in care from the acute to the community relies on the availability of sufficient broadband infrastructure and coverage in the wider community to support this mode of service delivery.

Population and Community Based Services across NBMLHD

The range of services in the NBMLHD that focus on improving population health, preventing ill-health, promoting early diagnosis and intervention and providing community based services have specific and complementary roles in coordinating strategic directions, service and program planning, delivery, implementation, monitoring and evaluation. These services have critical roles in hospital avoidance and demand management, enhancing the management of chronic disease and supporting the health and health care delivery for vulnerable families, older people, Aboriginal populations, culturally and linguistically diverse populations and disadvantaged populations. These services include:

- Aboriginal Health Unit
- Community Health and Primary Care
- Drug and Alcohol Service
- Health Promotion Unit
- HIV and Related Programs (HARP)
- Mental Health Service
- Multicultural Health Unit
- Oral Health
- Public Health Unit
- Satellite Renal Dialysis services.

Aboriginal Health

There is a large Aboriginal population in the NBMLHD. *The Health of Aboriginal People: Report of the Chief Health Officer 2012* and the *NBMLHD Aboriginal Health Status Report* describe the health status of Aboriginal communities in the NBMLHD and highlight a range of health issues. Attention to the issues raised will ultimately close the gap between indigenous and non-indigenous health status. The NSW and National Aboriginal Health Strategies, New South Wales *10 Year Aboriginal Health Plan* and the *National Aboriginal and Torres Strait Islander Health Plan* provide an overarching context for the delivery of Aboriginal health services and programs in the NBMLHD. Delivering these services and programs will continue in close collaboration with partner organisations including Western Sydney Aboriginal Medical Service, NBM Medicare Local and Aboriginal communities throughout the NBMLHD.

The primary function of the NBMLHD Aboriginal Health Unit will continue to be working across the NBMLHD and with other services operating in the NBMLHD to improve access for Aboriginal people to health services. A range of programs are underway in the NBMLHD focussing on Aboriginal communities. Many of these programs are managed through Primary Care and Community Health services or Population Health and are discussed in Chapter 4 of this document.

Service priorities for the Aboriginal Health are:

- Continue to identify initiatives that engage and improve health outcomes of the Aboriginal community

- Continue to implement and strengthen initiatives aimed at engaging and supporting the Aboriginal community in health care
- Continue to implement the Aboriginal Connecting Care program
- Implement and evaluate the Mootang Tarimi Living Longer program
- Progress the implementation of the Aboriginal Maternal and Infant Health Strategy (AMIHS)
- Continue to monitor and support the Building Strong Foundation (BSF) program
- Identify and engage external agencies to foster productive partnerships
- Work with Learning and Development to monitor staff participation in Respecting the Difference training
- Improve the identification of Aboriginality upon presentation at all NBMLHD health services
- Improve, monitor and report on Aboriginal presentations to Emergency Departments.

Community Health Centres

As stated above the preference is to co-locate community based health services in Community Health Centres. To meet the service priority needs outlined above, capacity requirements are acknowledged in the following Community Health Centres across the NBMLHD, Lawson (potential co-location with new Blue Mountains Hospital), Penrith, St Clair, Cranebrook, St Marys, Penrith (Child and Adolescent), Lemongrove, Springwood, Katoomba and Lithgow Community Health Centres. It is also acknowledged to meet the development of new growth areas, new Community Health Centres are also proposed for Glenmore Park and the Australian Defence Industries site.

Community Health

Community health services in the NBMLHD will continue to deliver services in the streams of:

- Child and family health services
- Complex, aged and chronic services
- Integrated violence prevention.

Future service directions for Community Health are:

- Strengthen the interface between community health and the acute facilities
    - Develop clear pathways to enhance patient flow and promote reduced lengths of stay, promote continuity of care and hospital avoidance strategies.
    - Enhance and establish multidisciplinary, community-based clinics for chronic disease in collaboration with specialists e.g. diabetes educators/clinics.
    - Strengthen hospital in the home partnered with community follow up and health coaching.
    - Enhance continuity of care through Community Health staff early involvement from inpatient wards for ‘at risk’ and vulnerable clients.

- Continue to strengthen community health services
    - Enhance flexible hours of service delivery across seven days and after hours.
    - Strengthen targeted services for minority groups in collaboration with Multicultural Health and Aboriginal Health, particularly in Penrith and Lithgow.

  - Identify opportunities for co-location of health services with partner organisations e.g. HealthOne, neighbourhood centres, general practices and Community Health Centres, schools etc.
  - Integrate health promotion into all aspects of care e.g. speech information at developmental checks.

- Strengthen partnerships
  - Strengthen partnerships with key stakeholders such as NBM Medicare Local, non-government organisations and private allied health providers (particularly for addressing long wait lists).
  - Work collaboratively to map services and identify gaps and duplication to develop an integrated model of complementary services, delineating clear roles for community health that complements other services both in the public and private arena.
  - Establish management of services by a coalition of partners inclusive of consumer groups.
  - Expand the HealthOne model approach as a 'one stop shop' with shared client care for complex clients and continue to implement the Connecting Care program in collaboration with the NBM Medicare Local.
  - Promote hubs providing women's health, parenting and baby health checks, joining with pharmacies, general practitioners, non-government organisations, schools and child care facilities.

- Technology
  - Utilisation of technology such as telemedicine in the home for client self-monitoring.
  - Electronic systems that communicate with each other for information sharing, especially care plans and with an interface between record systems.
  - Embrace the use of apps to enhance health care, such as service directory, self-management, online staff discussion and appointments.
  - Enhance capacity to have 'In home' diagnostics and investigations.

Drug and Alcohol

The Drug and Alcohol Service in the NBMLHD provides care in the management of alcohol and drug problems for individuals, families and community organisations. The priorities of the service are to provide equitable services to all members of the community including marginalised groups, and provide access to all levels of service from population based strategies designed to prevent substance abuse in the first instance, outpatient individual and group programs and inpatient detoxification services to help those with severe dependence issues.

The Drug and Alcohol Prevention and Health Promotion strategies are in line with the NSW Ministry of Health *Drug and Alcohol Health Promotion Plan 2011-2015*, and aim to assist with capacity building in health promotion and delivery of the *National Drug Strategy 2010-2015*. The Drug and Alcohol Unit will work both internally and with external agencies to build capacity and deliver those strategies identified for implementation within NBMLHD.

Future priorities for NBMLHD Drug and Alcohol Service include:

- Establish outpatient withdrawal management model of care

- Strengthen integration with primary health care providers
- Enhance consumer participation
- Shared care models of treatment specific to the Opioid Treatment Program (OTP).

Health Promotion

The Health Promotion Unit in the NBMLHD aims for 'Better health for all and better population health services'[1]. The Unit develops, implements and evaluates community based programs that improve and maintain population health and reduce inequalities in health outcomes. Health Promotion focuses on national and state programs targeting healthy weight, tobacco control and falls injury prevention.

Under the National Partnership Agreement on Preventative Health, Health Promotion services will continue to deliver programs under the Healthy Children's Initiative, Healthy Worker's Initiative as well as providing support for local government under the Healthy Communities Initiative.

In addition to the initiatives outlined above, other key strategic documents that drive delivery of health promotion programs include:

- NSW Government *Plan for Preventing Overweight and Obesity in Children, Young People and Their Families 2009-2011*
- NSW Government *Healthy Eating and Active Living Strategy: Preventing Overweight and Obesity in New South Wales 2013-2018* (Draft)
- *NSW Tobacco Strategy 2012-2017*
- *Prevention of Falls and Harm from Falls among Older People 2011-2015*.

Programs planned for future implementation include:

- Healthy Supported Playgroups
- High School Canteen Support Service
- Sporting Canteen Nutrition Support Service
- Drink Water First @ Sport.

HIV and Related Programs (HARP)

The overarching goal of HIV and Related Program services in NSW is to reduce the impact of blood-borne viruses (specifically HIV and Hepatitis C) and Sexually Transmissible Infections on the health and wellbeing of individuals, priority population groups and the wider community. Services are guided by the NSW Strategic Plans for HIV, Sexually Transmissible Infections and Hepatitis C and deliver a program-based response to priority populations in Local Health Districts.

Priority populations are gay and homosexually active men, Aboriginal people, people who inject drugs, young people, sex workers, people from culturally and linguistically diverse backgrounds,

[1] Vision outlined in Population Health Priorities for NSW 2012-2017, Population and Public Health Division, NSW Ministry of Health, 2012

people living with HIV/AIDS and people with hepatitis C. There are significant new opportunities for the treatment and prevention of HIV and hepatitis C, in particular, and strong targets have been identified for the NBMLHD, including reducing new HIV infections by 60% by 2015, and 80% by 2020.

Future service priorities for the NBM HIV and Related Programs (HARP) Population Health Unit are and continue to be:

- HIV/AIDS, sexual health and hepatitis health promotion
- Needle and Syringe program
- Dedicated programs to improve sexual health and to increase access to hepatitis C services among Aboriginal people
- Increase access to HIV/ Sexual health services for priority populations
- Contribute to improving the health of people with HIV/AIDS and hepatitis C
- Continue to deliver programs which support the development of safe and responsible sex behaviours in young people and other target populations
- Increase and improve health outcomes for Aboriginal and multicultural community members' access to HIV and Sexual Health and Hepatitis services.

Mental Health

Mental Health services comprise inpatient and community based services covering a spectrum of acute inpatient care to recovery, and across the age span from child and adolescent to older people. These services are delivered from facilities across the NBMLHD. Community based Mental Health services have a high level of integration with inpatient Mental Health services. NBMLHD Mental Health Unit will continue to work with Western Sydney Local Health District, where appropriate, to provide specialist services for specific age groups and higher level complex patients.

Future directions for Mental Health services include:

- Integrated "person-centred", recovery focused models of care that are responsive, appropriate, accessible, capable and safe service
- Shared specialty services and projects with Western Sydney Local Health District through Inter District Agreements, such as Rupertswood (Specialised Mental Health Services for Older People [SMHSOP]), Redbank Family Program (Child and Adolescent Mental Health Service [CAMHS]), Training and Supervision (CAMHS/SMHSOP)
- Working with communities to improve Mental Health, promote recovery and prevent mental illness such as the Partners in Recovery program, Family and Carer Program
- Develop and implement Telephone Access Line/ Triage 1800
- Develop and implement a 24/7 Assessment Centre as an Emergency Department avoidance strategy
- Develop non-acute services including inpatient step-down, rehabilitation and a community partnership recovery program
- Develop and implement assertive acute response teams and care coordination and case management teams
- Perinatal and Infant Mental Health Care
- Access and services for Aboriginal people.

Multicultural Health

According to the 2011 Census, NBMLHD is home to 49,302 people who speak a language other than English. This equates to 14.6% of the total NBMLHD population with Penrith LGA recording the highest number at 34,081 people.

The NBMLHD aims to ensure an equitable health system that includes cultural and linguistic diversity at the heart of all policy development, service planning and delivery. The Multicultural Health Unit will continue to provide leadership in health policy, service and program development to assist staff in the NBMLHD to build capacity to address the health needs of people from culturally and linguistically diverse backgrounds.

The key policies and programs driving the delivery of culturally relevant programs and services include the Policy and Implementation Plan for Healthy Culturally Diverse Communities 2012-2016 and the NSW Multicultural Policies and Services Program.

Future service directions for the Multicultural Health are:

- Continue to improve the capacity of NBMLHD to effectively identify and meet the specific needs of culturally and linguistically diverse (CALD) communities
- Implement Quality Assurance initiatives relating to length of stay, discharge, readmissions and the safe use of medication
- Continue to implement and strengthen initiatives aimed at engaging and supporting the multicultural community in health care
- Work to increase engagement with culturally and linguistically diverse communities who have chronic and complex conditions to improve self management
- Develop and deliver training and material resources to increase cross cultural competence in health staff
- Build and maintain strong partnerships with local non-government organisations to address culturally and linguistically diverse community health needs.
- Promote the inclusion of culturally and linguistically diverse samples in health research and support research projects to build an evidence base which will encourage best practice models of care.

Oral Health

Oral Health services will continue to be provided across the NBMLHD in a hub and spoke arrangement. Oral Health services will continue to be available to the eligible population of adults and children throughout the NBMLHD according to NSW Policy Directive PD2009-074.

The Nepean Oral Health Centre will provide the central hub for Oral Health services in the NBMLHD. Satellite Oral Health services will continue to be provided across NBMLHD, co-located with Community Health services at Springwood, Lithgow and Hawkesbury and at Blue Mountains Hospital.

Future priorities for service developments are:

- Enhance Oral Health services to full capacity at the new Nepean Oral Health Centre to serve as an Oral Health hub for Western Sydney and the Blue Mountains
- Continue and strengthen capacity in satellite Oral Health services
- Enhance capacity to further support Oral Health workforce training requirements as well as to strengthen research initiatives
- Continue to implement initiatives that support and enhance Oral Health care for early childhood, Aboriginal population and culturally and linguistically diverse populations.

Public Health Unit

The Public Health Unit in the NBMLHD will continue to protect the health of the population of the District by responding to public health aspects of communicable diseases, environmental health and bio-preparedness for major incidents or disasters in the NBMLHD. Functions including the provision of public health services such as immunisations, monitoring public health, identifying adverse trends and evaluating the impact of health services will be maintained and delivered by this Unit.

Satellite Renal Dialysis

Increased capacity for satellite renal dialysis services is required at Penrith Community Dialysis Centre as well as a new satellite dialysis service at Blue Mountains District ANZAC Memorial Hospital. Demand for renal dialysis is also projected for the North West Growth corridor.

The proposed service developments for satellite renal dialysis services include:

- Establish the Katoomba Community Dialysis Centre
- Enhance capacity at Penrith Community Dialysis Centre (Governor Phillip campus)
- Establish new Community Dialysis Service in the North West Growth corridor.

Penrith Local Government Area

Community Based Services

Penrith, Lemongrove, Cranebrook, St Mary's and St Clair Community Health Centres will continue to provide a core range of community based services for people of all ages. Wherever possible, Primary Care and Community Health, Community Drug and Alcohol Services and Community Mental Health Services will be co-located within each centre. These centres combined will provide services for people of all ages including community nursing, counselling, therapies, palliative care, care for people with chronic and complex needs, care for older people, youth health and population health activities.

Primary Care and Community Health

- Delivered by nursing and allied health staff working in multidisciplinary teams.
- Provide a range of primary and secondary prevention programs.
- Target specific groups such as health issues, vulnerability or at risk, social disadvantage.
- Strengthen partnerships with key stakeholders such as the NBM Medicare Local, non-government organisations, acute inpatient services and private allied health providers.
- Implement and enhance HealthOne model as a 'one stop shop' with shared client care for complex clients.
- Continue and enhance community alternatives to acute care and hospital avoidance strategies in collaboration with acute care providers.

Drug and Alcohol

- Enhance co-location of services with Primary Care and Community Health and Community Mental Health.
- Provision of core drug and alcohol assessment, case management and counselling services to adolescents and adults.
- Referral to specialist drug and alcohol medical services.
- Provision of clinical liaison services to aged care facilities.
- Provision of case management and con-joint services to clients with co-morbidities.
- Strengthen partnerships with key stakeholders such as NBM Medicare Local, non-government organisations, acute inpatient services and private allied health providers.

Mental Health

- Provision of core, ambulatory and home based Mental Health services for children, adolescents, adults and older people.
- Implement and enhance Child and Adolescent Mental Health Service Assertive Community Team for provision of community based Child and Adolescent Mental Health Services.

Hospital Services

Nepean Hospital

NSW Peer Group: Principal Referral Group A

Nepean Hospital is the principal referral hospital for the NBM LHD and is a teaching hospital of the University of Sydney. It provides and will continue to provide high-level inpatient and outpatient care including emergency, critical care, acute medicine, planned and emergency surgery, maternity, neonatal, paediatric medicine and minor surgery, Mental Health (gazetted), aged care, rehabilitation services, drug and alcohol, and a broad range of specialist outpatient clinics and services.

Inpatient services at Nepean Hospital generally have the capacity to manage high complexity patients who require specialist care. Nepean Hospital is a major referral centre for a range of sub-specialty medical, surgical, women's, neonatal, drug and alcohol and Mental Health services. All services are networked to facilitate access to specialist input and consultation 24 hours, 7 days per week.

The Nepean Hospital Stages 3 and 3A Development Projects enhanced capacity for selected services to meet the growing health service needs of the catchment to 2016, including Intensive Care, Operating Theatres, Centralised Sterilising Services Department, Ambulatory Procedures Centre and Oral Health. Other enhancements such as the Medical Assessment Unit, In-centre Haemodialysis and acute Mental Health care (for completion by June 2013) will in part provide the capacity for the NBMLHD to meet future service needs. However, gaps in service provision still remain.

Service developments required for Nepean Hospital to 2022 are summarised below, and then expanded on in clinical specialties following:

- New Ambulatory Medical models of care supporting emergency department avoidance strategies
- New and enhanced Short Stay models of care (Acute Medical, Paediatric, Cardiology, Aged Care)
- New Comprehensive Clinical Centre models (Cardiology, Renal, Respiratory with Sleep Laboratory, Aged Care, Neurosciences, Gastroenterology
- Enhance Comprehensive Cancer Centre including Chemotherapy, Radiation oncology and Palliative care
- Enhance Obstetrics and Gynaecology (Birthing, Inpatient, Assessment Areas, Clinics, Close Observation)
- Enhance Paediatric care (surgery and medicine in collaboration with Children's Hospital, Westmead)
- Enhance Emergency Department models including Waiting Room Assessment Care and Fast Track
- Enhance Sub-Acute care (Rehabilitation, Aged and Palliative/ Hospice Care)
- New and enhanced Mental Health (Acute and Rehabilitation and Recovery on and off campus)
- Enhance Endoscopy Procedure Centre
- Enhance Surgery (Operating Theatres, Special Imaging Suite, Robotic surgery, Bariatric surgery, Surgical Discharge Lounge)
- Strengthen Critical Care including Trauma role
- New Allied Health Therapy models and capacity

- Enhance ICT (Infrastructure, Telehealth and electronic Medical Records)
- Enhance Medical Imaging and Pathology
- Enhance Mortuary with bariatric capacity
- Develop innovative strategies to better manage patients waiting for guardianship and nursing home placement and those who require a period of non-weight bearing
- Explore Medi-Hotel model of care
- Establish new Nepean Research Institute with links to the Nepean Clinical School.

Given the considerable increase in health care demands on Nepean Hospital projected to 2021/22, significant capacity enhancements are required. There is some capacity within the current footprint of the Nepean Hospital to enhance or reconfigure some services. A range of strategies including new models of care, clinical redesign, and partnership initiatives will continue to be used in the management of demand and assist in turning the demand trajectory downward. Private sector opportunities are limited. However, the extent of the increase in demand for health care at Nepean Hospital is significant, with a requirement for more than 170 additional inpatient bed equivalents at Nepean Hospital by 2021. It will not be possible to deliver increased acute inpatient capacity and other identified priorities solely through non-asset strategies. The need for at least one new building on the Nepean Hospital campus to accommodate this increased demand is inevitable.

Service Priorities for Nepean Hospital

Aged Care

- Establish Aged Care Comprehensive Clinical Centre, including enhanced acute and sub-acute inpatient capacity.
- Enhanced short stay capacity in Emergency Department Medical Assessment Unit (EDMAU), Medical Assessment Unit (MAU), Older Persons Evaluation, Review and Assessment (OPERA) service.
- Establish ambulatory drop in clinics, enabling emergency department by-pass for eligible patients.
- Continue Virtual Aged Care model with outreach to residential aged care facilities.

Allied Health

- Enhanced capacity for Multidisciplinary Orthopaedic Clinic.
- Enhance and co-location of Allied Health services into Allied Therapy Zone.
- Expand Pharmacy services.

Cancer (Medical Oncology, Radiation Oncology, Haematology) and Palliative Care

- Continue and strengthen the Cancer Comprehensive Clinical Centre in Nepean Hospital (inpatient acute care with medical oncology, radiology and clinical haematology and sub-acute inpatient palliative care) enabling emergency department by-pass.
- Enhance Chemotherapy and Radiation Oncology capacity, including Linear Accelerator and dedicated Radiation Oncologist.

Cardiology

- Establish Cardiology Comprehensive Clinical Centre including inpatient acute care and short stay capacity, enabling emergency department by-pass.
- Enhance capacity for ambulatory clinics.

Critical Care – Intensive Care and High Dependency

- Enhance the trauma service provision role.
- Enhance capacity for High Dependency (drawing together Close Observation capacity from throughout Nepean Hospital).
- Enhance capacity for intensive care in line with the provision of statewide tertiary level services.

Critical Care – Neonatal Intensive Care

- Enhance Neonatal Intensive Care Unit capacity, as part of statewide service provision.
- Establish Breast Milk Bank.

Drug and Alcohol

- Strengthen inpatient model of care.
- Strengthen inpatient and outpatient service provision for adolescents with problems related to drug and alcohol use.
- Establish outpatient withdrawal management model of care.
- Enhance specialist medical workforce.
- Enhance consumer participation.
- Implement shared care models of treatment specific to the Opioid Treatment Program (OTP).

Emergency Department

- Strengthen and develop designated short stay clinical decision areas for paediatrics, adults, older people and people presenting with mental illness.
- Enhance the role of providing Trauma services.
- Continue co-location with enhanced Medical Imaging service, including second MRI and replacement CT scanner.
- Work with clinicians in other specialities and subspecialties to develop better models of care for acute presentations in chronic conditions to ensure better outcomes for patients with chronic and complex needs, consistent with Emergency Department avoidance strategies.

Endocrinology/ Diabetes

- Enhance capacity for endocrinology care, including Diabetes, in collaboration with other specialties for inpatient care.
- Enhance capacity for endocrinology care in collaboration with the NBM Medicare Local (for diabetes) and Community Health centres.
- Establish multidisciplinary obesity clinic in collaboration with the NBM Medicare Local.
- Establish Mental Health metabolic clinic in collaboration with Psychological medicine and NBM Medicare Local.

- Establish quarterly pituitary clinic and multidisciplinary pituitary meeting, in collaboration with Department of Neurosurgery to optimise the standard of care for pre and post operative pituitary surgery patients.

Gastroenterology/Endoscopy

- Establish Gastroenterology Comprehensive Clinical Centre (with acute inpatient capacity).
- Enhanced Endoscopy suites.

Immunology

- Develop NBMLHD Department of Clinical Immunology and Allergy with inpatient and short stay capacity, with responsibility for immunopathology consultation, teaching, training and research.

Infectious Diseases

- Retain links with Rheumatology and Immunology.
- Further develop Infectious Diseases outreach services across NBMLHD.
- Provide training for general medicine.
- Strengthen capacity for antimicrobial stewardship across NBMLHD and Western Local Health Districts.

General Medicine

- Establish Comprehensive Clinical Centres for acute medical inpatient care.
- Establish Short Stay Acute Medical Unit for people aged less than 65 years.
- Enhance capacity for Ambulatory Medical Care Zone.
- Enhance Dermatology service.
- Enhance Rheumatology service to meet growing demand related to aged care and musculoskeletal conditions.
- Enhance Sexual Health Services.

Medical Imaging and Nuclear Medicine

- Enhance Medical Imaging through co-location with Emergency Department, including second MRI and replacement CT scanner.
- Enhance Medical Imaging capability through installation of MRI/PET technology.
- Ongoing replacement of equipment to meet Capital Sensitivity Rules.

Mental Health

- Integrated ‘person-centred’, recovery focused models of care.
- Develop a culture characterised by effective communication, collaboration, equality, trust and respect which recognises the importance of relationships and understands the autonomy and separate accountabilities of each partner.
- Maintain operationally efficient and effective services governed and managed by NBMLHD.
- Develop responsive, appropriate, accessible, capable and safe service.
- Enhanced provision of inpatient services in the new Mental Health Centre at Nepean Hospital.

- Shared specialty services and projects with Western Sydney Local Health District by Inter District Agreements including Rupertswood (Specialised Mental Health Services for Older People [SMHSOP]), Redbank Family Program (Child and Adolescent Mental Health Service [CAMHS]), Training and Supervision (CAMHS/SMHSOP).
- Work with communities to improve Mental Health, promote recovery and prevent mental illness including Partners in Recovery, Family and Carer, Perinatal and Infant.
- Continue to operate the Telephone Access Line/ Triage 1800.
- Establish the Mental Health Assessment Centre 24/7 as an alternative to presenting to the Emergency Department.
- Strengthen after hours' Mental Health service availability.
- Enhance Mental Health acute inpatient and community based services across age groups including child, adolescents and older people.
- Establish non-acute Mental Health services including inpatient step-down, rehabilitation and a community partnership recovery centre.
- Community Mental Health services continue to provide assertive acute response teams, care coordination/ case management teams with appropriate staffing.
- Develop and enhance Perinatal and Infant Mental Health Care.
- Develop and enhance access and services for Aboriginal people.

Neurosciences/ Neurology

- Establish Neurosciences Comprehensive Clinical Centre with short stay capacity, including stroke patients.
- Enhance service provision for stroke management, including the use of thrombolysis, in anticipation of increased numbers of stroke patients.
- Establish Acute Neurology Outpatient Clinics to assist with patient flow through Emergency Department.
- Establish Acute Epilepsy Service, including equipment, with potential for emergency department avoidance.

Obstetrics and Gynaecology

- Services will continue to be provided to low, moderate and high risk patients, supported by evidence based, best practice models.
- Enhance birthing unit capacity, including ante and post natal, with physical redesign to accommodate growth in clinical need.
- Enhance Women's Assessment Clinics.
- Establish Close Observation Unit for at risk mothers.
- Strengthen Nepean Hospital as a high risk tertiary referral maternity unit with integrated maternal and foetal medical service.
- Implement integrated telehealth for maternal and foetal assessment from Nepean Hospital to Blue Mountains, Lithgow and Hawkesbury Hospitals.

Oral Health

- Enhance oral health services to full capacity at the new Oral Health Centre to serve as an oral health hub for Western Sydney and the Blue Mountains.

- Enhance capacity to further support oral health workforce training requirements as well as to strengthen research initiatives.

Paediatrics

- Continue collaboration with Children's Hospital Westmead to support paediatric service developments including diabetes and Ear Nose and Throat surgery.
- Establish Short Stay capacity including Paediatric Assessment Unit for flow through Emergency Department.
- Establish Paediatric Recovery to support enhancement of paediatric surgery at Nepean Hospital in collaboration with the Children's Hospital Westmead.
- Establish adolescent and youth Mental Health acute inpatient capacity.

Rehabilitation

- Enhance acute and sub-acute rehabilitation capacity.
- Expand comprehensive stroke rehabilitation service.
- Establish acute rehabilitation service and expand mobile rehabilitation team.
- Establish community based rehabilitation teams.
- Continue to strengthen links between Nepean Hospital and NBMLHD district hospitals.

Renal

- Enhance in-centre Haemodialysis.
- Establish Renal Comprehensive Clinical Centre including renal inpatient acute capacity.
- Continue links with satellite renal dialysis services at Governor Phillip and elsewhere in the Western Renal Network.

Respiratory and Sleep Medicine

- Establish Respiratory Comprehensive Clinical Centre including acute inpatient care, sleep medicine laboratory and respiratory failure services.
- Establish medical short stay unit for people aged less than 65 years.
- Enhance respiratory clinics in Ambulatory Care Zone.
- Establish an outreach service for chronic obstructive pulmonary disease and other respiratory conditions to assist with early discharge and Emergency Department avoidance strategies.

Surgery, Anaesthetics and Centralised Sterilising Service Department

- Enhance capacity including second special imaging suite, robotic surgery, bariatric surgery, paediatric surgery in collaboration with Children's Hospital, Westmead.
- Increase operating theatre utilisation to 14 theatres from current 10 theatres.
- Continue Pain Management Service including Outpatients Clinics.
- Enhance acute inpatient capacity including day only and extended day only and enhance Ambulatory Procedures Centre throughput.
- Expand Multidisciplinary Orthopaedic Clinic (MDOC) service in collaboration with Allied Health services.
- Enhance outpatient clinics.
- Enhance capacity for breast surgery and clinics.

- Continue post-surgery nurse led clinics (emergency department avoidance strategy).
- Post-operative and Emergency Transition Environment (PETE).
- Redesign of Bookings and Admission processes.
- Develop Centralised Sterilising Service Department (CSSD) as required to meet increasing hospital needs.

Research and Education

- In collaboration with University partners establish an entity and capacity for the Nepean Medical Research Institute.
- Continue to work with University of Sydney Nepean Clinical School Outpatients to build the clinical setting to include education for nursing and allied health students.
- Enhance simulation training, education and research options.
- Enhance capacity for telehealth to support education, training and research across disciplines in Nepean Hospital.
- Enhance the volume and success of grant applications to strengthen Nepean Hospital's reputation as a venue for further education and research for medical staff.
- Continue to engage and encourage the Research Foundations affiliated with Nepean Hospital and University of Sydney Nepean Clinical School for the growth and support of research.
- Continue to support the Nepean Centre for Perinatal Care and the Falls and Fracture Clinic, including education and research.
- Continue to support research at Nepean Hospital across all disciplines and departments by encouraging researchers, clinicians and academics, in all facets of research.
- Explore any potential commercial opportunities that result from research activities.

Blue Mountains Local Government Area

Community Services

Katoomba, Lawson and Springwood Community Health Centres will continue to provide a core range of community based services for people of all ages. Wherever possible, Primary Care and Community Health, Community Drug and Alcohol Services and Community Mental Health Services will be co-located within each centre. These centres will provide services for people of all ages including community nursing, counselling, therapies, palliative care, care for people with chronic and complex needs, care for older people, youth health and population health activities.

Primary Care and Community Health

- Delivered by nursing and allied health staff working in multidisciplinary teams.
- Provide a range of primary and secondary prevention programs.
- Target specific groups such as health issues, vulnerability or at risk, social disadvantage.
- Strengthen partnerships with key stakeholders such as the NBM Medicare Local, non-government organisations, acute inpatient services and private allied health providers.
- Implement and enhance HealthOne model as a 'one stop shop' with shared client care for complex clients.
- Continue and enhance community alternatives to acute care and hospital avoidance strategies in collaboration with acute care providers.

Drug and Alcohol

- Enhance co-location of services with Primary Care and Community Health and Community Mental Health.
- Provision of core drug and alcohol assessment, case management and counselling services to adolescents and adults.
- Referral to specialist drug and alcohol medical services.
- Provision of clinical liaison services to aged care facilities.
- Provision of case management and con-joint services to clients with co-morbidities.
- Strengthen partnerships with key stakeholders such as NBM Medicare Local, non-government organisations, acute inpatient services and private allied health providers.

Mental Health

- Provision of core, ambulatory and home based Mental Health services for children, adolescents, adults and older people.
- Implement and enhance Child and Adolescent Mental Health Service Assertive Community Team for provision of community based Child and Adolescent Mental Health Services.

Oral Health

- Community dental clinics will continue to deliver general dental services to eligible adults and children in the NBMLHD.

Hospital Services

Blue Mountains District ANZAC Memorial Hospital

NSW Peer Group: District Group 1

Blue Mountains District ANZAC Memorial Hospital provides and will continue to provide district level inpatient and outpatient services for people of all ages. Services include emergency, critical care, general medicine, planned and urgent surgery, maternity, paediatrics, gazetted Mental Health unit, sub and non-acute aged care, rehabilitation and palliative care services, and a broad range of specialist outpatient clinics and services. Inpatient services generally have the capacity to manage lower complexity patients who do not require sub-speciality care. Patients are referred to Nepean Hospital for tertiary and specialist services. Blue Mountains District ANZAC Memorial Hospital has been designated as an Area of Need.

The Blue Mountains LGA comprises 26 townships scattered along two ridges approximately 100 km in length. The geography dominates access to services, particularly as parts of the Blue Mountains LGA are considered as 'remote'.

There is strong and active support from the local community for the continuation of a broad range of service provision from this facility.

Blue Mountains District ANZAC Memorial Hospital is an older hospital that opened in the 1920s. The Nurses' Home was built in the 1940s. The Nurses Home accommodates services and provides accommodation for hospital staff, as well as staff from Lithgow Hospital. The ability to provide on-site temporary staff accommodation is crucial in attracting and retaining staff under the Area of Need provision.

A number of service development priorities are flagged for Blue Mountains District ANZAC Memorial Hospital. The age and condition of most of the hospital buildings and the space constraints on the campus footprint present a challenge for the implementation of enhanced and new models of care and services. Private sector opportunities are flagged for the accommodation complex.

The identified service developments to meet future service demands at Blue Mountains District ANZAC Memorial Hospital include:

- New and strengthened Aged Care (including secure Dementia area) and Rehabilitation focus, Transitional Care, Palliative and hospice care
- New Satellite Renal Dialysis service
- Revise Mental Health models of care across hospital, including new Mental Health Rehabilitation and Recovery service and Safe Assessment model and including community and across age groups
- Establish satellite chemotherapy service
- Continue surgery and birthing for low complexity patients with links to Nepean Hospital
- Establish paediatric short stay and ambulatory care models
- Reconfigure Emergency Department service delivery including revised Outpatients and Consultation model complementary to Emergency Department operations
- Develop innovative strategies to better manage patients waiting for guardianship and nursing home placement and those who require a period of non-weight bearing
- Enhance ICT with Telehealth capacity and expand Mortuary with bariatric capacity.

Service Priorities for Blue Mountains District ANZAC Memorial Hospital

Allied Health

- Enhance Rehabilitation Therapy capacity incorporating co-location of Therapy spaces.

Cancer Care

- Enhance capacity for sub-acute inpatient palliative/ hospice care.
- Establish Outreach Chemotherapy service from Nepean Comprehensive Cancer Centre (as per chemotherapy service at Lithgow hospital).

Cardiology

- Establish procedure room for Trans-Oesophageal Echocardiogram Studies.

Emergency Department

- Establish the Safe Assessment Room in Emergency Department.
- Reconfigure Emergency Department to better support patient flow.

Diabetes/ Endocrinology

- Establish and enhance Endocrinology and Diabetes Clinic.

Geriatric Medicine

- Enhance acute and sub-acute aged care inpatient capacity including dementia secure service.
- Enhance short stay capacity.
- Enhance capacity for ambulatory clinics.
- Explore innovative strategies for patients waiting for guardianship, nursing home placement and non-weight bearing.

Medical Services

- Enhance acute adult inpatient capacity.
- Enhance capacity for Ambulatory Consultation services (booked capacity) with telehealth capacity.

Mental Health

- Establish revised model of care for Mental Health service provision across hospital and community covering acute and ongoing Mental Health care and across age groups and strengthen referral pathways.
- Enhance Mental Health acute adult and non-acute Rehabilitation and Recovery inpatient capacity.
- Establish Safe Assessment Room.

Neurology/ Neurosciences

- Continue to enhance and strengthen systems of management for inpatients linked to Nepean Hospital.
- Links with telehealth capacity.

Obstetrics and Gynaecology

- Continue birthing services including ante and postnatal services.
- Continue links, as appropriate with Nepean Hospital, including staff rotation.
- Implement integrated telehealth for maternal and foetal assessment from Nepean Hospital across Blue Mountains, Lithgow and Hawkesbury hospitals.

Paediatrics

- Establish paediatric ambulatory service.

Rehabilitation

- Enhance capacity for Rehabilitation sub-acute inpatient care including co-located Rehabilitation Therapy.

Renal

- Establish Blue Mountains Community Dialysis Centre at Blue Mountains Hospital.

Surgery and Anaesthetics

- Continue to strengthen volumes and types of surgery undertaken.
- Establish a junior training position (SET 1) for general surgery.
- Establish new procedures undertaken such as laparoscopic hernias.
- Continue satellite Multidisciplinary Orthopaedic clinic.

One Hospital in the Mid-Mountains

There is much to recommend the consideration of amalgamating the services provided at both Springwood and Blue Mountains District ANZAC Memorial Hospitals, on a single new site, in the mid Blue Mountains.

- Both facilities are ageing and will require considerable capital input to bring them to a standard which is fit for purpose.
- Economies of scale would bring benefits and efficiencies in operations (services and administration) with significant impact on operational costs.
- The current hospital at Katoomba is not meeting the needs of Springwood residents, or those of the lower Blue Mountains who currently travel to Nepean Hospital to access services, including emergency care.
- There is no emergency care available at Springwood hospital.
- Transportation cost between Blue Mountains Hospital and Nepean Hospital are the highest within the NBMLHD.
- Blue Mountains hospital is designated an area of need for recruitment and other services and continues to have difficulties in recruiting staff.
- Special provisions to staff consistent with area of need designation significantly increase cost of service.
- A suggested suitable site is at Lawson, where the NSW government already holds vacant land.
- Co-location of Lawson Community Health Centre on the new site would also address the problem of overcrowding at the current centre and deliver further efficiencies by reducing the need to seek rental accommodation to house increased services currently provided there.

Springwood Hospital

NSW Peer Group: Community Acute with Surgery

Springwood Hospital, in the Blue Mountains LGA, provides and will continue to provide low risk inpatient and outpatient services in a defined range of specialties, including medicine, planned day only surgery, sub-acute and non-acute aged care, rehabilitation services and palliative care. Emergency services are not available.

Springwood Hospital is an older facility that was built in the 1970s through community support and donations. Springwood Hospital is no longer fit for purpose and is not able to meet increasing needs for sub-acute care (rehabilitation, aged and palliative care) for residents of the local community, as well as from Penrith and Hawkesbury LGAs.

There is an active Friends of Springwood Hospital Auxiliary and community expectations are high in relation to the Hospital's role.

As outlined previously the condition of Springwood Hospital facility is nearing end of life and reconfiguration and expansion opportunities are limited. The proposed new and reinvigorated role for Springwood Hospital is a focus on sub-acute care and, potentially, Day Procedures which will relieve pressure on the tertiary level Nepean Hospital campus. However, in order to provide this, a significant redevelopment of Springwood Hospital is required to accommodate current as well as future service requirements.

In summary the service developments required for Springwood Hospital:

- New and enhanced Rehabilitation, Aged Care (with Dementia Secure Area) and Palliative/ Hospice Care with new Rehabilitation Therapy model
- Develop innovative strategies to better manage patients waiting for guardianship and nursing home placement and those who require a period of non-weight bearing
- New Outpatient/ Consultation model with Telehealth capacity, potential for New High Volume Day Procedure Centre, potentially including Ophthalmology and Endoscopy (low risk).

It is noted that to deliver the above would require either a significant redevelopment of Springwood Hospital or the development of One Hospital for the Blue Mountains in the mid-Blue Mountains amalgamating services from Springwood and Blue Mountains Hospitals, as outlined above.

Service Priorities for Springwood Hospital

Geriatric Medicine

- Enhance sub-acute aged care inpatient capacity including potential dementia secure capacity, transitional care.
- Enhance capacity for ambulatory clinics.
- Explore innovative strategies for patients waiting for guardianship or nursing home placement and non-weight bearing.

Allied Health

- Enhanced capacity and facility for Allied Health therapy services to support sub-acute care including ambulatory care.

Cancer and Palliative Care

- Enhance sub-acute inpatient palliative (hospice) care.

General Medicine

- Enhance Outpatient/ Consultation capacity with telehealth capacity.

Rehabilitation Medicine

- Enhance sub-acute inpatient Rehabilitation capacity with Rehabilitation Therapy capacity including for ambulatory care.
- Explore innovative models of care for patients in non-weight bearing phase of care.

Surgery

- Potential capacity for Day Procedures Centre with a focus on Ophthalmology, Endoscopy (low risk) and Urology.

Lithgow Local Government Area

Community Services

Lithgow and Portland Tabulam Community Health Centres will continue to provide a core range of community based services for people of all ages. Wherever possible, Primary Care and Community Health, Community Drug and Alcohol Services and Community Mental Health Services will be co-located within each centre. These centres will provide services for people of all ages including community nursing, counselling, therapies, palliative care, care for people with chronic and complex needs, care for older people, youth health and population health activities.

Primary Care and Community Health

- Delivered by nursing and allied health staff working in multidisciplinary teams.
- Provide a range of primary and secondary prevention programs.
- Target specific groups such as health issues, vulnerability or at risk, social disadvantage.
- Strengthen partnerships with key stakeholders such as the NBM Medicare Local, non-government organisations, acute inpatient services and private allied health providers.
- Implement and enhance HealthOne model as a 'one stop shop' with shared client care for complex clients.
- Continue and enhance community alternatives to acute care and hospital avoidance strategies in collaboration with acute care providers.

Drug and Alcohol

- Enhance co-location of services with Primary Care and Community Health and Community Mental Health.
- Provision of core drug and alcohol assessment, case management and counselling services to adolescents and adults.
- Referral to specialist drug and alcohol medical services.
- Provision of clinical liaison services to aged care facilities.
- Provision of case management and con-joint services to clients with co-morbidities.
- Strengthen partnerships with key stakeholders such as NBM Medicare Local, non-government organisations, acute inpatient services and private allied health providers.

Mental Health

- Provision of core, ambulatory and home based Mental Health services for children, adolescents, adults and older people.
- Implement and enhance Child and Adolescent Mental Health Service Assertive Community Team for provision of community based Child and Adolescent Mental Health Services.

Oral Health

- Community dental clinics will continue to deliver general dental services to eligible adults and children.

Hospital Services

Lithgow Hospital

NSW Peer Group: District Group 2

Lithgow Integrated Health Service, west of the Blue Mountains, is a multi-facility campus comprising Lithgow Hospital, Lithgow Community Health Centre, a small private hospital and a residential aged-care residential facility. Lithgow Hospital was commissioned in 1999.

Lithgow Hospital is a teaching hospital of the University of Notre Dame. The hospital provides and will continue to provide inpatient and outpatient services for all ages, managing lower complexity patients who do not require sub-specialty care. Services include 24 hour emergency service, paediatrics, maternity, low-risk surgery and general medicine, with on call medical services. Inpatient services are delivered under a Visiting Medical Officer / General Practitioner model of care with the capacity to manage lower complexity patients who do not require sub-specialty care. Allied Health services are also provided including a hydrotherapy pool. Other services provided include Pathology services, Women's Health, X-ray and CT scan. These services are supported by telehealth and outreach services provided from Nepean Hospital.

Lithgow Hospital functions as a district level hospital, providing services to the residents of the City of Greater Lithgow including the surrounding rural areas and supports the Portland Tabulam Health Centre. The distance from services and the geographical area combine to provide a challenging set of demands for delivering and planning services, including patient transport between facilities.

There is opportunity for the implementation of some new models of care for Aged Care, Rehabilitation and Mental Health within the current footprint of Lithgow Hospital, with minor capital investments required.

The announcement of the change in role of overnight acute beds at Lithgow Community Private Hospital will have a significant impact on Lithgow Hospital. Arrangements are being implemented for shifting private patients to Lithgow Hospital. This will impact on activity levels at the hospital currently and into the future.

In summary, the identified service developments to meet the service demands at Lithgow Hospital include:

- Incorporate private patients from change of role of overnight acute capacity at Lithgow Community Private Hospital
- Revise Mental Health models of care across hospital and community and across age groups.
- Enhance paediatric service, with a focus on short stay and ambulatory care
- Continue to provide Aged Care and enhance Rehabilitation, Transitional care with capacity for Dementia secure models
- Continue birthing for low complexity patients
- Continue surgery for low complexity patients
- Enhance capacity for Telehealth services
- Continue to strengthen links with University of Notre Dame.

Service Priorities for Lithgow Hospital

Aged Care

- Enhance acute and sub-acute inpatient capacity including dementia secure service.
- Enhance short stay capacity.

Allied Health

- Enhanced capacity for Allied Health therapy services to support sub-acute care.

Diabetes/ Endocrinology

- Enhanced Diabetes/ Endocrinology clinic.

Mental Health

- Establish revised model of care for Mental Health service provision across hospital and community covering acute and ongoing Mental Health care and across age groups and strengthen referral pathways.
- Enhance Mental Health acute short stay capacity. Potential for Nurse Practitioner role.
- Develop and implement innovative models of care for Mental Health that are integrated with community based staff and Blue Mountains and Nepean Mental Health inpatient units.

Neurosciences/ Neurology

- Implement effective systems to manage and treat acute stroke patients including the use of thrombolysis.
- Enhance telehealth capacity to avoid unnecessary transfer of patients to Nepean Hospital.

Paediatrics

- Continue Paediatric Short Stay/ Ambulatory Service linked with Emergency Department, and with consultation focus.

Rehabilitation

- Enhance sub-acute rehabilitation capacity including therapy services.

Surgery and Anaesthetics

- Enhance surgery throughput.
- Enhance Outpatient/ Consultation capacity with telehealth capacity.

Other

- Incorporate private patients (medical and surgical) from closure of overnight capacity at Lithgow Private Hospital.
- Continue to strengthen links with University of Notre Dame.

Portland Tabulam Integrated Health Service

NSW Peer Group: Community acute without surgery

Portland Tabulam Health Centre is a multipurpose-like facility that opened in 2006 and combined the services of the former Portland Hospital and Tabulam Cottages Aged Care Hostel on the one site. Portland Tabulam Health Centre now provides sub-acute care, low level residential aged care with ageing in place for 22 residents.

The Portland Tabulam Health Centre hosts a General Practice (privately operated) and an Aged Day Care Centre.

There are a comprehensive range of community and primary care services provided from the Health Centre. The primary care services include Chronic and Complex community care, Women's and Children's Health and a range of visiting Allied Health services provided from Lithgow. A pathology collections service is also provided from Pathology West Lithgow.

The Portland Tabulam Integrated Health Service includes:

- Residential aged care
- Sub-acute inpatient services
- Ageing in place beds
- An urgent care area
- Community health outreach clinics
- General Practice consultation rooms.

Hawkesbury Local Government Area

Community Services

The Hawkesbury District Health Service (HSDS) Community Health Services provide the core range of community services for people of all ages including community nursing, counselling, palliative care, care of people with chronic diseases, allied health and population health activities. These services are delivered under contractual arrangements to 2016.

Primary Care and Community Health

- Delivered by nursing and allied health staff working in multidisciplinary teams.
- Provide a range of primary and secondary prevention programs.
- Target specific groups such as health issues, vulnerability or at risk, social disadvantage.
- Strengthen partnerships with key stakeholders such as the NBM Medicare Local, non-government organisations, acute inpatient services and private allied health providers.
- Implement and enhance HealthOne model as a 'one stop shop' with shared client care for complex clients.
- Continue and enhance community alternatives to acute care and hospital avoidance strategies in collaboration with acute care providers.

Drug and Alcohol

Enhance co-location of services with Primary Care and Community Health and Community Mental Health.

- Provision of core drug and alcohol assessment, case management and counselling services to adolescents and adults.
- Referral to specialist drug and alcohol medical services.
- Provision of clinical liaison services to aged care facilities.
- Provision of case management and con-joint services to clients with co-morbidities.
- Strengthen partnerships with key stakeholders such as NBM Medicare Local, non-government organisations, acute inpatient services and private allied health providers.

Mental Health

- Provision of core, ambulatory and home based Mental Health services for children, adolescents, adults and older people.
- Implement and enhance Child and Adolescent Mental Health Service Assertive Community Team for provision of community based Child and Adolescent Mental Health Services.

Oral Health

- Community dental clinics with continue to deliver general dental services to eligible adults.

Hospital Services

Hawkesbury Hospital

NSW Peer Group: District Group 1

Hawkesbury Hospital is a District Hospital with Community Health services, providing health care services for the population of the Hawkesbury Local Government Area. Hawkesbury Hospital opened in 1996, and is owned and operated by Hawkesbury District Health Service Pty Ltd, a part of Catholic Health Care Services.

Hawkesbury Hospital provides public hospital services in the Hawkesbury area under a service agreement with NBMLHD. It is a teaching hospital of the University of Notre Dame. Services include emergency care, medical, surgical, maternity, neonatal, palliative, intensive and coronary care as well as diagnostics services. All services provided at Hawkesbury Hospital act as gateways to facilitate resident access, when necessary, to higher level care or to other services not provided locally.

The service agreement with Hawkesbury District Health Service concludes in 2016. The Hawkesbury Hospital asset reverts to ownership of the Health Administration Corporation at this time.

Under the terms of the contract, payment is primarily by bed days which have been capped since the commencement of the agreement in the mid 1990s.

Subject to contract negotiations, the future role of Hawkesbury Hospital is envisaged to be enhanced to include new and expanded models of care and services. Capacity is currently constrained at Hawkesbury Hospital and capital redevelopment will be required to deliver enhanced services. It should be noted that if these service enhancements are not delivered by Hawkesbury Hospital, increased capacity will be required at Nepean and Springwood Hospitals.

In summary, the service development requirements for Hawkesbury Hospital to 2022 include:

- Enhanced Emergency Department models including new Fast Track.
- New Ambulatory Procedures Centre with Day Only and Extended Day Only models.
- New sub-acute Rehabilitation service (inpatient beds and therapy unit), Aged Care and Palliative/ hospice Care.
- Revise Mental Health models of care across hospital and community and across age groups.
- Potential for satellite chemotherapy service.
- Enhance ICT including Telehealth capacity.
- Strengthen links with University of Notre Dame, with establishment of the new Clinical School.

Service Priorities for Hawkesbury Hospital

Aged care

- Enhance acute and sub-acute inpatient capacity.
- Enhance short stay capacity.
- Enhance capacity for ambulatory clinics.

Allied Health

- Enhance capacity for Allied Health therapy services to support enhancements in Rehabilitation (acute and sub-acute inpatient capacity).

Cancer Care
- Enhance sub-acute inpatient capacity for palliative and hospice care.

Critical Care
- Hawkesbury Hospital high dependency unit is networked with Nepean Hospital Intensive Care Unit.
- Potential to enhance High Dependency Unit to Role Delineation Level 4.

Emergency Care
- Enhance Emergency Department capacity including implementation of a Fast Track Zone.
- Potentially co-located GP After Hours Clinic.

Medical
- Enhance acute adult inpatient capacity including short stay and Ambulatory capacity.

Mental Health
- Develop and implement new models of care for Mental Health service provision across hospital. and community covering acute and ongoing Mental Health care and across age groups and strengthen referral pathways.

Neurosciences/ Neurology
- Enhance telehealth capacity to avoid unnecessary transfer of patients to Nepean Hospital.

Obstetrics and Gynaecology
- Implement integrated telehealth for maternal and foetal assessment from Nepean Hospital across Blue Mountains, Lithgow and Hawkesbury hospitals.
- Enhance Birthing Unit capacity including ante and post natal capacity.

Rehabilitation
- Enhance acute and sub-acute rehabilitation inpatient capacity including rehabilitation therapy services.

Surgery and Anaesthetics
- Enhance capacity for Ambulatory Procedures including day only and extended day only capacity.
- Enhance operating theatre and procedure capacity.
- Establish multidisciplinary orthopaedic clinic.

8. Conclusions and Next Steps

Contents

8. Conclusions and Next Steps

Summary

The previous chapter, Chapter 7, outlines the strategic directions for future service delivery in the NBMLHD to 2021/22. This chapter, Chapter 8, outlines concluding comments for healthcare service delivery in the NBMLHD to 2021/22 and next steps for NBMLHD to facilitate the implementation of the strategic directions flagged. The next steps for NBMLHD are summarised below:

1. Collaborate with the Nepean Blue Mountains Medicare Local in strengthening integrated and coordinated care for the residents of the NBMLHD
2. Identify and implement new models of care to address the rising trajectory of healthcare demand in the NBMLHD to 2021/22, including a focus on healthcare for older people
3. Identify the asset implications arising from the significant projected growth in health care demands of NBMLHD population to 2022 and beyond and document these in the *NBMLHD Asset Strategic Plan 2013*.
4. Identify specific health care requirements for the Hawkesbury LGA and clarify service delivery arrangements that will continue from Hawkesbury Hospital
5. Identify the full impact of the closure of overnight acute inpatient care at Lithgow Community Private Hospital on Lithgow Hospital
6. Further explore sub-acute care service delivery growth and placement off the Nepean Hospital campus, potentially at Hawkesbury Hospital or at the new one hospital in the Blue Mountains
7. Continue to strengthen and identify options for palliative care and hospice care with partner organisations
8. Continue to strengthen mental health care including flow reversals, opening and enhancing service delivery at the new Mental Health Centre, Nepean Hospital, addressing the lack of non-acute mental health capacity, perinatal mental health care, adolescent mental health inpatient care, mental health service delivery in the Lithgow LGA and Lithgow Hospital and the Hawkesbury LGA and Hawkesbury Hospital
9. Address flow reversals for Paediatric district level care in collaboration with the Children's Hospital Westmead, noting the need for capital enhancements to Nepean Hospital if full flow reversals occurs
10. Develop the NBMLHD Epidemiological Profile and LGA Specific Profiles in 2013
11. Strengthen research across the NBMLHD including the establishment of the new Nepean Medical Research Institute and continue collaborations with University partners including the Clinical Schools at Nepean, Lithgow and Hawkesbury Hospitals
12. Investigate potential for one hospital in the Blue Mountains to replace the older hospitals of Blue Mountains District ANZAC Memorial Hospital and Springwood Hospital and incorporate Lawson Community Health Centre.

Introduction

As outlined in Chapter 7, the key issues impacting on health care service delivery in the NBMLHD to 2021/22 and driving strategic service directions are:

- Significant population growth
- Significant growth in health care demand
- Continuing to strengthen collaboration with the NBM Medicare Local
- Capital stock not sufficient for health service delivery and ageing infrastructure
- Lack of private hospital capacity including closure of Lithgow Private Hospital overnight inpatient capacity
- Lower self-sufficiency in health care provision for NBMLHD residents, particularly for mental health and paediatric district level care (and potentially planned surgery)
- Potential to identify and implement new models of care that can mitigate against rising hospital inpatient demand
- Further exploration of issues impacting on the Hawkesbury LGA and uncertainty regarding the volume and type of future service provision from Hawkesbury Hospital
- Potential for one new hospital in the Blue Mountains to replace older and inadequate for purpose facilities of Blue Mountains District ANZAC Memorial Hospital and Springwood Hospital
- High levels of Aboriginal and disadvantaged populations
- A mix of rural, remote, regional and metropolitan localities
- Potential to identify and devolve health care delivery within the NBMLHD through networked service delivery arrangements, such as devolving projected increase of sub-acute care activity from Nepean Hospital to district level hospitals
- Separation from Sydney West Area Health Service and implications for service delivery.

Future Service Delivery Arrangements for Nepean Blue Mountains Local Health District

Building on the strategic service issues, the NBMLHD has identified the next steps required to refine and further clarify health care service delivery arrangements for the NBMLHD, as outlined in the *Nepean Blue Mountains Healthcare Services Plan 2012 to 2022* (refer to Figure 8.1).

Figure 8.1 Next Steps for Future Service Delivery Arrangements for NBMLHD

Collaboration with Nepean Blue Mountains Medicare Local

Collaborations with the Nepean Blue Mountains (NBM) Medicare Local will continue in developing and implementing service delivery models that benefit the residents of the NBMLHD. There are already pioneering initiatives jointly underway. The flagship collaborative consumer engagement model with the NBMLHD is progressing well and gaining the attention of other LHDs and Medicare Locals. Program delivery such as Connecting Care, HealthOne and Partners in Recovery will continue as collaborative initiatives to improve and enhance integrated and coordinated care with a strong focus on the management of chronic illnesses. Establishing a joint planning role is flagged for 2013. The priorities of the NBM Medicare Local also acknowledge aged care, general practice after-hours care, development of collaborative initiatives that address obesity and diabetes in providing integrated and coordinated care. These models of service delivery will continue to be developed with the NBM Medicare Local, also providing a way forward for addressing the rising healthcare needs of the NBMLHD.

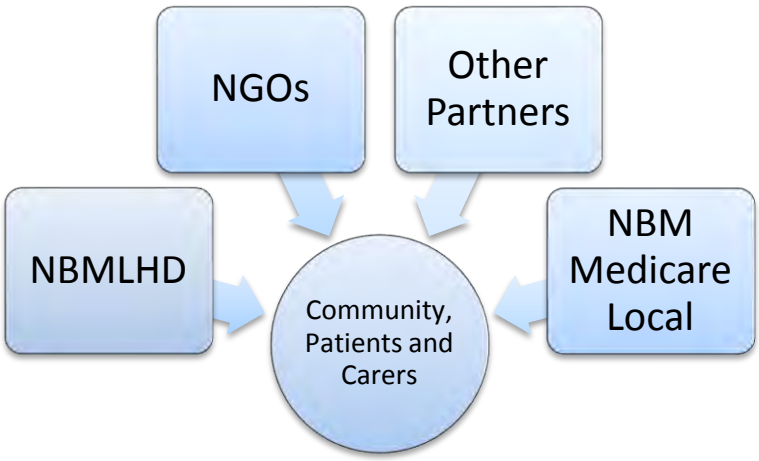
New Models of Care for Projected Health Care Increases in NBMLHD

NBMLHD will continue to work with clinicians and the Medicare Local with a focus on mitigating against the rising trajectory of projected health care needs to 2021/22 by developing and implementing new models of care that impact on overnight inpatient acute care demand. New models of care will have a particular focus on short stay acute inpatient care, day only services, ambulatory care and community based models of care. Partnering with the NBM Medicare Local, NGOs, other partners and further enhancing telehealth models of care are also critical (refer to Figure 8.2.)

A significant component of the growth in health care demand in the NBMLHD to 2021/22 is for servicing the needs of older people aged 70 years and over. Identifying new models of care for providing care for this age group will continue. This involves consideration of service delivery models within Nepean Hospital, in the NBMLHD district and community level hospitals as well as community based models and outreach to aged care facilities. Opportunities for partnering with other service providers across the range of government and non-government services will continue to be explored and implemented.

The new sub-committee of the NBMLHD Board, the Clinical Services Development Committee, will commence in 2013. A key role of the sub-committee will be driving new models of care in health service delivery to address rising healthcare demands in the NBMLHD. The functions of the sub-committee in driving the establishment of new models of care will be supported by senior clinicians and managers across the organisation. Performance, mapped against the implementation of the new models of care, will be tracked against the key performance indicators contained in the NBMLHD Service Agreement with the NSW Ministry of Health and local performance monitoring arrangements.

Figure 8.2. Partnerships for future health service delivery in the Nepean Blue Mountains Local Health District



Asset Implications in *Nepean Blue Mountains Local Health District Asset Strategic Plan 2013*

Significant increases in health care demands have been identified for the NBMLHD population to 2022 and beyond. The increases are in the order of 198 bed equivalents for acute and sub-acute inpatient care to 2021/22 and a further 96 bed equivalents for acute and sub-acute inpatient care to 2026/27. In addition increases have also been identified for emergency department presentations, mental health care, cancer care (chemotherapy and radiation oncology) and renal dialysis (satellite and in-centre).

While it is acknowledged that the recent capital developments at Nepean Hospital, such as Nepean Hospital Stages 3 and 3A Developments, will be able to meet a proportion of these increased needs, they will not be met entirely. The increased service requirements for the residents of the NBMLHD are above and beyond the physical capacity of existing facilities in the NBMLHD. Although clinical redesign and changes in models of care will assist in ameliorating the upward trend for inpatient care demands of the NBMLHD population, a shortfall will still remain. This can only be met through additional capital capacity.

The *NBMLHD Asset Strategic Plan 2012-2021* was submitted to the Ministry of Health in June 2012. The *NBMLHD Healthcare Services Plan 2012-2022* has been constructed using the most recent tools from the Ministry of Health for projecting healthcare demand (aIM and SiAM 2012). The tools were provided to the NBMLHD in November 2012. Therefore the NBMLHD will provide an updated Asset Strategic Plan using the more recent information contained within the *NBMLHD Healthcare Services Plan 2012-2022*.

Hawkesbury LGA and Hawkesbury Hospital

Service delivery in the Hawkesbury LGA has been contained under the provision of the contract with Hawkesbury District Health Service that has been in place since 1996. The contract is due to expire in 2016 at which time the capital stock will revert to the Health Administration Corporation (HAC).

The Hawkesbury LGA is the fastest growing LGA in the NBMLHD and is located adjacent to the north-west growth corridor. Hawkesbury Hospital is positioned to provide district level care for its local residents and potential flows from the north-west growth corridor.

To accommodate the increased healthcare needs projected to 2021/22 in the Hawkesbury LGA, either enhancements to service delivery provided by Hawkesbury Hospital are required or the demand for healthcare services for Hawkesbury residents will need to be factored into service enhancements at Nepean Hospital.

NBMLHD will undertake a more detailed review of the future health care requirements for the Hawkesbury LGA and Hawkesbury Hospital during 2013 to inform planning future service delivery for Hawkesbury LGA residents.

Lithgow LGA, Lithgow Hospital and Lithgow Community Private Hospital

The closure of overnight acute inpatient services at the Lithgow Community Private Hospital was announced in late 2012, with minimal forewarning. The implications of this closure, particularly for Lithgow Hospital, are still being investigated. NBMLHD will continue to work with Lithgow Community Private Hospital to ensure the best outcomes for the residents of the Lithgow LGA and the NBMLHD.

Sub-Acute Care Service Growth and Placement off Nepean Hospital Campus

Significant growth in sub-acute care is projected for Nepean Hospital to 2021/22 across the four care types of rehabilitation, palliative care, maintenance and psychogeriatric care. The potential for shifting this growth from Nepean Hospital to district level hospitals is flagged. Incorporating the growth for sub-acute care delivery into future service arrangements for Hawkesbury Hospital is one option. Another is incorporating additional growth of sub-acute care into the new one hospital in the Blue Mountains (refer below).

Palliative Care and Hospice Care

As flagged above, growth in palliative sub-acute care service delivery in the NBMLHD has been identified to 2021/22. The way forward is proposed as a two pronged approach. This involves enhancing palliative care services provided by the NBMLHD network of services, while in parallel establishing hospice care options with partner agencies. It is acknowledged that palliative care services will be required across a range of illness types. Enhancing end of life care directives is an important component of palliative care.

Mental Health Care

For mental health care, discussions continue with Western Sydney Local Health District, to finalise the separation of the Mental Health Network of the former Sydney West Area Health Service and associated service delivery arrangements. The opening of the new Mental Health Centre, Nepean Hospital, in 2013 will provide additional capacity for providing acute mental health care for local NBMLHD residents. The lack of non-acute mental health care capacity in the NBMLHD continues to be a major issue that requires resolution and until resolved will continue to impact on mental health key performance indicators.

In addition, there is potential to enhance mental health service delivery in the following areas: mental health service delivery in Lithgow Hospital and LGA and in Hawkesbury Hospital and LGA; perinatal mental health; adolescent mental health; and specialist mental health services for older people, in line with the developments associated with the new Mental Health Centre, Nepean Hospital.

Flow Reversals for Paediatric and Mental Health Care

A high-level analysis for inflows and outflows is outlined in Chapter 5. Further exploration is required to fully understand the implications of these flows and potential flow reversals. In this analysis, lower levels of self-sufficiency for NBMLHD residents were identified for paediatric and mental health care.

Collaborations with the Children's Hospital, Westmead will continue to address flow reversals of paediatric patients requiring district level care. The first pilot for reversing these flows commenced in late 2013 for paediatric patients requiring ENT surgery. A revised memorandum of understanding with the Children's Hospital, Westmead is in place for paediatric patients with diabetes. It must be acknowledged that full reversal of flows of paediatric patients to Nepean Hospital will have capital implications for Nepean Hospital.

Flow reversals for mental health care are discussed in the section above, and are linked to the separation of network arrangements operating under the previous Sydney West Area Health Service and the opening of the new Mental Health Centre at Nepean Hospital.

Further exploration of flow reversals for planned surgery will be undertaken during 2013, to identify potential for flow reversals and enhancements to services in NBMLHD. One example is breast surgery.

NBMLHD Epidemiological Profile and LGA Specific Profiles

Epidemiological profiles for the NBMLHD and its respective LGAs – Penrith, Blue Mountains, Lithgow and Hawkesbury are in development, building on the information outlined in Chapter 2. These profiles will be completed during 2013, and be used to inform and refine local health service delivery across the NBMLHD.

Research, Nepean Medical Research Institute and Clinical Schools in NBMLHD

Research is an integral component of enhancing health service delivery in the NBMLHD. Nepean Hospital provides a strong base for research across disciplines in collaboration with university partners. Continuing to foster relations with universities - University of Sydney, University of Western Sydney and University of Notre Dame among others will continue. The establishment of the Nepean Medical Research Institute is flagged, with initiatives underway to progress this. District level hospitals will continue their relations with the University of Notre Dame and other universities. The establishment of Clinical Schools at Lithgow Hospital and in 2013 at Hawkesbury Hospital provide important vehicles for driving education, training and research into future years.

One Hospital in the Blue Mountains

Blue Mountains District ANZAC Memorial and Springwood Hospitals are older hospitals, with several areas of these hospitals not adequate for the provision of contemporary models of care. There are also inefficiencies in the operation of two hospitals approximately 30 kilometres apart. There are benefits and economies of scale in combining the service delivered from both of these hospitals into one new hospital for the Blue Mountains. The hospital could also incorporate the services provided by the Lawson Community Health Centre. The concept of the new single hospital in the Blue Mountains will be further outlined in the next iteration of the *Nepean Blue Mountains Asset Strategic Plan 2013.*

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Appendices

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Appendices

Appendix 1. Glossary of Terms

The glossary provides explanations of commonly used terms or phrases, abbreviations and acronyms that have been used throughout the NBMLHD Healthcare Services Plan.

ABF	Activity Based Funding.
ABS	Australian Bureau of Statistics.
ACAT	Aged Care Assessment Team.
Access block	A term commonly used to describe the delays that patients experience in the Emergency Department. The Access Block Improvement Program (ABIP) has been established to address this and issues related to demand management, capacity (bed base) and throughout dynamics.
Acute care	Acute care is where the principal clinical intent is to do one or more of the following: manage labour (obstetric), cure illness or provide definitive treatment of injury; perform surgery; relieve symptoms of illness or injury against exacerbation and/or complication of an illness and/or injury which could threaten life or normal function; perform diagnostic or therapeutic procedures. This term is used in relation to episodes of care, beds and ser vices. Acute rehabilitation beds will accommodate inpatients who, in addition to rehabilitation, require access to acute care services for their principal condition.
Acute Mental Health Services	Specialist psychiatric care for people who present with acute episodes of mental; illness which are characterized by recent onset of severe clinical symptoms of mental illness that have the potential for prolonged dysfunction or risk to self and/or others.
Affiliated Health Organisation	Hospitals and nursing homes usually run by charitable, ecclesiastical and non-government organisations with their own governance structures, that receive an operating budget from the State and Commonwealth via Local Health District for the delivery of a defined range of services. An "affiliated health organisation" is an organisation or institution that is an affiliated health organisation under section 62, Health Services Act 1997. The principal reason for recognising affiliated health organisations is to enable certain non-profit, religious, charitable or other non-government organisations and institutions to be treated as part of the public health system where they control hospitals, health institutions, health services or health support services that significantly contribute to the operation of that system. They are recorded under Schedule 3.
Aged Care	Aged care services are provided for that group of people whose care needs are severely compound by conditions associated with ageing including chronic illness, functional limitations and physical and mental frailty.
AIM	Acute Inpatient Modelling – Projected demand and supply of acute inpatients: NSW Health projection modelling tool October 2005 version.
Ambulatory Care	Ambulatory Care refers to all health services dedicated to the assessment, treatment, rehabilitation or care of day only and non-admitted patients or clients. Ambulatory care services can be delivered in a range of settings including procedure rooms, consultation rooms, therapy areas, group rooms, diagnostic areas and in the home.

Ambulatory Care Centre/Zone	A clearly delineated zone within a hospital housing those functional units that have a strong ambulatory care focus e.g. pre admission clinic, pathology collection and clinical care unit, selected outpatient services, ambulatory procedures centre. The centre with have a dedicated external entry point with public parking within close proximity.
Ambulatory Procedures Centre	A functional unit, located within a hospital or community-based facility, accommodating same day surgical and medical procedures. The centre may include dedicated operating and procedure rooms or be collocated with the main operating suite for the hospital. Same day places, both pre and post procedure, will be accommodated within the unit.
Average length of stay	The total number of days spent in hospital divided by the total number of patients admitted to hospital during a selected time period.
Bed day	A hospital bed occupied for a full day.
Beds	**Built** – this refers to the original bed numbers built for the hospital **Funded** – currently utilised by the hospital and funded through the recurrent budget. These numbers fluctuate as a function of the funding arrangements. **Operational** – Beds within a hospital that can be utilised at any given stage but may not e occupied in a full time basis. **Projected** – Derived from AIM and SiAM this generates bed numbers for the various clinical streams based on the projection of occasions of service for acute inpatient activity.
Benchmark	A measure of performance, usually related to outcomes that seeks to compare results against organisations involved in similar (and comparable) activities and/or compare results over time – e.g. admissions per year, costs per separation.
Best practice	The practices utilised by those recognised as at the top of performance worldwide, and the targets towards which continuous improvements are directed.
Business plans	Documents that describe operational intentions for each financial year including goals, strategies, targets, accountabilities and performance measures.
CALD	Culturally and Linguistically Diverse.
Capital costs	Funds used to purchase assets, equipment, land and other real goods.
Catchment	A group of persons within a defined geographic boundary who would normally be expected to attend a given hospital or health service unit were they go to require treatment.
Chronic care	Chronic care is where the principal intent is to provide support, maintain function and prevent further disability for patients with a chronic disease. Chronic disease means 'the irreversible presence, accumulation, or latency of disease states or impairments' (Curtin Lubkin, 1990).
Clinical governance	The framework for which health organisations are accountable for continuously improving the quality of their services and safe guarding high standards of care by creating an environment in which excellence in clinical care will flourish (Scally & Donaldson, NHS 1998). A framework which ensures the highest possible safety

	and quality of clinical care (Institute of Clinical Excellence, NSW 2003).
Clinical pathways	A systematic approach to achieving particular outcomes for a patient which identifies the resources required in amount and sequence for that type of case.
COAG	Council of Australian Governments.
Community	The residents of the local government areas that constitute the NBMLHD.
Comprehensive Clinical Centre	A specialised clinical service centre accommodating inpatient, same day, outpatient and clinical support functions e.g. cancer care, cardiac care, respiratory medicine, neurosciences.
Confidence interval	The computed interval with a given probability (e.g. 95%) that the true value of a variable such as a rate, mean or proportion, is contained within the interval.
Consumer	Individuals with personal experience as a recipient of particular health care services, or who could potentially use the service.
Consumer participation	The process of involving health consumers and community members in decision making about their own health care, health service planning, policy development, setting priorities and addressing quality health issues in the delivery of health services.
Consumer representative	Someone nominated by and accountable to a consumer organisation, to represent their own experiences as well as taking steps to establish what other consumers think and to represent their point of view.
Continuity of care	The provision of care in a coordinated manner across all providers and settings comprising the continuum of care.
Continuum of care	A cycle of activities associated with an episode of care, comprising access, entry, assessment, care planning, delivery of care, evaluation, separation and community management.
Corporate governance	This is concerned with structures and processes for decision-making and with accountability, control and behaviour at the top of organisations.
Crude rate	An estimate of the proportion of a population that has an event (e.g. death, birth etc.) in a specified period. It is calculated by dividing the number of events in a specified period by the number at risk during that period (typically per year).
Day only	An admission to a hospital not requiring an overnight stay. May also be referred to as a same day admission.
Demand	The current use of public hospital services. It excludes demand for private hospital services. It is similar in use to the term “expressed demand” used in generic planning or economics. It is often used in the context of resident demand i.e. the current use of public hospital services by residents of the particular Area.
DRG (AR-DRG)	(Australian-Refined) Diagnostic Related Group – a grouping of acute inpatient episodes of care with similar clinical characteristics (i.e. diagnoses and procedures) and resources consumed.
Effectiveness	A measure of the degree to which intended outcomes are achieved.
Efficiency	A measure of the resources used in achieving a particular outcome.
Episode of Care	A phase of treatment during which the patient receives a particular type of care (e.g. acute, rehabilitation, etc). When that type of care is concluded the episode

	of care is ended and patient undergoes either a type change separation to a different type of care or a formal separation and leaves the hospital.
Equity	Equal opportunity for access to services for equal or similar need.
Facility	A complex of buildings, structures, roads and associated equipment which represents a single management unit for financial, operational, maintenance or other purposes.
Financial Impact Statement	Report outlining detailed capital costings for proposed service developments/ enhancements, and their likely source of funding.
FlowInfo	FlowInfo is a PC based inpatient service-planning tool utilised by NSW Health and Local Health District.
Full Time Equivalent (FTE)	The number of staff for which funding is provided, based on full-time working hours.
Functionality	A measure of how successfully a facility meets the operational needs of the services being delivered therein, including the proximity of related functions and visibility between staff and patients.
Geriatric care	Geriatric evaluation and management is care in which the clinical intent or treatment goal is to maximize functional status and/or optimize the living arrangements for a patient with multi-dimensional medical conditions associated with disabilities and psychosocial problems, who is usually but not always an older person.
HACC	Home and Community Care Program.
HDU	High Dependency Unit.
HIE	The Health Information Exchange is NSW Health's Data Warehouse. It is the central source for data relating to admitted patients, waiting times, emergency departments, human resources, work force, and community mental health.
Hospital procedure	A diagnostic investigation or treatment provided within a hospital.
Hospital separation	The formal process whereby an inpatient leaves a hospital or other area health service facility after completing an episode of care. For example, a discharge to home, discharge to another hospital or nursing home, or death.
Incidence	The rate at which new cases of a disorder occur in the population: that is, the number of new cases in a specified period, divided by the population at risk of the disorder in that period.
Inflows	Patients residing outside a catchments population treated within a hospital servicing the catchments population.
Inpatient	A patient admitted to a hospital for treatment either overnight or on a day only basis.
Integrated Care Centre	A multipurpose ambulatory health centre providing primary and secondary services to meet the needs of the surrounding community. Core serv8ices will include community health, community mental health and chronic care outreach. Additional services may include same day surgery and medical procedures, rehabilitation, general, specialist and allied health consulting, imaging, pharmacy, and complementary community retail services.

IPTAAS	Isolated Patients Transport Accommodation Assistance Scheme.
Length of stay	The number of days spent in hospital by a patient for a single episode of care. During a single admission, there could be two or more episodes, each with separate lengths of stay which run consecutively.
LGA	Local Government Area. A division of New South Wales into administrative units with responsibilities set out in the Local Government Act.
LHD	Local Health District.
Long stay beds	Hospital beds designated by the Ministry of Health as being provided for patients with chronic disease who require prolonged hospitalisation.
Maintenance care	Non-acute care, including nursing home type care.
Master Plan	An overall plan for a site that defines future physical development, including staging of work, timeframe, capital and recurrent costs and cash flow.
ML	Medicare Local.
Morbidity	The incidence of disease; the rate of sickness in a specified community or group.
Mortality	The number of deaths in a given time or place; the proportion of deaths to population.
MRI	Magnetic Resonance Imaging.
NAPOOS	Non-admitted patient occasions of service. Patient services provided by a health facility without the patient being admitted e.g. outpatient, emergency and community health services.
NBMLHD	Nepean Blue Mountains Local Health District.
NBMML	Nepean Blue Mountains Medicare Local.
NGOs	Non-Government Organisations.
NICU	Neonatal Intensive Care Unit.
Non-acute	Non-acute care refers to care with no to minimal clinical intent. Nursing home, respite care and residential mental health services are considered non-acute services.
Non-asset solution	Means of achieving objectives which do not involve the creation of assets owned by the organisation e.g. leased premises, demand moderation/management, alternative means of satisfying objectives, changes in medical practice.
OOS	Occasion Of Service – any examination, consultation, treatment or service provided to a non-inpatient in each functional unit of a health facility on each occasion the service is provided. This term is on the terms used by NSW Health as descriptor or outpatient services and is still used generally; however the official terms describing the equivalent are now NAPOOS or NAPS.
Outflows	Residents of a specific Area who are treated in public hospitals of a different Area. The term excludes patients treated in private facilities.
PACS	Picture Archiving and Communications System – an electronic capture, storage and distribution system for medical images and associated reports that dispenses with film and paper based outputs, and enables multiple parties at different locations to look at and discuss the same information.
Patient acuity	Refers to the severity of a patient's illness.

Patient flow	The movement off a patient through the hospital system.
Patient/client	A person from whom the organisation accepts responsibility for treatment and/ or care.
Peer Group	A cohort of facilities with relative casemix and resource homogeneity and relatively similar hospital structures. Peer groups are often used as the basis for activity and cost comparisons, benchmarking and planning.
Performance Indicator	A quantitative measure to monitor performance, generally over time, and often against peer or recognised benchmark organisations.
Peri-operative care	Occurring in or near the operating suite e.g. day of surgery admission and immediate post-operative care.
PET	Positron Emission Tomography.
Prevalence	The number of cases, both new and continuing, of disease for a population identified within a time period, or at a point in time, divided by the number of people at risk from that disease.
Primary Care	Diagnosis or treatment provided on initial presentation with a condition.
Principal Referral Hospitals	Hospitals providing specialised tertiary services for a geographical region, while at the same time providing services to its local community.
Procedure	A diagnostic investigation or treatment (medical or surgical) provided within a designated procedure room.
Psycho-geriatric care	Care in which the clinical intent or treatment goal is improvement in health, modification of symptoms and enhancement in function, behaviour and/or quality of life for a patient with an age-related organics brain impairment with significant behavioural or late onset psychiatric disturbance or a physical condition accompanied by severe psychiatric or behavioural disturbance.
RACF	Residential Aged Care Facility.
Recurrent costs	The ongoing funds required to operate a service, usually for a full year, including salaries and wages, goods and services, and building and equipment maintenance (excludes major capital funds).
Role delineation	A definition, according to NSW Health guidelines, of a hospital's capacity to provide a service based on the available facilities, technology, expertise and staffing coverage.
Same day	A planned admission for a surgical, medical diagnostic or treatment procedure where the patient is discharged on the same day.
SAPHaRI	Secure Analytics for Population Health Research and Intelligence.
Self Sufficiency	The proportion of hospital episodes of care or beds that are provided to residents within their Area of residence. i.e. Resident demand which is met within the Area / Total supply by the Area (Note: The primary goal is to meet sufficiency)
Separation	A formal discharge of a patient from inpatient care within a hospital.
Service plan	A plan for the provision of future health services which meets the needs of a specified population for a stated planning period (can be focused on a

	geographical area, a particular population, a particular health issue, a category of service or a type of service).
Service population	An estimate of the number of inpatients using a hospital or health service for a specific period of time.
Service Related Group (SRG)	A summation of DRGs into an appropriate classification relating to clinical services.
Service Type	
Primary	Diagnosis or treatment provided on initial presentation with a condition.
Secondary	Referral for diagnosis or treatment from a primary carer.
Tertiary	Services relating to High Cost complex (HCC) DRGs.
Quarternary	Referral from another tertiary care centre.
Super-specialty Service	Resource-intensive services of high complexity requiring high levels of clinical support and sub-specialty infrastructure, usually delivered in tertiary referral hospitals.
Supra Area Service	Services [provide by LHD for a population that is greater than the population of the Area e.g. Regional Dialysis Centre. NB Outside this document and in NSW documentation, the term tertiary is commonly used to loosely refer to specialist services.
State-wide Service	A service provided in a single or limited number of facilities used by the population of the entire state.
SIAM	Subacute Inpatient Activity Model.
Standardised rate	Rate adjusted to take account of differences in age composition when rates for different populations are compared.
Sub-acute	Sub-acute care refers to clinical care required following an acute care episode. Medical rehabilitation, geriatric rehabilitation and hospice based palliative care are considered to be sub-acute services.
Sufficiency	Capacity of a LHD (ie. separations, episodes of care, beds etc.) to meet total local resident demand, i.e. total resident demand, in context of total local hospital activity supply by the LHD.
Supply	Refers to the total hospital activity provided by a LHD to both residents of the LHD and out-of-District residents.
Telehealth	Telehealth is the transmission of images, voice and data between two or more health units via Telecommunications channels, to provide clinical advice, consultation, education and training services.
Telemedicine	Telemedicine connects patients, carers and health care providers, improving access to quality public health care, particularly in rural and remote parts of NSW. Telemedicine is about utilising telecommunications in image transfer and videoconferencing to improve access to quality health care.
Third Schedule Hospitals	Public hospitals and homes usually run by charitable and ecclesiastical organisations. They receive an operating budget from the State.

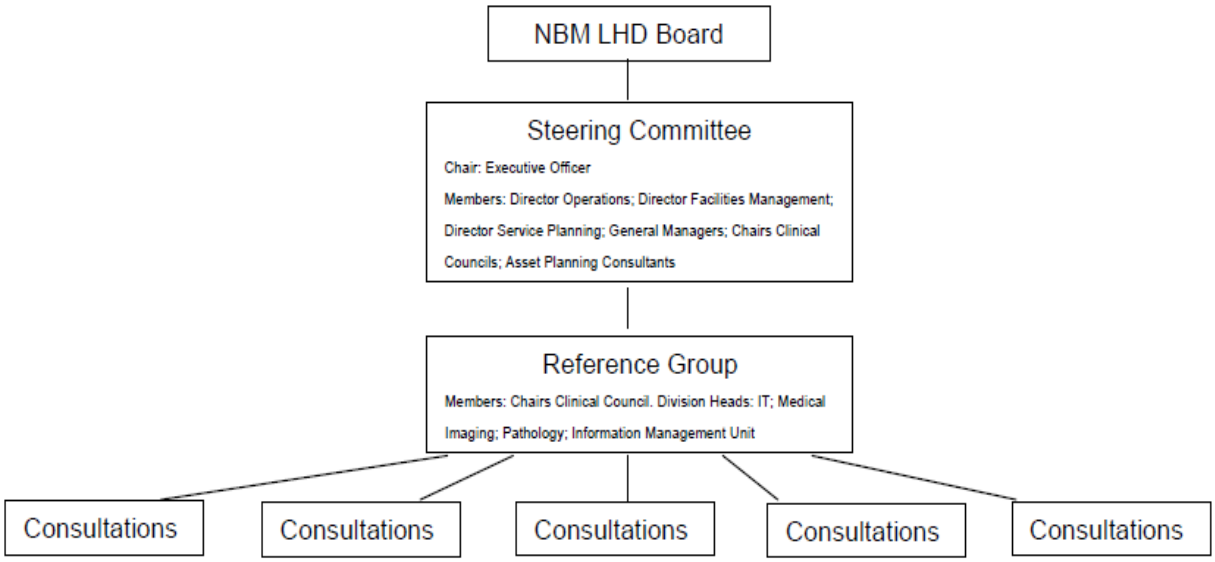
Western Sydney AMS	Western Sydney (Dharruk) Aboriginal Medical Services.

Appendix 2. Additional Information

Chapter 1. Governance Structure Guiding Development of the NBMLHD Healthcare Services Plan

The governance structure for the development of the key strategic plans in the NBM LHD is outlined in Figure A1. This governing body has responsibility for the development and endorsement of the *NBMLHD Asset Strategic Plan 2012 to 2021*, *NBM LHD Healthcare Services Plan 2012-2022* and *NBMLHD Workforce Development Plan*. The *NBMLHD Strategic Plan 2012-2017* provides the overarching context for all three, higher level plans.

Figure A1: Governance Structure for Nepean Blue Mountains Local Health District Strategic Asset, Health Services and Workforce Development Planning



NBMLHD Strategic Asset, Healthcare and Workforce Development Steering Committee

Terms of Reference

- Agree on and confirm priorities for strategic health service developments for NBMLHD to 2022 and beyond, including projected activity and roles of facilities.
- Using the above information, identify and agree on the strategic facility development requirements for NBMLHD to 2022 and beyond.
- Consider and determe strategies for managing healthcare demand to address future healthcare requirements.

Members of the Steering Committee

Name	**Position/Organisation**
Kay Hyman - *Chair*	Chief Executive, NBMLHD
Andrea Williams	General Manager, Blue Mountains District ANZAC Memorial Hospital
Angela Edwards	Director, Finance, Business and Information, NBMLHD
Brett Williams	Director, Allied Health, NBMLHD
Brian Beatty	Director, Workforce, People & Culture, NBMLHD
Cathy Crowe	A/Manager, Total Asset Management, NBMLHD
Chris Nicholls	DON, Lithgow Hospital
Claire Ramsden	Director, Nursing & Midwifery, NBMLHD
Hilton Brown	Medical Council, Lithgow Representative, NBMLHD
Jamshid (James) Kalantar	Medical Council, BMDAMH Representative, NBMLHD
Jill Marjoram	General Manager, Lithgow Hospital / Portland Tabulam Health Centre
Kevin Hedge	General Manager, Nepean Hospital
Kym Scanlon	Director, Strategy, Planning & Epidemiology, NBMLHD
Mark Shepherd	Director, Operations, NBMLHD
Mohammed Khadra	Medical Council, Nepean Representative, NBMLHD
Phillippa Venn-Brown	Senior Health Service Planner, NBMLHD

NBMLHD Strategic Asset, Healthcare and Workforce Development Reference Group

Terms of Reference

- Review, discuss and agree on strategic directions for clinical services and hospitals across the NBMLHD to 2022 to inform the Steering Committee.
- Review and advise on the implications and priorities for health services and facility developments across the NBMLHD and the roles of NBMLHD facilities to 2022 to inform the Steering Committee.
- Review and advise on the projected activity for services and hospitals across the NBMLHD to 2022.
- Draw on consultations that have occurred across the NBMLHD and beyond to inform the above.

Members of the Reference Group

Rod Bishop, Head, Emergency Department, Nepean Hospital *(Co-chair)*
Vittorio Cintio, Allied Health *(Co-chair)*
Albert Yaacoub, Clinical Director, Oral Health, NBMLHD
Alison Sneddon, Clinical Director, Mental Health, NBMLHD
Andrea Williams, General Manager, Blue Mountains District ANZAC Memorial & Springwood Hospitals
Brett Williams, Director, Allied Health, NBMLHD
Brian Beatty, Director, Workforce, People and Culture, NBMLHD
Carmel Hunter, Network Manager, Surgery and Anaesthetics, NBMLHD
Cathy Crowe, Manager, Total Asset Management, NBMLHD
Chris Baird, Clinical Director, Primary Care and Community Health, NBMLHD
Chris Nicholls, DON, Lithgow Hospital
Clair Ramsden, Director, Nursing and Midwifery, NBMLHD
Debbie Wyburd, Director, Clinical Governance, NBMLHD
Gael Rao, Clinical Director, Drug and Alcohol, NBMLHD
Hilton Brown, Clinical Council, Lithgow Hospital
James Branley, Division Head, Medicine, Nepean Hospital
Jamshid (James) Kalantar, Clinical Council, Blue Mountains District ANZAC Memorial Hospital
Jenny O'Baugh/Anne Attwood, Nurse Manager, Medicine
Jill Marjoram, General Manager, Lithgow Hospital &Portland Tabulam Health Centre
Jo Karnagan, Director, Medical Workforce, Nepean Hospital
Kym Scanlon, Director, Planning, Strategy & Epidemiology, NBMLHD
Julie Williams, A/DON, Nepean Hospital
Kevin Hedge, General Manager, Nepean Hospital
Lyn Downe, Division Head, NICU, Nepean Hospital
Lyn Packer, Director, Information Communication Technology, NBMLHD
Lynne Paine, Director, Information Management, NBMLHD
Mark Shepherd, Director, Operations, NBMLHD
Michael Cox, Division Head, Surgery and Anaesthetics, NBMLHD
Mohammed Khadra, Clinical Council, Nepean Hospital

Peter Hinrichsen, Division Head, Women and Children's Health, NBMLHD
Phillippa Venn-Brown, Senior Health Services Planner, NBMLHD
Piers Dugdale, Clinical Director, Medical Imaging, Nepean Hospital
Stuart Adams, Clinical Director, Pathology West, NBMLHD

Consultations

The following provides a list of people, services and organisations consulted to inform the *NBMLHD Healthcare Services Plan 2012 to 2022.*

Nepean Blue Mountains Local Health District

- Clinical Councils at Nepean Hospital, Blue Mountains and Springwood Hospitals, Lithgow Hospital
- Nepean Blue Mountains Local Health District Board
- Nepean Blue Mountains Local Health District Executive
- Nepean Blue Mountains Local Health District, Senior Allied Health
- Nepean Blue Mountains Local Health District, Senior Nursing

Nepean Hospital

- Aged Care
- Cardiology
- Division of Medicine
- Division of Surgery
- Division of Women's and Children Health
- Emergency Department
- Intensive Care Unit
- Medical Imaging and Nuclear Medicine Service
- Neonatal Intensive Care Unit
- Nepean Comprehensive Cancer Service
- Paediatrics
- Rehabilitation Service
- Renal Network
- Senior Medical Staff
- Senior Nursing Staff

Community Based and Population Health Services

- Aboriginal Health
- Drug and Alcohol Service
- HIV and Related Programs
- Information Management
- Information, Communication and Technology Service
- Mental Health Service
- Multicultural Health
- NSW Pathology West (NBMLHD)

- Oral Health
- Population Health Service
- Primary Care and Community Health Service
- Public Health Service

Other Organisations and the Community

- Community consultations for future service delivery in the Nepean Blue Mountains Local Health District in collaboration with the Nepean Blue Mountains Medicare Local were held in Lithgow, Katoomba, Hawkesbury and Penrith during 2012
- Consultations were held with the Aboriginal community through the Aboriginal Health Unit, NBMLHD in November-December 2012
- Hawkesbury Hospital, Executive and Hawkesbury District Health Service
- Local Councils across the NBMLHD: Penrith City Council, Blue Mountains Council, Hawkesbury Council and Lithgow Council
- Nepean Blue Mountains Medicare Local
- Non-Government Organisations operating in the NBMLHD
- Penrith Business Alliance
- Springwood Hospital Auxiliary and the Friends of Springwood Hospital
- Tresillian Family Care Centres

Further information about the Local Government Areas of the NBMLHD

Penrith Local Government Area
http://www.penrithcity.nsw.gov.au/index.asp?id=414

Penrith City is a residential and rural area, with most of the population living in residential areas in a linear corridor along the Great Western Highway and the main western railway. The City encompasses a land area of 407 square kilometres, of which around 80% is rural and rural-residential. Most of the urban area is residential, with some commercial areas and industrial areas, including extractive industries and manufacturing. Much of the rural area is used for agricultural purposes, including dairying, poultry farming, hobby farming, orcharding, market gardening and horse breeding. Major commercial centres are located at Penrith and St Marys.

The City is served by the Great Western Highway, The Northern Road, the Western Motorway and the main western railway line, with stations at Emu Plains, Kingswood, Penrith, St Marys and Werrington.

Blue Mountains Local Government Area
http://www.bmcc.nsw.gov.au/index.cfm

Blue Mountains City comprises residential, resort (tourism) and rural municipality. The City encompasses a total land area of 1,432 square kilometres, of which 74% is World Heritage National Park, renowned for its forests, rock formations, bushwalks, waterfalls and lookouts. A further 14% of the City is contained in public reserves. The majority of the remaining area is residential, with most of the 26 towns and villages located along the 100 kilometres of ridgelines and plateaus on the main east-west road and rail corridor. Some are small, isolated rural settlements while others are large, urbanised areas. The major population centres are Katoomba and Springwood. The City's major industry is tourism, with many holiday homes and guest accommodation in the upper mountain towns such as Blackheath, Katoomba and Wentworth Falls, while the lower mountain towns such as Blaxland, Glenbrook, Springwood and Winmalee, are more suburban in character. The main industrial estates are located in Katoomba and Lawson. The primary rural area is the Megalong Valley. The City is served by the Great Western Highway, Bells Line of Road and the Main Western railway line.

For over half the population of the Blue Mountains Local Government Area, the closest referral and attended hospital is Nepean Hospital.

Lithgow Local Government Area
http://www.lithgow.com/

Lithgow City Local Government Area is located in the Central Tablelands of NSW, about 140 kilometres west of Sydney. Lithgow City is bounded by the Mid-Western Regional Council area and the Singleton Council area in the north, Hawkesbury City in the east, Blue Mountains City and the Oberon Council area in the south, and the Bathurst Regional Council area in the west.

Lithgow City is a predominantly rural area, with rural-residential and residential areas in several townships, and some industrial land use. Nearly two thirds of the City is national park or state forest. Settlement is based in the township of Lithgow, the smaller townships of Portland and Wallerawang,

and numerous small villages. The City encompasses a total land area of about 4,550 square kilometres. Rural land is used mainly for farming, grazing and mining (particularly coal mining).

As a rural area, Lithgow Local Government Area faces a number of issues relating to access to services. Of note are access to locally-based and specialist health services, rural transport, staff recruitment and retention issues and service sustainability. However, these challenges have also prompted the development of innovative solutions such as mobile outreach services, alternative service delivery models and telehealth initiatives. The City is served by the Castlereagh Highway, the Great Western Highway, and the main western railway line. Lithgow Hospital provides care for local residents.

Hawkesbury Local Government Area
http://www.hawkesbury.nsw.gov.au/

Hawkesbury City is located at the north-western fringe of the Sydney metropolitan area, about 50 kilometres from the Sydney GPO. Hawkesbury City is bounded by the Singleton Council area and Cessnock City in the north, Gosford City and The Hills Shire in the east, Blacktown, Penrith and Blue Mountains Cities in the south, Lithgow City in the west and Rylstone in the north-west.

Hawkesbury City is predominantly comprised of national and state parks, with some residential, commercial, industrial and military land use. The City encompasses a total land area of about 2,800 square kilometres, of which more than 70% is National Park. The Hawkesbury is divided by five river systems the Nepean, Hawkesbury, Grose, Colo and MacDonald rivers. The Hawkesbury Local Government Area is located on the Hawkesbury/ Nepean floodplain and experiences regular flood devastation. The alluvial soils contribute to the predominant market garden industry. These geographical features contribute to some parts of this Local Government Area being considered ‘remote’, with residents experiencing difficulty in accessing health services. The main population centres are Windsor and Richmond, with 13 other townships scattered over the area. The majority of the population lives in the south-eastern section of the City. Service and tourism industries are also significant.

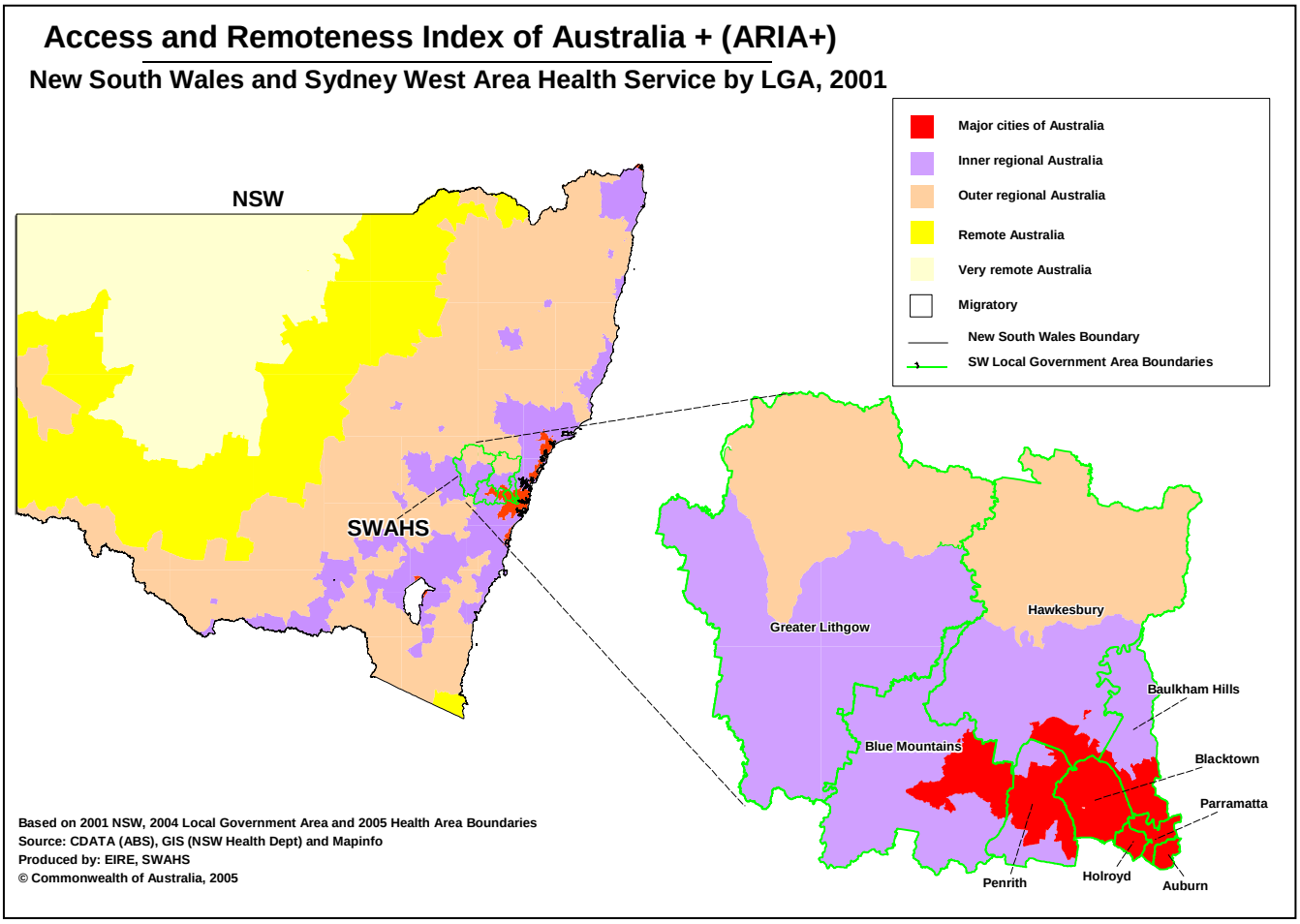
The City is served by Bells Line of Road, Singleton Road, Wollombi Road, Richmond-Blacktown Road, and the main western railway line.

Rurality in the NBMLHD

There is diversity in the geographical regions covered by the NBMLHD, with a mix of primarily urban and also rural areas. The Access and Remoteness Index of Australia (ARIA) is an index that measures remoteness based on the road distance from any point to the nearest service centre. It is based solely on physical geography and does not attempt to incorporate road conditions, travel time or the broader issue of accessibility, which is influenced by many factors such as the socio-economic status or mobility of the population. The Index indicates that NBMLHD has three distinct areas:

- Major city (Penrith, Windsor/ Richmond and lower Blue Mountains)
- Significant proportion of 'inner regional areas'
- 'Outer regional areas' for parts of Lithgow and Hawkesbury LGAs.

Figure A2. Rurality in the NBMLHD



Chapter 2. Characteristics of the Nepean Blue Mountains Local Health District Population

Hospitalisations for renal dialysis: Further analysis

The hospitalisation data required further investigation by principal diagnosis to further account for observed differences in hospital readmissions. Further analysis showed that 80% of the readmissions for people born in non-English speaking countries who were admitted to Nepean Hospital were for extracorporeal dialysis. Of the 5,983 renal dialysis hospitalisations, 70% (4,193 hospitalisations) were for patients born in the countries listed in Table A1. The renal dialysis hospitalisations accounted for 80% of all hospital readmissions. The over-representation of the patients from the countries identified in Table A1 needs further scrutiny to determine the reasons for the apparent health issues in these populations.

Table A1 Readmissions to Nepean Hospital for dialysis by non-English speaking country of birth, 2010/11 to 2011/12

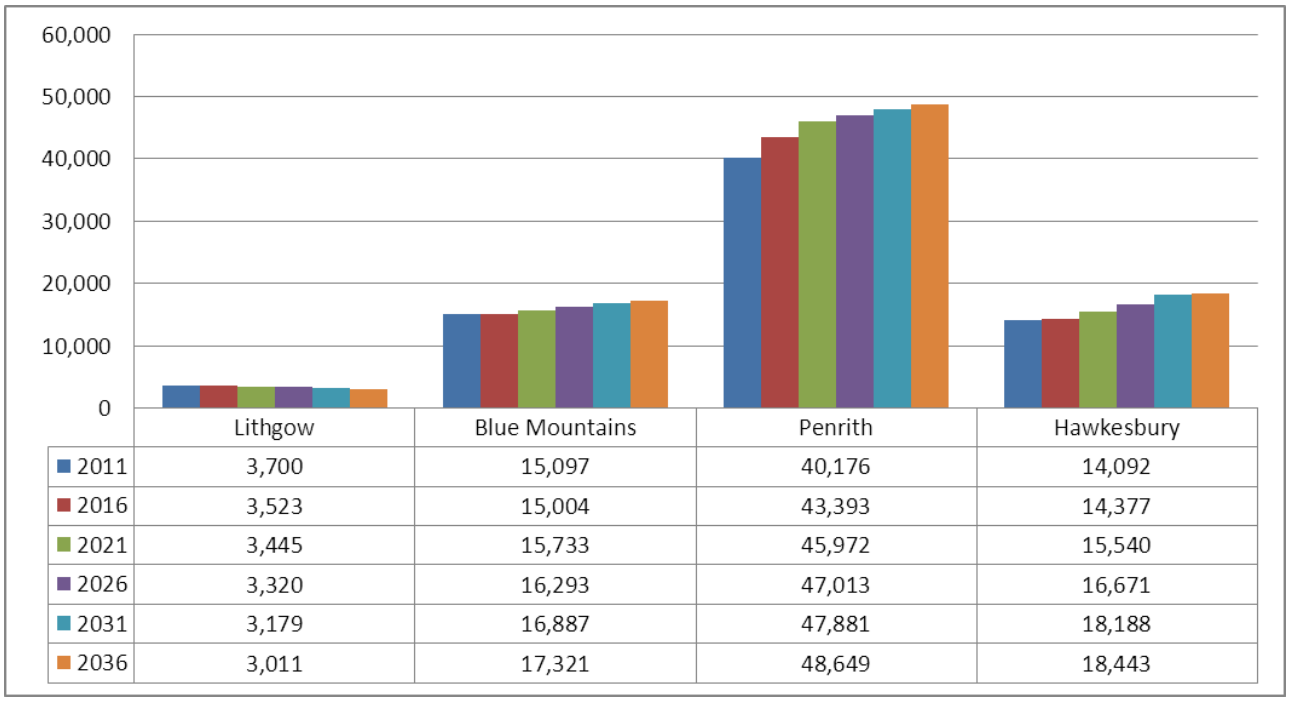
	Hospital of admission: Nepean Hospital Readmissions		
Patient born in non English speaking countries	**Hospitalisations for dialysis**	**Total readmissions**	**COB as % of all NESB readmissions**
Samoa, Western	867	908	12%
Malta	725	822	11%
Poland	635	679	9%
Italy	584	668	9%
Tonga	625	634	8%
Fiji	410	461	6%
Philippines	303	394	5%
Egypt	322	359	5%
Turkey	296	310	4%
Cook Islands	293	299	4%
Total of main NESB readmission	4,193	4,626	62%
Other non-English speaking countries	1,790	2,847	38%
Total NESB readmissions	**5,983**	**7,473**	**100%**

Sources: NSW Admitted Patient Data Collection and ABS population estimates (SAPHaRI). Centre for Epidemiology and Evidence, NSW Ministry of Health.

Chapter 3. Drivers

Population Projections by Age Groupings for NBMLHD

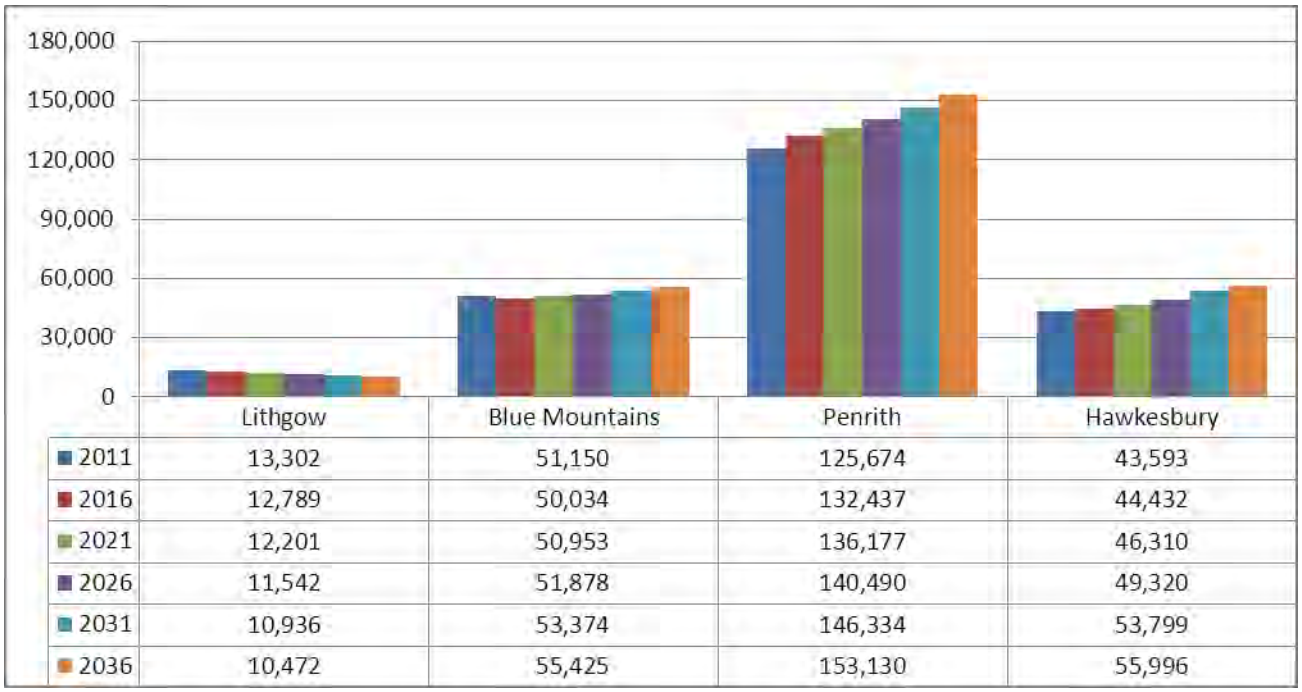
Figure A3 NBM LHD Population Projections - 0-14 Years



	Lithgow	Blue Mountains	Penrith	Hawkesbury
2011	3,700	15,097	40,176	14,092
2016	3,523	15,004	43,393	14,377
2021	3,445	15,733	45,972	15,540
2026	3,320	16,293	47,013	16,671
2031	3,179	16,887	47,881	18,188
2036	3,011	17,321	48,649	18,443

Source: NSW Health Population Projection Series 1, 2009

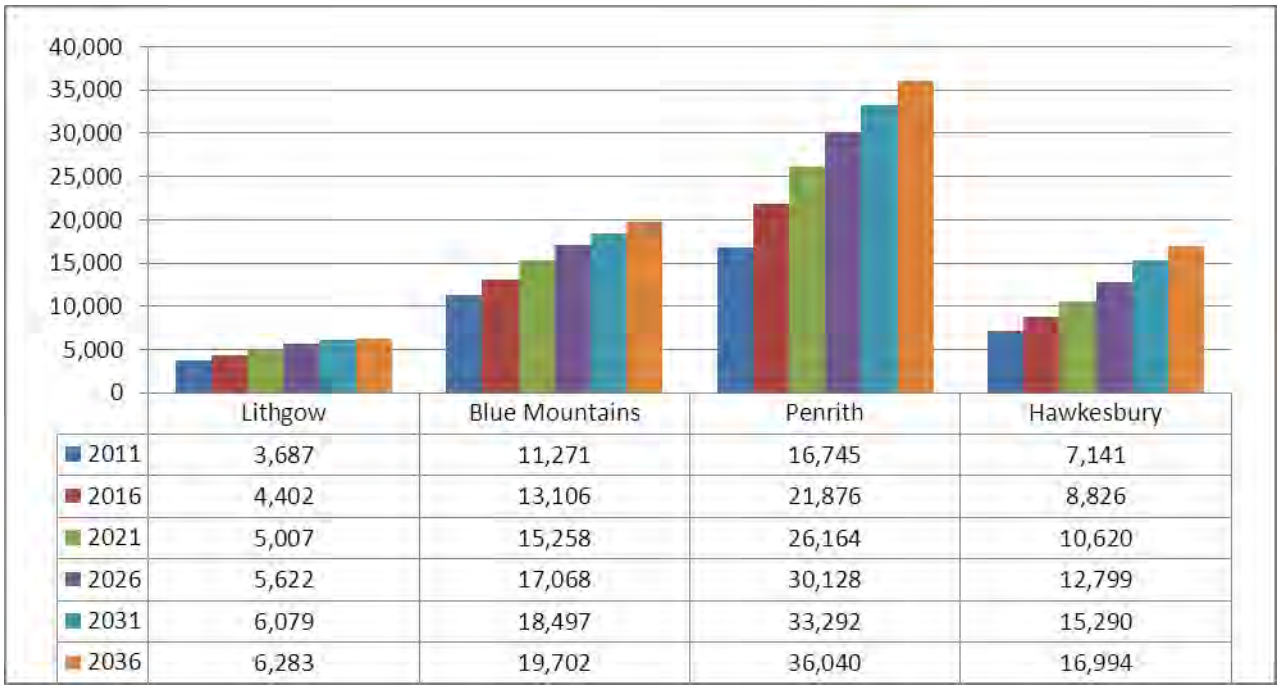
Figure A4 NBM LHD Population Projections – 15-64 Years



	Lithgow	Blue Mountains	Penrith	Hawkesbury
2011	13,302	51,150	125,674	43,593
2016	12,789	50,034	132,437	44,432
2021	12,201	50,953	136,177	46,310
2026	11,542	51,878	140,490	49,320
2031	10,936	53,374	146,334	53,799
2036	10,472	55,425	153,130	55,996

Source: NSW Health Population Projection Series 1, 2009

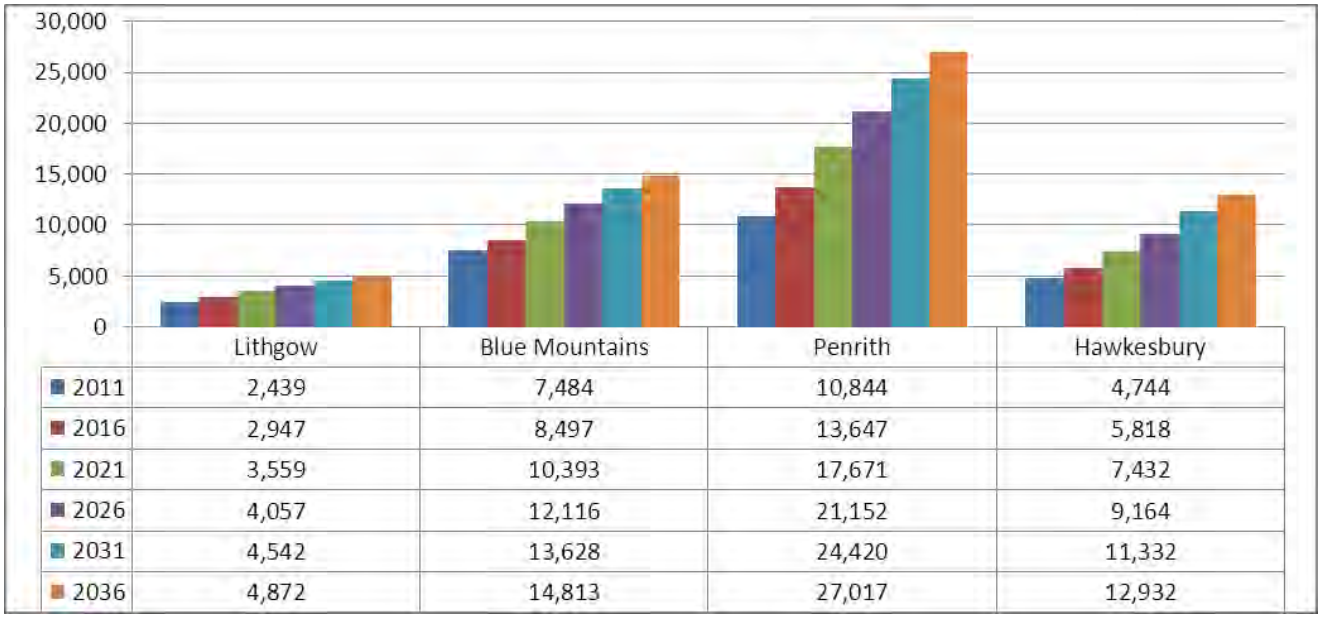
Figure A5 NBM LHD Population Projections – 65+ Years



	Lithgow	Blue Mountains	Penrith	Hawkesbury
2011	3,687	11,271	16,745	7,141
2016	4,402	13,106	21,876	8,826
2021	5,007	15,258	26,164	10,620
2026	5,622	17,068	30,128	12,799
2031	6,079	18,497	33,292	15,290
2036	6,283	19,702	36,040	16,994

Source: NSW Health Population Projection Series 1, 2009

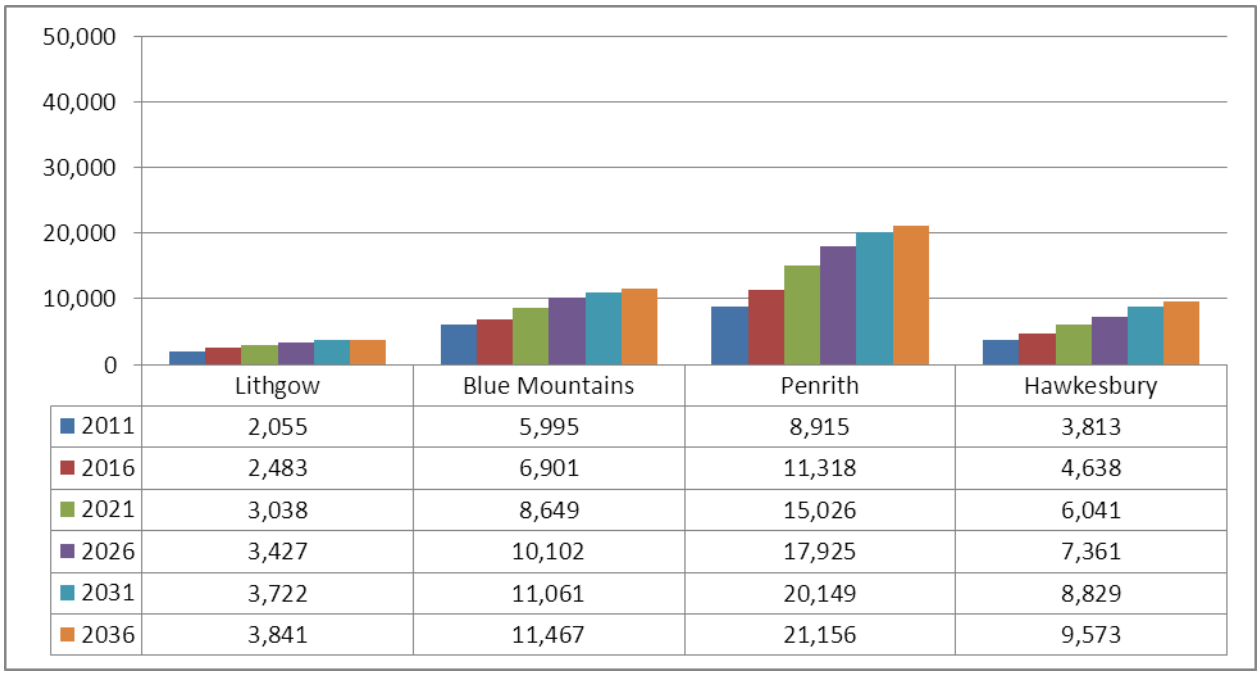
Figure A6 NBM LHD Population Projections – 70+ Years



	Lithgow	Blue Mountains	Penrith	Hawkesbury
2011	2,439	7,484	10,844	4,744
2016	2,947	8,497	13,647	5,818
2021	3,559	10,393	17,671	7,432
2026	4,057	12,116	21,152	9,164
2031	4,542	13,628	24,420	11,332
2036	4,872	14,813	27,017	12,932

Source: NSW Health Population Projection Series 1, 2009

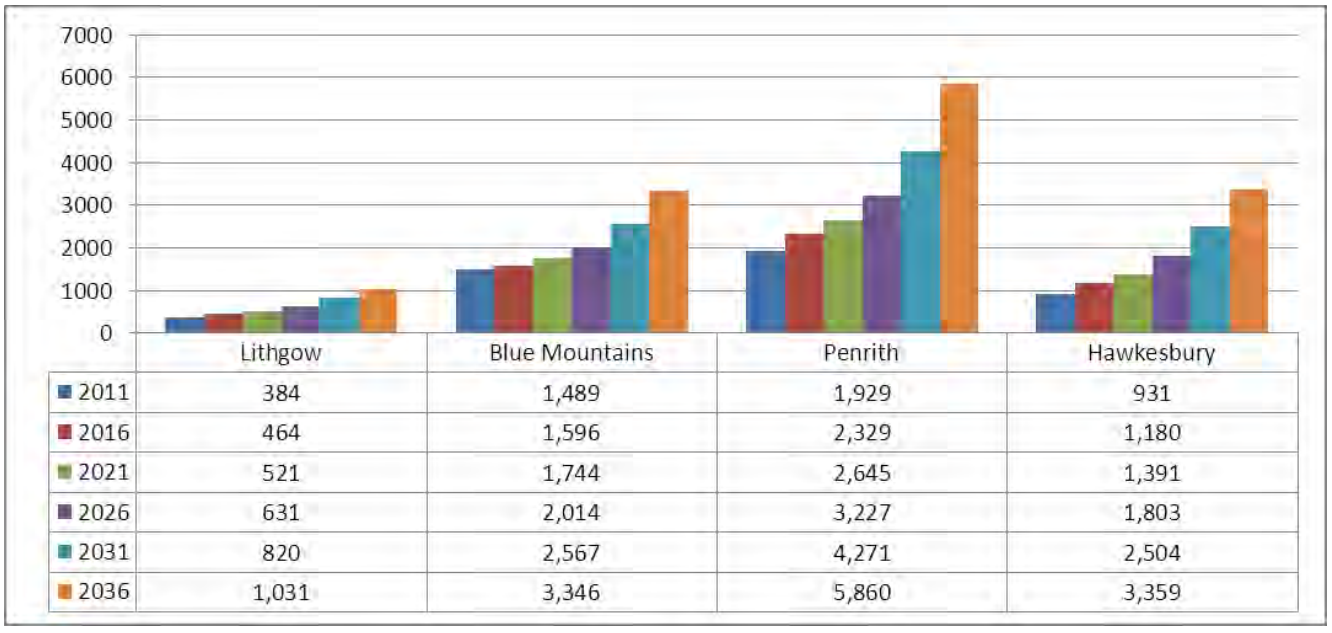
Figure A7 NBM LHD Population Projections – 70-84 Years



	Lithgow	Blue Mountains	Penrith	Hawkesbury
2011	2,055	5,995	8,915	3,813
2016	2,483	6,901	11,318	4,638
2021	3,038	8,649	15,026	6,041
2026	3,427	10,102	17,925	7,361
2031	3,722	11,061	20,149	8,829
2036	3,841	11,467	21,156	9,573

Source: NSW Health Population Projection Series 1, 2009

Figure A8 NBM LHD Population Projections – 85+ Years



	Lithgow	Blue Mountains	Penrith	Hawkesbury
2011	384	1,489	1,929	931
2016	464	1,596	2,329	1,180
2021	521	1,744	2,645	1,391
2026	631	2,014	3,227	1,803
2031	820	2,567	4,271	2,504
2036	1,031	3,346	5,860	3,359

Source: NSW Health Population Projection Series 1, 2009

Chapter 4. Services in the Nepean Blue Mountains Local Health District

Community Health Centres in the NBMLHD by LGA

Penrith

Community based health centres are located throughout the Penrith LGA including:

- St Clair Community Health Centre – Child and Family Health services with an Aged Day Care Centre located on the premises
- St Mary's Community Health Centre – Child and Family Health services, Mental Health and Drug and Alcohol services
- Penrith Community Health Centre – Child and Family Health services, Mental Health and Drug and Alcohol services
- Cranebrook Community Health Centre – Child and Family Health services, Building Strong Foundations team
- Lemongrove Community Health Centre – Complex, Aged and Chronic Care service
- Lemongrove Community Health Centre (Springfield Cottage) – Integrated Violence Prevention Team
- Penrith Community Mental Health – Penrith Co-ordinated Care
- Penrith Borec House – Child and Adolescent and Early Psychosis Services
- Kingswood Anxiety Clinic – Anxiety Disorders Services
- Oral health Service – Nepean Hospital
- Satellite Renal Dialysis – Penrith, Governor Phillip campus.

Blue Mountains

Community Health Centres located throughout the Blue Mountains LGA include:

- Katoomba Community Health Centre - Child and family
- Katoomba Community Mental Health services - Blue Mountains Access Team, Katoomba Mental Health Service, Drug and Alcohol
- Woodlands House, Katoomba – Opioid Treatment Service
- Lawson Community Health Centre - Complex, Aged and Chronic Care
- Springwood Community Health Centre - Child and Family, Drug and Alcohol, Oral Health and Mental Health services
- Oral Health Service – Katoomba Hospital.

Lithgow

The following Community Health Centres are situated in the Lithgow LGA providing a range of Child and Family, Complex, Aged and Chronic Care services, Drug and Alcohol, Oral Health services and Mental Health services. These include:

- Lithgow Community Health Centre - Child and Family, Complex, Aged and Chronic Care, Methadone, Oral Health and Drug and Alcohol services
- Lithgow Community Mental Health Centre is located in the town centre and provides:
    - Intake, triage, assessment and case management for people with mental illness
    - Specialist mental health services for children and adolescents, older people

  - Services for Aboriginal and Torres Strait Islander communities
- There is an outreach Community Health service to the communities of Portland Tabulam and Wallerawang
- Oral Health Service.

Hawkesbury

As mentioned above Community Health services are provided in the Hawkesbury LGA through Hawkesbury District Health Service and are based at Hawkesbury Hospital.

Windsor Community Mental Health Centre located in Hawkesbury, has a co-ordinated Access Team.

Oral health services are provided by NBMLHD and are located within the Hawkesbury Hospital.

Primary Care and Community Health Activity during 2011/12

- **Complex, Aged and Chronic Care services** worked with local tertiary facilities to minimise readmission of clients to hospitals, improve and maintain client functioning in the home and promote self-management of chronic illness in line with NSW Ministry of Health Directives.
- **Connecting Care Program** provides support and care coordination for high risk patients across the health continuum (acute to primary care) through referral, intake and coordination of care, post discharge management, health coaching and health maintenance, health information provision and care navigation.
- **Hospital-Community Information card pilot project** aims to improve communication between community service providers and the acute setting. The project is led by the GP Liaison Nurse and Community Health Research Officer in conjunction with key NGO and Nepean Hospital acute service partners and Penrith City Council.
- **Healthy for Life' and 'Moving On' (Aboriginal specific) program** - Collaborated with NBM Medicare Local to provide services such as therapeutic groups, partnership programs and shared initiatives such as 'Healthy for Life' and 'Moving On' (Aboriginal specific) program.
- **Electronic client health records** with the expansion of the CHIME (Community Health Information Management Enterprise) system. Laptop computers are used by all community nursing staff, seeing clients in the homes and in clinic based settings. This has been a positive change for the service and leads the way to future use of electronic information exchange and technology in the field.
- **Adolescent Outreach Clinic** at the Warehouse in Penrith was re-established in partnership with Family Planning NSW. Partnerships with Nepean Community and Neighbourhood Services and Nepean Youth Accommodation Service have also been established to provide group work and support for adolescents in collaboration with the midwife running the antenatal clinic.
- **Midwives Pregnancy Care Clinics** (Outreach Program) have been established, are well attended and have a high satisfaction rate. Clinics aim to provide a more accessible location for women from vulnerable circumstances by encouraging these women to present for their antenatal care earlier in their pregnancy.
- **Breastfeeding Promotion** - Community Health services have an annual campaign to Promote, Protect and Support Breastfeeding through the International Baby Friendly Health Initiative 7 Point Plan for Community Health. This project was presented at the Australian Breastfeeding Association bi-annual conference in Canberra during October 2011.
- **Parenting Young Project** in the Blue Mountains is supported by Community Health promoting the well-being of young parents and their children, under the auspices of the Mountains Outreach Community Service.
- **Sudanese Clinic at Mamre House** aims to improve access to family health services and to facilitate better outcomes for the emerging Sudanese community in the Penrith locality. The program has been developed in collaboration with Child and Family Health, Multicultural Health and Mamre Enterprise.

Community Based Mental Health Services

Community based mental health services in the NBMLHD are organised into the following streams.

- **Acute Access Teams** based in Penrith and Katoomba provide an important role in providing triage, assessment, acute interventions and referral for people in the community with mental health problems. In collaboration with Mental Health Consultation Liaison clinicians, Access Teams also provide triage, assessment and referral for those people who require mental health assessment in Emergency Departments across the local health district. Telephone access to acute community mental health services are available to the community 24/7 via a 1800 number.

- **Child and Youth Mental Health Service (CYMHS)** provides a range of community based services across the NBMLHD with a focus on early detection and intervention for children and young people aged 3-25. Services are primarily based in Penrith and outreach across the NBMLHD to provide access to young people and their families in community health centres.

  Services include Early Childhood Clinic and Outreach (ECCO) - children 3-5 and their families, Children Of Parents with Mental Illness (COPMI) - strengthening and supporting families and children (aged under 18 years) where a parent has a mental illness, School Link - partnership NSW Department of Education, Assessment and Therapy Team - early intervention programs for children and young people experiencing severe mental health problems, Assertive Child and Adolescent Mental Health Service Team - short term intensive treatment for children and young people aged 5-17, YLINK - early intervention service 15-25 year olds experiencing mental illness for the first time and Early Psychosis Intervention (EPI) - an early intervention service for young people aged 12-25 years experiencing a first episode psychosis.

- **Adult Community Mental Health Services** are primarily delivered by teams co-located with Community Health and Drug and Alcohol services in Community Health Centres. The Community Mental Health Teams deliver a wide range of clinical interventions for consumers with severe mental illness and many complex needs, often in the context of high risk situations which include involuntary treatment under the Mental Health Act (2007); utilising the resources of a multidisciplinary team to maximise timely responses to current and emerging treatment needs of the consumer; and operating in the context of close integration with specialist mental health and other services so that consumers can access the care they need in different settings. Teams work collaboratively with other services in the community, including non-government mental health programs to provide mental health services to people in the community. Other functions of Community and Ambulatory Mental Health Services include outpatient clinic services, assertive community treatment services and social and recreational programs for consumers seriously affected by mental illness through service agreements with non-government organisations.

- **Specialist Mental Health Services for Older People Services (SMHSOP)** consists of a multidisciplinary team with diverse professional inputs in order to manage the varied problems facing older people with mental illness. These will include those specialising in mental health and illness with backgrounds of psychiatry, nursing, psychology, occupational therapy and social

work. SMHSOP has different components that work together to provide a comprehensive package of services and provide continuity of care between hospital and community settings. SMHSOP programs include assessment, diagnosis, clinical care, treatment, management, consultation-liaison, outreach, education, rehabilitation, prevention and capacity building.

Community Based Mental Health Services Activity in NBMLHD in 2011/12

- Child and Youth Mental Health Services at Penrith was one of only three sites in NSW to receive recurrent enhancement funding for the development of an Assertive Child and Adolescent Mental Health Service. The aim of this new service is to improve coordination amongst service providers involved in emergency and acute mental health care of children and adolescents. Plans are in place to commence this service in 2012-13.
- As a consortium partner, NBMLHD supported a successful bid to establish Headspace Penrith led by Uniting Care Mental Health.
- Development of an Early Psychosis Prevention and Intervention Centre (EPPIC) node in NBMLHD with service and training links to the EPPIC Hub in WSLHD as per the model of care and service design agreed upon by both the Chief Executives of NBMLHD and WSLHD in December 2011.
- Developed a Service Level Agreement with employment agency, Maximus Solutions to provide a pilot project (Wellness Through Work), utilising Department of Education, Employment and Workplace Relations (DEEWR) federal funding, to support consumers in obtaining vocational and employment options whilst in hospital and to support them when they return to the community.
- Opened the new St Marys Community Health Centre and expanded the Penrith Community Health Centre with mental health enhancement funding. The centres include co-located Community Health, Mental Health and Drug and Alcohol Services.
- Commenced an Assertive Community Treatment Team covering the Penrith and Hawkesbury LGAs to provide intensive community mental health services to people who are severely affected by mental illness.
- Successfully participated in Aboriginal Traineeship program with Charles Sturt University to enhance Aboriginal workforce and engagement of indigenous community in accessing mental health services.
- Implemented the use of the Cleveland Survey monitoring tool in inpatient units to better inform discharge practices and ongoing care in the community setting whilst aiming to reduce repeat hospital presentations and admissions.

Aboriginal Health

Building Strong Foundations Aboriginal Child and Family Health Program is targeted at Aboriginal families and young children linking them with services, providing antenatal and post natal follow up together with proactive follow up of children until the age of 5 years. The program has involved extensive community consultation and establishing links with the Aboriginal Maternal and Infant Health Strategy. The program provides services to residents of the Penrith LGA. The team is based at Cranebrook Community Health Centre and there is good access to local Aboriginal specific NGOs and strong partnerships developing. The name 'Mudang Mudjin' meaning 'Strong Family' has been identified for the program through research into the local Darug language. The Building Strong Foundations Program is being extended to Lithgow.

Stronger Fathers Strong Families Program promotes the role of Aboriginal and Torres Strait Islander fathers, uncles and grandfathers to actively participate in the lives of their children and families, particularly in the early childhood development years. The program also focuses upon improving the health of men and boys with the aim to reduce chronic illness, particularly associated with smoking and poor health choices and enhance the management of chronic disease. Ongoing activities consist of Men and Boys mentoring camps, parenting sessions, men's conference and family fun days. The program has been funded for three years by the Office of Aboriginal and Torres Strait Islander Health.

Healthy for Life program ensures that Aboriginal clients in the Blue Mountains receive access to the best practice health care through prevention, early detection, diagnosis and intervention for common and treatable conditions. The service links the local Aboriginal community with Child and Family and Chronic and Complex Community Health services and General Practitioners. The program is delivered in partnership with the Blue Mountains General Practice Network and local Aboriginal community, with funding from the Office for Aboriginal and Torres Strait Islander Health (OATSIH).

Aboriginal Maternity and Infant Health Service is an ante and post natal service following up Aboriginal women for eight weeks postnatal. This program supports the mother, baby and family with an aim of better health outcomes and is managed by NBMLHD Community Health services.

Keeping Koori Kids Smoke Free is a local social marketing campaign that aims to reduce the number of Koori kids exposed to passive smoking. Resources have been developed to engage the community and sell the message at local gatherings and events. Supporting strategies have included a Smoke Free Register encouraging Aboriginal families in the NBMLHD to make a smoke free home pledge. Over 100 families have registered. Workforce development has also occurred with over 70 staff trained in culturally appropriate strategies to assist Aboriginal community members to quit.

'Where's the Shame Love your Liver'is a Hepatitis C Prevention project with the Aboriginal Health and Medical Research Council. The project was conducted in November 2011, as part of a NSW-wide campaign. The campaign used community engagement including education, hip hop and media strategies to raise awareness of hepatitis C.

Aboriginal Hepatitis C Access Coordinator at the Needle and Syringe Program has enhanced regular attendance of the Aboriginal population and has resulted in an increased awareness of hepatitis C amongst Aboriginal clients, with a number of clients beginning hepatitis C treatment.

Sexual Health and Us Mob is a recently published sexual health resource that has been widely distributed with requests for the resource to be reproduced within other LHDs. This resource was developed in consultation with local Aboriginal services and community members.

It's Your Choice, Have A Voice! Rights, Respect, Responsibilities is a NSW-wide Aboriginal Sexual and Reproductive Health Campaign in partnership with the Aboriginal Health and Medical Research Council and Aboriginal Medical Service Western Sydney. This innovative project targeted young people in schools and youth services and was implemented by 'Indigenous Hip Hop Productions'. The project focused on respect and aimed to give positive messages about sexual rights and responsibilities, choices and the consequences of these and the impact of alcohol and other drugs in relation to sexual health.

Moving On (Aboriginal specific program) is a self-management therapeutic program for the management of chronic disease. This program has been adapted to be more culturally appropriate following a trial program with Aboriginal participants and is being delivered in collaboration with the NBM Medicare Local.

Aboriginal Oral Health Service, at the Blue Mountains District ANZAC Memorial Hospital dental clinic, is a dedicated one day per week service for the Aboriginal community of the Blue Mountains and Lithgow LGAs. This service was developed as an initiative of the Blue Mountains Aboriginal Health Coalition involving NBMLHD Community Health, local Council, NBM Medicare Local, community controlled Aboriginal health service and all five Aboriginal community groups. Both NBMLHD Oral Health service and the Centre for Oral Health supported this strategy to provide a local dental service which was more accessible.

Drug and Alcohol Services

Drug and Alcohol related programs being implemented in the NBMLHD or supported by the Drug and Alcohol service include:

- Secondary supply campaigns - 'Think consequences……. Don't supply alcohol to under 18's' and 'Kids and Alcohol Think Twice'
- 'Keep Your Head Together' – Youth mental health and substance use program.
- The development and implementation of community driven drug and alcohol management plans
- Supporting local liquor accords and local government safety committees to implement programs that address local drug and alcohol related harms
- Providing evidence based Local Health District information in response to local liquor license applications
- Crossroads - drug and alcohol and sexual health teacher training
- Drug and alcohol community education programs
- Drug Action Week community education and awareness raising activities.

Drug and Alcohol Services Activity in NBMLHD in 2011/12

- Recruited the Drug and Alcohol Aboriginal Liaison Officer who contributed to an increase in Aboriginal patients accessing the service for inpatient admission during this period.
- Health Promotion Team engaged with 700 community members to provide information about the effects of substance use and how and where to access local services.
- Initiated the Youth Drug and Alcohol Service Teen SMART Recovery Group program.
- Facilitated and adapted the Triple P Parenting program for families with substance use issues with Community Drug and Alcohol services in partnership with Primary Care and Community Health.
- Re-established the Blue Mountains Community Drug Action Team through the Community Drug and Alcohol service in partnership with Health Promotion staff.
- Immunised 73% of patients through the Gateway Opioid Treatment Clinic Flu Vaccination project
- Initiated and participated in a range of research projects including a retrospective study on preventable co-morbidities in the drug and alcohol-using-population and their current and future health costs, and a study on Emergency Department drug and alcohol related presentations that will provide information to respond to liquor licence applications.
- Implemented the Youth Off the Streets Dunlea Program to enhance the health outcomes for young people with co-existing substance use issues and mental health concerns.
- Conducted clinical redesign of the inpatient detoxification ward at Nepean Hospital that has resulted in a more streamlined process for admission to the ward, a reduction in aggressive incidents, structured group programs, multidisciplinary intake model and development of key performance indicators.

Multicultural Health

Multicultural Health Activity during 2011/12

- Key Multicultural Health calendar events were celebrated across the NBMLHD. Celebrations included Harmony Day, Refugee Week and Multicultural Health Week.
- Worked in partnership with the community sector to create Diversity in Practise Resource Kit for early childhood services.
- Established the new South Sudanese Mother and Baby Clinic as a joint initiative with Multicultural Health, St Marys Community Health Centre and Mamre House. The clinic provides check-ups for children who were missing their development checks and aims to provide an understanding of the role of Community Health staff in the postnatal and early childhood years. This project won a commendation in the NBMLHD Quality Health Awards.
- Rolled out cultural competency training across the NBMLHD for:
    - Frontline staff at the Blue Mountains District ANZAC Memorial Hospital in Maternity, Emergency, Rehabilitation and General Surgery wards
    - Community Health staff focusing on raising awareness of Postnatal Depression and the factors affecting CALD mothers
    - Palliative Care volunteers
    - Aged Care staff as part of the Integrated Monitoring Framework review.
- Worked closely with CALD communities to address identified health needs with a particular emphasis on:
    - Those in rural and remote areas through the provision of targeted health education and promotion on health topics such as dementia awareness, safe and wise use of medicines, managing and reducing stress, heart care, depression and mental health, diabetes prevention and nutrition.
    - Ongoing Women's Health and health promotion information to refugee communities including the South Sudanese Women group.

Oral Health Services

The Oral Health Service is committed to promote population oral health initiatives. The following oral health programs (current or under development) are targeting oral health priority populations:

Early Childhood

Early Childhood Oral Health Program aims to educate and train non dental health professionals (e.g. doctors, nurses, Child and Family Health nurses, speech pathologists) in the identification of early childhood caries. The program also provides the health professionals with promotional tools to educate parents of young children about the prevention of early childhood caries. Also the program provides a referral pathway for the dental management of young children identified with early childhood caries.

Tooth Smart Program is targeted at parents and siblings of children with early childhood caries. The program provides screening and education for parents and siblings of young children diagnosed with early childhood caries.

'NSW Little Smiles' is an Oral Health resource package for Childcare Professionals that was delivered to childcare facilities in 2010. Training was also offered to childcare workers. As a result consultation has occurred with NSW TAFE and oral health is to become a component of the Certificate Three in Child Services. In 2013 the NBMLHD Oral Health Promotion Coordinator will be responsible for delivering oral health workshops to local TAFE students.

Aboriginal and Torres Strait Islanders People

Aboriginal Dental Clinic at Katoomba: The Oral Health Service at NBMLHD in collaboration with the Centre for Oral Health Strategy (COHS) has established a dedicated dental service for the Aboriginal and Torres Strait Islanders People residing at the Blue Mountains and Lithgow.

'Mudang Mudjin' is the Aboriginal Early Childhood Health Service operating from Cranebrook Community Health Centre. The team supports Aboriginal Children 0 – 5 years and their families. NBM Oral Health Services supports the oral health component of this program by way of train the trainer and oral health resources (toothbrushes, toothpaste, Sippy cups and water bottles) Training for Aboriginal Child and Family Health Nurses in Early Childhood Oral Health is scheduled in 2013 to carry out dental assessments and refer those in need.

Communities from Culturally and Linguistically Diverse Background

'Share the Same Smile' is a dental health information package for recent migrants. It is a train the trainer package aimed at Bilingual Community Educators to promote oral health. Implementation for Share the Same Smile is planned for 2013.

Health Promotion

Healthy Weight

Obesity increases the likelihood of heart disease, stroke, asthma, diabetes, cancer and osteoarthritis. With over 50% of the adult population within NBMLHD either overweight or obese this poses a major health risk to the community.

Health promotion strategies targeting healthy weight and prevention of overweight and obesity are delivered through various settings. The majority of work is guided by the Healthy Children's Initiative which includes programs targeting healthy eating and physical activities.

Programs being implemented include:

- Munch and Move® delivered in long day care services and pre-schools
- Live Life Well @ School and Crunch and Sip delivered in Primary Schools
- Crunch and Sip delivered in Primary Schools
- Go4Fun® a targeted family healthy eating and physical activity program.

Programs planned for future implementation include:

- Healthy Supported Playgroups
- High School Canteen Support Service
- Sporting Canteen Nutrition Support Service
- Drink Water First @ Sport.

There are also Public Health marketing campaigns such as 'Get Healthy' that are supported by the Health Promotion Unit at Nepean Blue Mountains Local Health District. Healthy weight will also be addressed under the Healthy Workers Initiative.

Tobacco Control

Smoking tobacco is a major preventable cause of death and illness as it can adversely affect almost every organ in the body and increases the risk of many cancers. Exposure to second-hand smoke or what is referred to as environmental tobacco smoke increases the risk of asthma and SIDS for children. 18% of the population in Nepean Blue Mountains Local Health District smoke tobacco.

The Health Promotion Unit delivers a comprehensive tobacco control strategy across the local health district by implementing and/or supporting the:

- Smoke Free Workplace Policy within its own health facilities
- Healthy Workers Initiative
- Quit 4 New Life Program
- Conduct promotional activities in partner settings such as TAFE and UWS – Kingswood and Hawkesbury.

Health Promotion services also capitalises on opportunities to promote awareness of the Quitline to businesses participating in the Healthy Workers Initiative and the public during major community events such as NAIDOC.

Falls Injury Prevention

Falls injury is a significant cause of preventable hospitalisation and loss of independence among older people. With the ageing population, increasing numbers of people will be living with chronic health conditions that predispose them to fall injury. The Falls Injury Prevention Program engages with partners both within and outside the health system to implement evidence-based programs that emphasis physical activity which including balance and strength exercises, as well as ensuring sufficient calcium and vitamin D intake to optimise bone strength.

The Health Promotion Unit delivers the Prevention of Falls and Harm from Falls among Older People 2011-2015 strategy in two parts. This includes within the hospital setting through policies, procedures and staff training and providing health promotion resources and within the community by delivering community-based programs such as Staying Active and Healthy, Fit and Strong Challenge and Stepping On. Opportunities to address falls prevention among older people are maximised during April Falls, Seniors Week and other community events targeting older people.

Health Promotion Activity in the NBMLHD in 2011-12

Healthy Children's Initiative	• 59 local primary schools participating in the Live Life Well@School. • 40 local primary schools participating in the Crunch and Sip Program. • 45 local childcare staff have participated in Munch and Move Workshops for children 0-5 years and their families. • 5 Go4Fun programs run with 30 participants graduating.
Workplace Health Promotion Survey	• Conducted the Workplace Health Promotion Survey with 70 Lithgow businesses to gauge the prevalence of workplace health promotion activities, extent and nature of activities, support required, barriers and attitudes.
Memorandum of Understanding with the University of Western Sydney	• Resulted in executive endorsement of a smoke free designated smoking area campuses policy, banning the sale of tobacco products on campus. • Multiple other projects including 'Online Wellness Project' a health promotion website targeting students and staff.
'Get Healthy Information and Coaching Service'	• Promoted the 'Get Healthy Information and Coaching Service' to over 80,000 TAFE and 40,000 UWS staff and students, with Get Healthy @ UWS referring over 1,000 people to the service.
'Stepping On' Program	• Targets older people 65+ who have fallen or at high risk of a fall.
Keep Koori Kids Smoke Free	• Over 100 registrations.
Tobacco Control E-learning Modules	• Brief Intervention Module. • Nicotine Replacement Therapy (NRT) for Nurses. • 240 staff completing training.

Public Health

Bio-Preparedness

The public health response to a disaster can range from monitoring emergency shelter conditions, to provision of mass vaccination programs, to dissemination of community advice on avoiding health risks arising from the disaster such as bushfire smoke or flood damage. The public health unit prepares to work with hospitals and disaster management agencies to respond to any disaster that arises in the District through training of public health unit staff and creation and review of public health response plans.

Communicable Disease Control

The communicable disease control team receives infectious disease notifications and initiates control measures in accordance with NSW Health policies. This team works closely with aged care facilities, child care centres and schools to identify and control outbreaks of diseases such as influenza and gastroenteritis thus preventing unnecessary morbidity and hospitalisations.

The communicable disease control team works with doctors and hospitals to control the spread of infections such as measles, meningococcal disease and hepatitis A, and with other agencies to investigate and control conditions such as Legionnaires' disease and food poisoning.

Environmental Health

The environmental health team has a key role in tobacco control through enforcing compliance with the *Public Health (Tobacco) Act 2009* and the *Smoke Free Environment Act 2000.* Inspectors conduct regular monitoring of tobacco retailers for compliance with sales to minors, advertising and display provisions of the Act and prosecute retailers that breach the law. Inspectors also investigate complaints about smoking in enclosed public places and the new restrictions on smoking at transport stops, children's playgrounds, sporting venues and hospital grounds.

Environmental health officers also work closely with local government authorities to ensure that infectious disease risks in the environment, such as warm water systems and cooling towers, skin penetration procedures and public swimming pools are controlled, and investigate any disease outbreaks associated with these sources. In this period the environmental health team will work closely with Greater Lithgow City Council and private water suppliers to implement risk management plans for drinking water supplies as required under the *Public Health Act 2010* to reduce the risk of contamination and improve the quality of drinking water supplied.

The environmental health team also works with local government authorities to assess the potential impact of new developments and provide advice to planning authorities about the potential for health risks. In this period expansion of coal mining and power generation activities in the Lithgow area will require careful consideration of how potential air, noise and water pollution may impact on population health.

Immunisation

The main operational function of the immunisation team is to deliver the NSW Adolescent Vaccination Program in all high schools in NBMLHD. This Program is expanding from 2013 to offer the three-dose course of human papilloma virus vaccine to Year 7 boys as well as girls, and will offer a catch-up course to Year 9 boys in 2013 and 1014. In delivering the Program the immunisation team works closely with high schools and uses continuous quality improvement to deliver a safe and effective service while minimising disruption to schools.

The immunisation team also provides leadership and acts as an expert resource to primary care immunisation providers in the District through chairing the Wentworth inter-sectorial Immunisation Committee and leading the development of the Nepean Blue Mountains Immunisation Strategy. The immunisation team will work closely with Aboriginal health workers and the Nepean Blue Mountains Medicare Local to improve the timeliness and uptake of the National Immunisation Program by Aboriginal people.

Each year the immunisation team delivers the Influenza Prevention Program which aims to reduce influenza hospitalisations by vaccinating high risk groups, such as pregnant women, Aboriginal people and people with chronic disease in clinics in District facilities and at community events.

Public Health Activity in the NBMLHD in 2011-12

Influenza Prevention Program	• 91 clinics in Nepean and Blue Mountains District ANZAC Memorial Hospitals vaccinating 1,371 patients and 422 staff • Additional 85 Aboriginal people were vaccinated at NAIDOC events and over 200 people received health promotion/ health check services
School Vaccination Program	• School Vaccination Program achieved 70% coverage for completion of human papilloma virus 3-dose course • School Vaccination Program achieved 76% uptake of diphtheria-tetanus-pertussis vaccine in Year 7

Mammographic Screening

Health Status

Survival rates for breast cancer nationally are improving, however, 37 Australian women are diagnosed with breast cancer each day and breast cancer accounts for 28% of all new cancers diagnosed in women in NSW.

Breast cancer is the most common cancer in Australian women and the majority of cases (69%) are diagnosed in women aged 40-69 years. According to the NSW Central Cancer Registry data in 2008, there were 106.7 new cases of breast cancer diagnosed per 100,000 population in the NBMLHD.

The number of women diagnosed with breast cancer is expected to rise in the future due to the ageing population. The projections indicate that in 2020 about 17,200 new breast cancers will be diagnosed in Australia. This would equate to 47 women diagnosed every day.

Breast Screening promotes that early detection of cancer provides the best chance of survival from breast cancer and a reduced mortality rate has been demonstrated in populations with screening mammography.

Program Description	**Indicators / targets**
Maximise early detection of breast cancer in target population.	To achieve in line with the objectives of the BreastScreen Australia program's national screening target.
Ensure timely and equitable access to prevention, treatment and care, so that individuals have the same opportunity and their needs are met.	Increase the rates of recommended breast cancer screening to reduce breast cancer morbidity and mortality in NBMLHD.
Formalise relationships and arrangements for screening between community health care providers particularly by working with GP's and Women's healthcare workers.	Continue to build collaborative relationships which promote breast screening and cancer detection with consumers, general practitioners and Women's healthcare workers.
Ensure that breast screening for breast cancer in Australia is provided by dedicated and accredited screening and assessment services.	Breast Screening measures as per the NSW Cancer Institute agreement.
Achieve high standards of program management, service delivery, monitoring and evaluation and accountability.	Breast Screening measures as per the NSW Cancer Institute agreement.

HIV and Related Programs

HIV and related programs conduct the following programs and services in the NBMLHD.

HIV and Sexual Health Promotion

Sexual health and HIV initiatives with the above populations, and the general community of NBMLHD, are delivered within the context of supporting the development of a Nepean and Blue Mountains community which is Sex aware, Sex positive and Sex responsible.

The focus in the area of HIV prevention is gay men and other men who have sex with men and people living with HIV. To achieve the ambitious targets for the reduction of HIV transmission, it is critical that these populations increase testing and treatment and knowledge about HIV. Partnerships with the AIDS Council of NSW (the lead NGO in NSW in the HIV area) are integral for program implementation and is facilitated through a settings-based approach.

The focus in the area of sexual health is young people and their communities. Disease indicators show that chlamydia is the major sexually transmissible infections (STIs) impacting on young people's health. Programs to support a reduction in sexually transmitted infections for young people are most effective when delivered within the above sex positive and responsible framework. Collaboration with key partners in areas such as increasing condom skills and access, developing skills in positive and safe sexual expression is important.

Other key areas of work include improving health outcomes for, and increasing Aboriginal and multicultural community members' access to HIV and Sexual Health and Hepatitis services.

Viral Hepatitis Health Promotion

The focus of viral hepatitis health promotion and prevention work is on population groups who either have, or are at risk of contracting viral hepatitis, as well as raising awareness, encouraging testing and referral into treatment. The key priority population groups for hepatitis C prevention in NBMLHD are people who inject drugs (with consideration also given to prevention strategies which target young people who are at risk of injecting, known as pre-injectors), Aboriginal people who engage in risk behaviours and people who move through custodial settings. The key priority population groups for hepatitis B prevention are specific culturally and linguistically diverse populations with high Hepatitis B prevalence. Initiatives include training and support of staff and community organisations and community development and awareness.

The Needle and Syringe Program

The Needle and Syringe Program is an evidence based public health program that aims to prevent the spread of infections such as HIV and hepatitis C among people who inject drugs, and from these groups to the general community. The Needle and Syringe Program works within a harm reduction strategic framework. The NBMLHD Needle and Syringe Program operates through:

- Enhanced Primary Care service located at South Court Primary Care Clinic, Nepean Hospital Campus

- Secondary services located at Barnados, Community Health Centres at Penrith, Springwood, Lawson, Katoomba, Lithgow and Hawkesbury and Emergency Departments at Blue Mountains, Lithgow and Hawkesbury Hospitals and Portland Tabulam Health Centre
- Coin operated vending machines located at South Court Primary Care Clinic, Community Health Centres at Hawkesbury, Penrith and Blue Mountains and Blue Mountains and Lithgow Hospitals.

The Needle and Syringe Exchange Program service model is constantly expanding its range of service modes in order to reach new and emerging populations and ensure adequate coverage of sterile injecting equipment for every injecting episode. The primary guiding document for service delivery of Needle and Syringe Program is the *NSW Health Needle and Syringe Program Policy and Guidelines for NSW 2006* (under review).

Private Hospitals in NBMLHD

The following provides information on private facilities operating in the NBMLHD. Information was accessed on 14 September 2012 from http://www.health.nsw.gov.au/resources/hospitals/phc/overnight_pdf.asp

Nepean Private Hospital

Location: Barber Avenue, Kingswood

Nepean Private Hospital is operated by Healthscope. Nepean Private Hospital is a 109 bed hospital which opened in July 2000. The range of clinical services provided include:

- General surgery
- Gastroenterology and endoscopy
- Gynaecology
- Maternity
- Urology
- Orthopaedics
- Ophthalmology
- Plastic, reconstructive & cosmetic surgery
- Ear, nose and throat surgery
- Paediatrics
- Oral and dental surgery
- General medical care.

Other onsite services include:

- Pathology (under contract from NSW Pathology West)
- Diagnostic imaging
- Pharmacy
- Physiotherapy.

Hawkesbury Hospital

Location: 2 Day St Windsor

Public hospital services are delivered at Hawkesbury Hospital under contract with the NBMLHD to 2016. The hospital also provides private hospital services.

St John of God Hospital, Richmond

Location: 117 Grose Vale Road, North Richmond

St John of God Hospital, Richmond, has 88 beds and provides a diverse range of specialised psychiatric programs on an inpatient, day patient and outpatient basis. The range of clinical services provided includes:

- Alcohol and other drugs dependency
- Post traumatic stress disorder including Veterans' and Police Trauma Programs
- Personality disorders
- Mood disorders
- Anxiety and depression
- Psychogeriatric mental health
- Psychotic disorders

- Community-based perinatal infant mental health.

Lithgow Community Private Hospital

Location: 1 Col Drewe Drive, Bowenfels

Lithgow Community Private Hospital recently announced the closure of its overnight acute inpatient service. The hospital will continue to provide day only surgery and consultation suites. The hospital is considering additional services that may be offered.

Francis Street Ophthalmic Day Procedure Centre

Location: 112 Francis Street, Richmond

Francis Street Ophthalmic Day Procedure Centre is a licensed day procedure centre in Richmond within the Hawkesbury Local Government Area. The Centre is licensed to provide surgery and anaesthetics.

Non-Government Organisations Funded Through Nepean Blue Mountains Local Health District as at November 2012

Aboriginal Medical Service Western Sydney, Mt Druitt Village
Barnardos Australia - Cranebrook
Blue Mountains Palliative Support Service, Lawson
Blue Mountains Women's Health and Resource Centre, Katoomba
Catholic Care Social Services Dioceses Parramatta
Family Planning NSW - The Warehouse, Penrith
GREAT Community Transport, Blue Mountains and Penrith
Penrith Women's Health Centre
Peppercorn Community Transport, Hawkesbury
Richmond Fellowship NSW - Young Peoples Program, Emu Heights (aka Brumby)
Salvation Army Blue Mountains Recovery Service, Leura (MERIT bed only)
Substance.org (formerly WESDARC), Penrith
We Help Ourselves (WHOS), Penrith and Rozelle