



2016/2017

Needs Assessment

phn
NEPEAN
BLUE MOUNTAINS
An Australian Government Initiative

 **Wentworth
Healthcare**
Blue Mountains | Hawkesbury | Lithgow | Penrith

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

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Wentworth Healthcare would like to acknowledge the organisations and members of our local community who contributed to the contents of this report.

Executive Summary

Wentworth Healthcare, provider of the Nepean Blue Mountains Primary Health Network (NBMPHN), has undertaken a comprehensive needs assessment to assist in identifying and analysing the health and service needs of our communities within the Nepean Blue Mountains (NBM) region.

The outcomes of this needs assessment have helped in determining the key priorities of our region, which will be translated into balanced, ethical and economic plans that address ***chronic and complex conditions, mental health, drug and alcohol, the needs of older people, access to health services and cultural and demographic considerations affecting primary healthcare.***

These plans will include identifying key medical and healthcare service options that will be sourced or purchased through a 'commissioning'[†] approach to better support primary care services in delivering the right care at the right place and the right time across the region.

In undertaking the needs assessment, Wentworth Healthcare engaged broadly with a wide range of key stakeholders, agencies and communities across the region. This included the utilisation of data we had previously collected via consultations undertaken with regional consumer groups, the Aboriginal Community and CALD communities (Culturally and Linguistically Diverse), primary care health practitioners and other organisations, government and non-government funding bodies.

Currently available epidemiological data was derived from the Nepean Blue Mountains Local Health District (NBMLHD) and national health data sets to provide quantitative information. In addition demographic and socio-economic data reflecting the health and social determinants as well as a market analysis, informed us of the unmet health and service needs.

Combined, a profile of the NBM region's gaps in unmet healthcare needs has been developed and analysed to inform opportunities, priorities and options for our future health and service planning. The six key areas that parallel both NSW State and National priorities include: Chronic and Preventable Conditions; Mental Health; Alcohol and Other Drugs; Older Persons; Demographic and Cultural Factors Influencing Health Status and Access to Health Services.

Chronic and Preventable Conditions

The major risk factors contributing to the development of chronic and preventable conditions and their prevalence in our region include smoking, high body mass, physical inactivity, high blood pressure and excessive alcohol consumption. The high rates of comorbidity associated with chronic disease result in complex care needs and higher treatment costs. An overriding factor compounding the prevalence for our region is the ageing population. Fragmented care coordination of chronic disease was also a key issue consistent with state and national findings.

[†] The iterative process of commissioning requires Wentworth Healthcare to source or purchase services based on a systematic method of using current epidemiological and qualitative information.

The chronic and preventable conditions with the highest prevalence in the NBM region include chronic obstructive pulmonary disease (COPD), diabetes, cardiovascular disease, overweight and obesity. Chronic diseases are a major cause of hospitalisation, which could potentially be avoided with further support given to prevention and management.

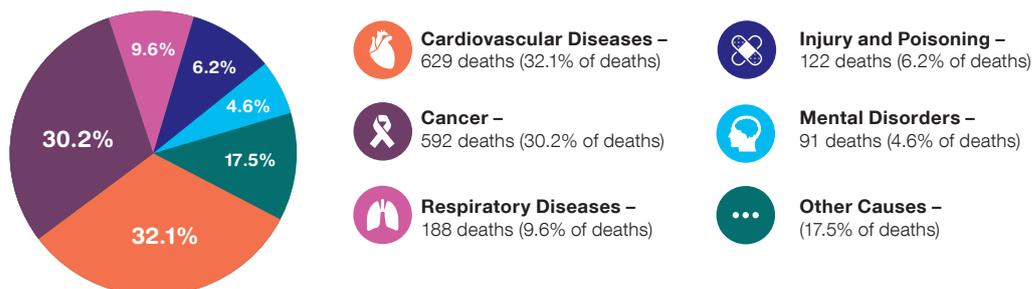
Key Facts

- A significant increase in the **prevalence of Diabetes** by 3.7% over a 10-year period (2002 to 2012), whilst only 19.7% of people with diabetes in the region are registered with the National Diabetes Services Scheme.
- **Cardiovascular disease** is the leading cause of death in the region (2012) with significantly higher rates for females compared to the NSW population.
- One in five people are reported to be obese and one in three people are overweight (2014). Rates of **overweight** and **obesity** in the Nepean Blue Mountains region (63%) compared to the national average (62.8%). The proportion of persons who were overweight or obese in the Nepean Blue Mountains region increased from 61% in 2007-08 to 63% in 2011-12.
- **Respiratory disease** is the third leading cause of death in the NBM population (2010-11) accounting for 4.9% of hospitalisations with males being more significantly affected however the female respiratory death rate (54.7 deaths per 100,000 population) is significantly higher than the NSW female rate of 40 (2010-11). COPD is the leading cause of potentially preventable hospitalisations in the region (2011-12) resulting in a 6.1 day average length of stay. There is also a high prevalence of asthma for children and adults amongst the eight metropolitan health regions. Hospitalisation rates for influenza and pneumonia are significantly higher than the state average. Conversely antimicrobial prescribing rates relevant to influenza and pneumonia indicated a wide variation with particularly high rates in the Penrith and Hawkesbury LGAs.

Top Five Potentially Preventable Hospitalisations (2011 to 2012)

Chronic obstructive pulmonary disease	1,006 hospitalisations
Urinary tract infections and pyelonephritis	984 hospitalisations
Dehydration and gastroenteritis	906 hospitalisations
Dental conditions	814 hospitalisations
Asthma	696 hospitalisations

Leading Causes of Death (2010 to 2011)



- Although current rates of **childhood immunisation** are generally above average against the state, there is an exception for Aboriginal children at 1 year of 91.5% compared to non-Aboriginal children of 95.1%. There are also variations in rates within pockets of the Blue Mountains LGA which is consistently lower than the state average.
- Similar to the NSW population, **cancer** is the second highest cause of death in the region with regional prevalence in adults the second highest ranking for NSW state. Cancer incidence is reflective of the state averages with the number of preventable cancer deaths in the region expected to increase rise to 758 in 2021 (from 663 in 2016) alongside population increases.
- **Cancer screening** rates for Bowel, Breast and Cervical Cancer are lower than NSW state average rates for the majority of screening age groups across nearly all regions. These include low rates of breast screening amongst CALD communities in the Blue Mountains and Aboriginal women in Lithgow; low rates of cervical screening in the Penrith LGA and; low rates of bowel screening for men in the Penrith and Hawkesbury LGAs. This highlights the fragmented approach to encapsulating screening results within primary care through the various service providers, which in turn has impacted upon preventative health management.

Mental Health

Mental and behavioural disorders are the fifth leading cause of death in the NBM region, accounting for 4.6% of all deaths (2010-11).

Key Facts

- **Male hospitalisation rates** for mental disorder is highest among the 15 NSW LHDs and significantly higher than all the metropolitan LHDs. Corresponding **female hospitalisation rates** are fourth highest amongst the 15 NSW LHDs and fourth highest among the eight NSW metropolitan LHDs.
- High **suicide rates** for middle-aged and elderly men (2.8 times the age standardised rate for women), peaks at ages 35 to 54 and sees a substantial spike at age 85+ over. There are increasing rates of suicide among youth with recent surveys indicating 7.5% of 12 to 17 year-olds have seriously considered attempting suicide in the previous 12 months (2013–14). Suicide rates for Indigenous Australians are high (2.25 times age standardised, 2001-2010) which is higher than the NSW average. The largest difference between Indigenous and non-Indigenous rates are at younger ages, with the age-standardised rate four times higher for 25-29 year old males and more than five times higher for 20-24 year old females. Socioeconomic disadvantage may be a suicide risk factor in the NBM region.
- **Self harm** represents the highest hospitalisation rate for males and second highest for females aged 15-24 compared with all other NSW metropolitan LHDs.
- A high proportion of **Aboriginal and Torres Strait Islander** people experience psychological distress whilst a relatively low proportion of Aboriginal and Torres Strait Islander people access psychological and psychiatric services.

Across the region, low intensity mental health services are limited for children and youth. Other findings reveal a lack of care coordination, referral pathway coordination and case management. Discharge planning is not consistent, with a lack of coordinated follow up post discharge. There is an absence of sub-acute services across the region, particularly for youth. Long wait lists for public psychiatric services are compounded by psychiatric workforce needs.

Increasing the knowledge of general practitioners about available clinical and non-clinical services, and their referral pathways is a need as is culturally appropriate services for Aboriginal people and CALD populations.

Other specific populations requiring support for mental health included the homeless and prisoners upon release from correctional services and when transitioning to the community.

Alcohol and Other Drugs

Based on 2011 census data, more than 70,000 people in the region may be involved in risky use of tobacco, alcohol and drugs including methamphetamine. Illicit drug use is a major risk factor for mental illness, suicide, self-inflicted harm and overdose, with the rates of mental illness almost doubling with illicit drug use. Co-existing physical disorders have also been identified as a major contributor to early death amongst chronic substance users in the region.

Key Facts

- **Drug and alcohol represents approximately 20% of all presentations to emergency departments** in the region and is one of the top five medical diagnoses related group (DRGs) separations (excluding detoxification) averaging 80 per month.
- It is likely that **one in four inpatients could meet criteria for drug and alcohol treatment** however most are not aware they have a problem.

Compounding this, there are difficulties obtaining drug and alcohol consultations for patients presenting to emergency departments and other hospital services and there are currently no mechanisms or links for shared care or advice between the regional drug and alcohol service and general practice. There are also gaps in the provision of culturally secure assessment and coordination services for Aboriginal people, CALD and refugees with complex problems including dual diagnosis as well as services after hours.

Older Persons

Compared to the state average of 3.30% growth in older persons as a proportion of total population, NBM will experience an overall growth rate of 5.13% between 2011 and 2026. At 6%, Penrith LGA will experience the highest growth – almost double the state average (NBM Local Health District, 2013).

Key Facts

- The average **cost of treatment** for people aged 75 yrs and over is 2.4% higher than the NSW average.
- Nearly all patients aged 65 years and over attending a GP consultation **have one or more diagnosed chronic conditions**.

Inadequate support and a lack of services for older people and carers impact the entire region. The effects of these increasing demands highlights the need for appropriate and timely access to healthcare services.

Addressing potentially avoidable admissions for this cohort is essential. Influencing factors that lead to their presenting or being admitted to hospital include complications of poly pharmacy, opioid use for of chronic pain and fall related injuries.

The promotion of advanced care directives to ensure older persons care wishes are transparent to health service providers remains a need.

Demographic and Cultural Factors Influencing Health Status

There is a high proportion of Aboriginal people living in the region at 2.5% of the total population (representing 11,723 people), which represents 5.32% of the NSW population of Aboriginal people.

Key Facts

- The Penrith local government area (LGA) has **the largest number of the region's Aboriginal population** (2015).
- Aboriginal residents in our region have a **higher proportion of hospitalisations (4.3%) in which the patient has left against medical advice**, compared with non-Aboriginal residents (0.8%).
- There has been an **increase in the representation of residents born overseas in hospital re-admissions** compared with the Australian born population in hospitalisations from 2008-09 to 2011-12.

Increasing primary care capacity to support cultural competency of the regions Aboriginal and CALD populations would support improved access to healthcare.

Additionally, poor health literacy is problematic for these populations and was similarly identified as a need across the region.

Access to Health Services

It is likely that there has been little or only marginal improvement in access to health services for our region's residents in recent years.

Key Facts

- Transport, including **availability, long distances (especially for outlying areas), and costs** are dominant issues for the region.
- **Health workforce shortages affect access to specialist care** particularly for the Blue Mountains and Lithgow LGAs.
- There are **difficulties accessing general practice due to limited supply**, with long waiting lists experienced by residents from all LGAs. This is compounded by inadequate information about available services and eligibility requirements.

Attracting and retaining a health workforce remains a challenge and the general practice workforce is ageing. There are challenges accessing After Hours general practice across the NBM region.

There is an increasing level of difficulty in accessing health services reported by areas of social disadvantage and disparity, which exists in pockets across the region.

There is also a high incidence of domestic violence in the Penrith LGA and access to services is limited.

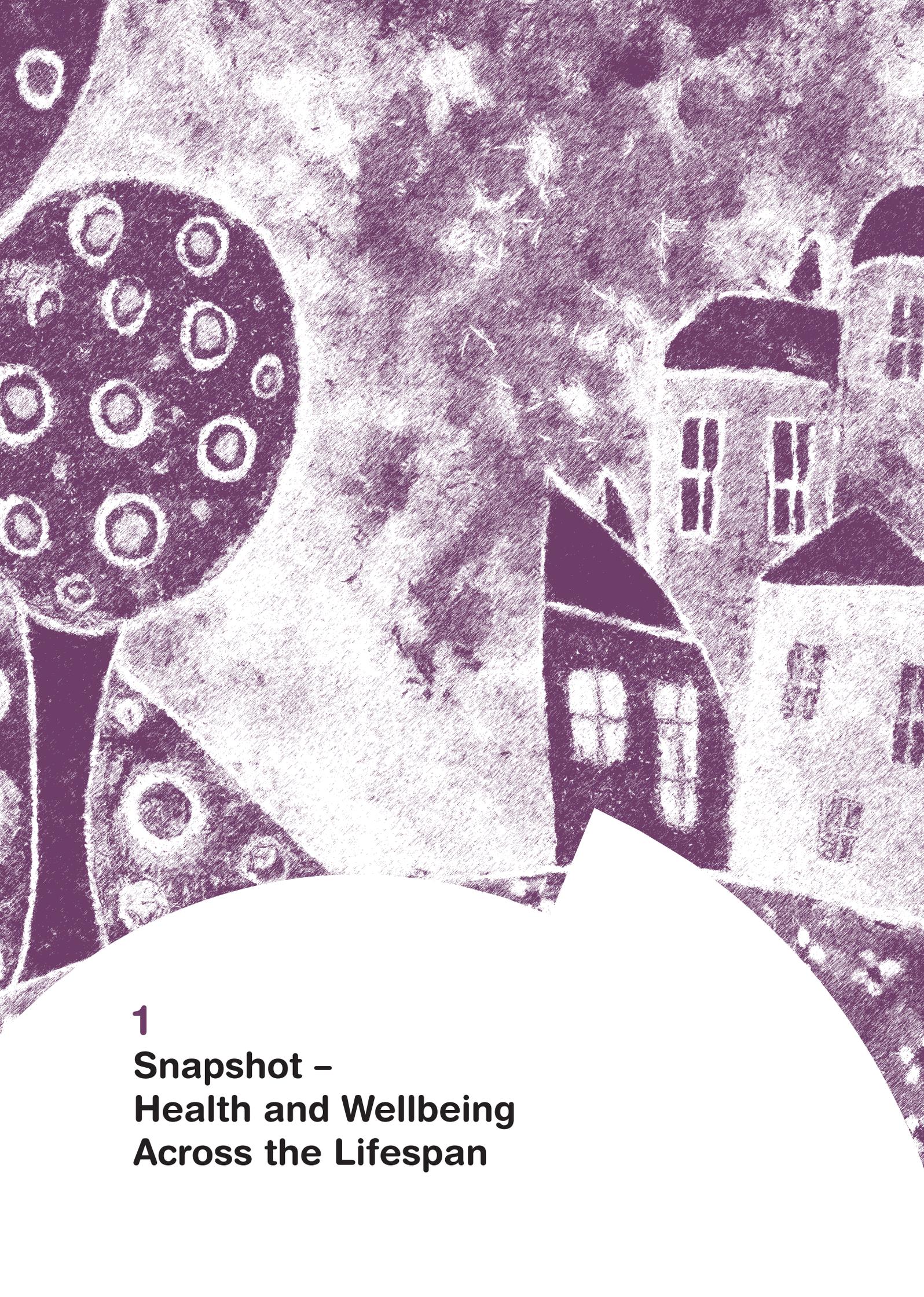
Next Steps

This needs assessment is the first iteration of a report that will continue to be revised and updated in accordance with the health needs of the region, providing both quantitative and qualitative information that will inform the PHN planning around health service commissioning and associated activities.

The 2017/2018 Needs Assessment will be available in early 2018.

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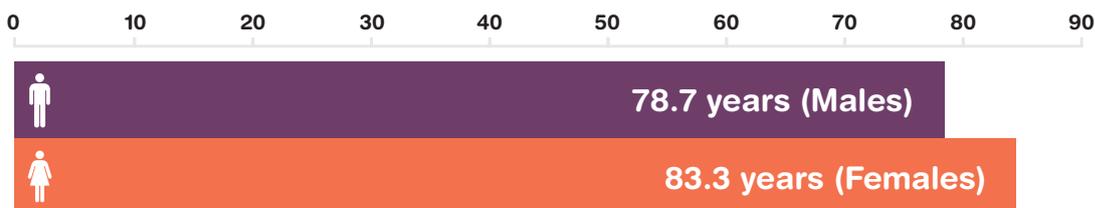
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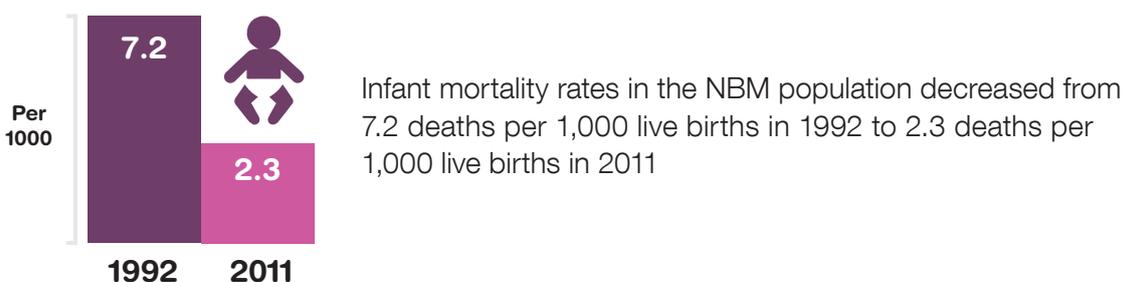
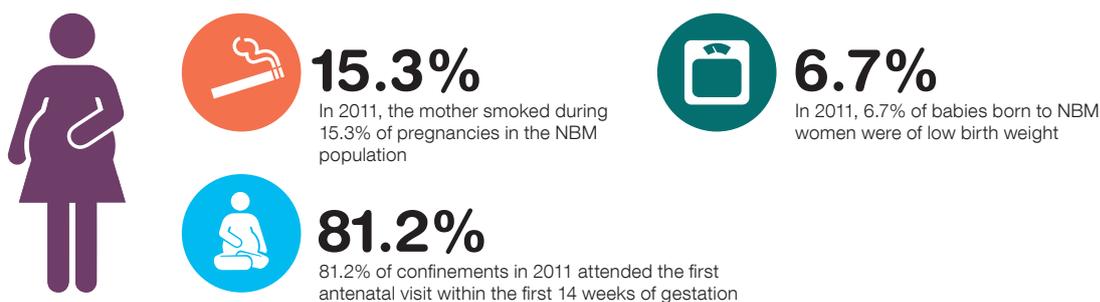
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**Snapshot –
Health and Wellbeing
Across the Lifespan**

Snapshot – Health and Wellbeing Across the Lifespan

Life Expectancy in the NBMLHD



Maternal and Infant Health

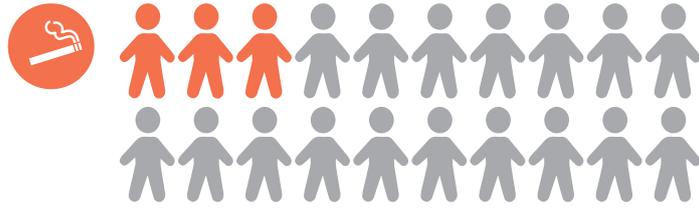
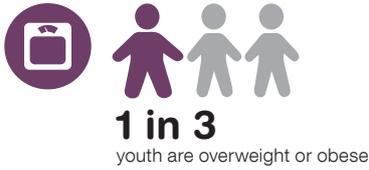


Child Immunisation Rates

In 2014-15, child immunisation rates (one year old) were below national targets of 92%

	Aboriginal population	Non-Aboriginal population
Aged 1 year	88.8%	91.2%
Aged 4 years	94.8%	94%

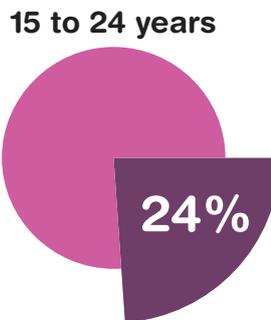
Youth Health (2013)



Youth Mental Health



In the NBM population, depression was a leading reason for mental disorder hospitalisations in those aged 15 to 24



The prevalence of mental disorders among young people aged 15 to 24 years is around 24% of this age group

Adult Health



For those aged over 16, the prevalence of obesity increased from 17.1% in 2002 to 24.5% in 2012



In 2010-11, cardiovascular disease was the leading cause of death in the NBM region, representing 32.1% of all deaths



4.7%

In 2011-12, cardiovascular disease hospitalisations comprised 4.7% of overall hospitalisations in the NBM region



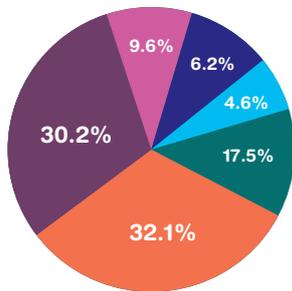
In 2012, diabetes was prevalent in 7.6% of those aged over 16



13.8% of those aged over 16 were diagnosed with asthma

Leading Causes of Death

In the NBM population, the five leading causes of deaths (after averaging results for the two years from 2010 to 2011) were:



Cardiovascular Diseases – 629 deaths (32.1% of deaths)



Injury and Poisoning – 122 deaths (6.2% of deaths)



Cancer – 592 deaths (30.2% of deaths)



Mental Disorders – 91 deaths (4.6% of deaths)



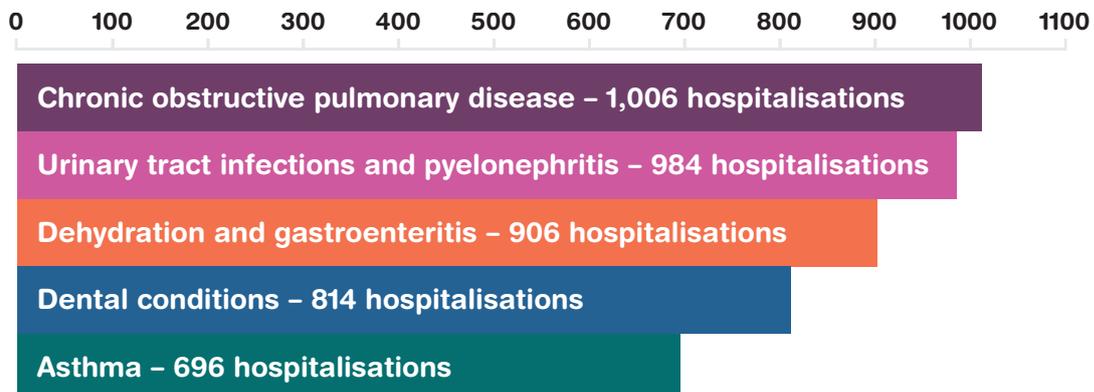
Respiratory Diseases – 188 deaths (9.6% of deaths)



Other Causes – (17.5% of deaths)

Preventable Conditions

For 2011-12, conditions with the highest number of hospitalisations for potentially preventable conditions were:



RISK FACTORS FOR 16+ AGE GROUP, NBM REGION, 2011-12

	Tobacco Use %	High Body Mass %	Physical Inactivity %	High Alcohol Use %	High Blood Pressure %
% of NBM population	21.6%	59.8%	46.1%	29.6%	29%

Aboriginal Health in the NBM

Life expectancy for Aboriginal males is almost 10 years less than non-Aboriginal males. In 2012, life expectancy for the Aboriginal male population was 70.5 years, compared to 80.4 years for non-Aboriginal males. In 2012, life expectancy for the Aboriginal female population was 74.6 years, compared to 83.1 years for non-Aboriginal females.

In 2014, of Aboriginal people aged over 16:



37%
smoked



30%
were overweight



32%
were obese



46%
consumed alcohol at a risky level



31%
had high blood pressure



12.4%
had diabetes and high blood sugar levels

Older Persons' Health (2011)



57.8%
of those aged over 65 were immunised against pneumococcal



73.9%
of those aged over 65 were immunised against influenza

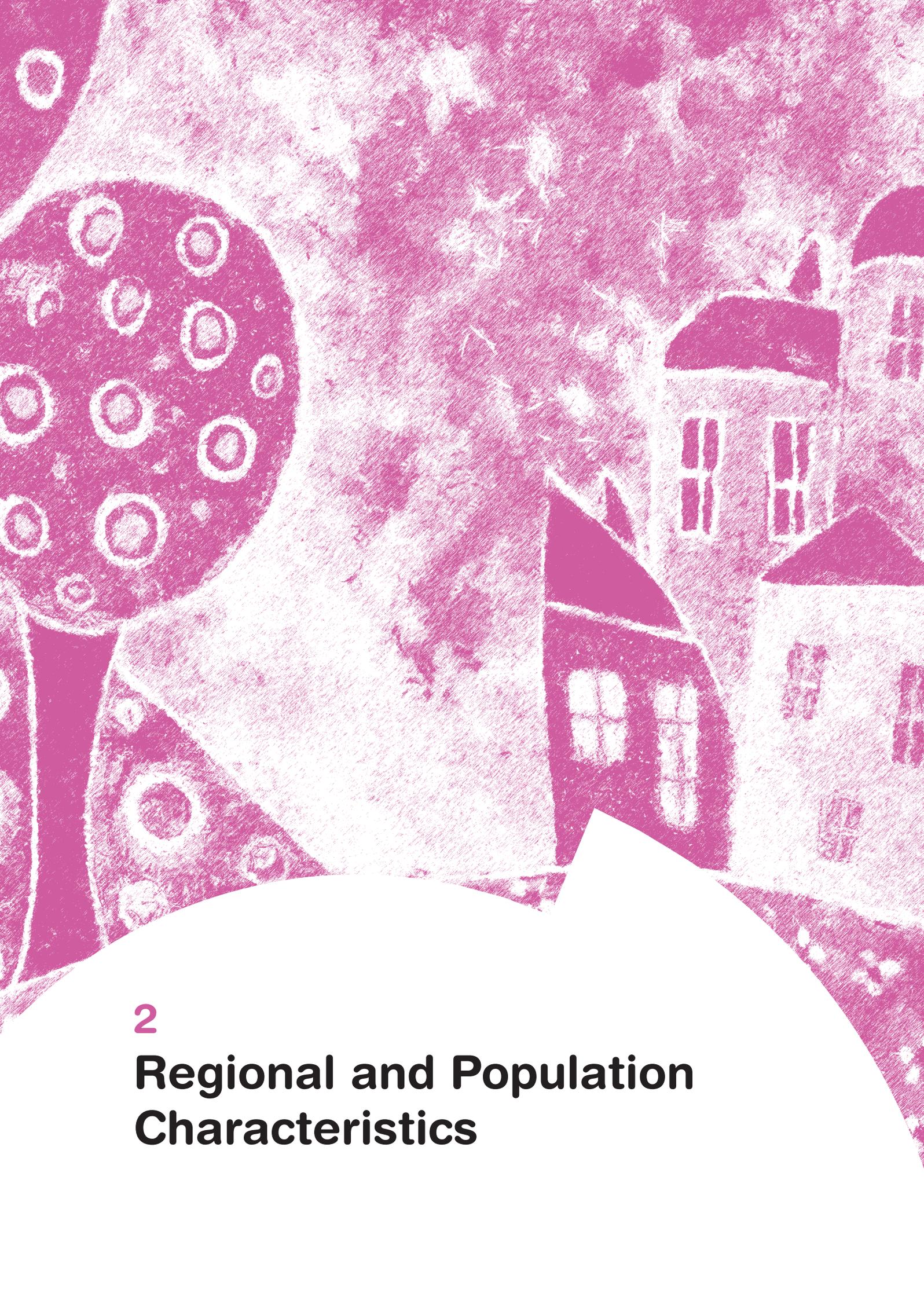


For those aged over 65, there were high rates of hospitalisation for injuries. During the period from 2004 to 2011, there were significant increases in hospitalisations for fall-related injuries (Healthcare Services Plan)



More than 20%

of people aged over 65 years living in the Australian community report persistent pain of various types



2

Regional and Population Characteristics

Regional and Population Characteristics

Geography

Providing a geographical overview, this section illustrates the region's diversity in terms of topography and population groups, and offers insight into some of the challenges faced by healthcare providers at both primary and tertiary levels.

The Nepean Blue Mountains (NBM) region is located in New South Wales (NSW), approximately 60 kilometres west of Sydney. Comprised of urban, semi-rural and rural areas, the region covers almost 9,179 square kilometres and spans from St Marys in the east to Portland in the west. Three major motorways – the M4, Great Western Highway and Northern Road – provide key infrastructure support and access across the area (Nepean Blue Mountains Local Health District, 2013).

The region is divided into four Local Government Areas (LGAs):

- | | |
|------------------|--------------|
| 1 Penrith | 3 Hawkesbury |
| 2 Blue Mountains | 4 Lithgow |



Each LGA is bounded by the comprehensive system of National Parks and rivers across the Nepean Blue Mountains region – all of which sit within a designated World Heritage Area that incorporates approximately 6,000 square kilometres of the region's 10,000 square kilometres. Development restrictions imposed to protect the region's pristine environment provide challenges for transport and access to a range of health, medical and related services.

One of 19 NSW State Health Local Health Districts and Specialty Health Networks, our region provides primary, secondary and tertiary level healthcare for people living in the Blue Mountains, Hawkesbury, Lithgow and Penrith, and tertiary care to residents of the Greater Western Sydney Region.

The main public hospitals are Nepean Hospital, Blue Mountains District ANZAC Memorial Hospital, Hawkesbury Hospital, Lithgow Hospital and Springwood Hospital, all of which are complemented by community based health services delivered in nine centres throughout the district (Nepean Blue Mountains Local Health District, 2013). There are also a number of private hospitals within the region catering for surgical and psychiatric care.

Penrith is the main regional city, with other major towns including Katoomba, Lithgow and Windsor/Richmond. The distinctive features of all four LGAs and accompanying maps are presented on the next page.

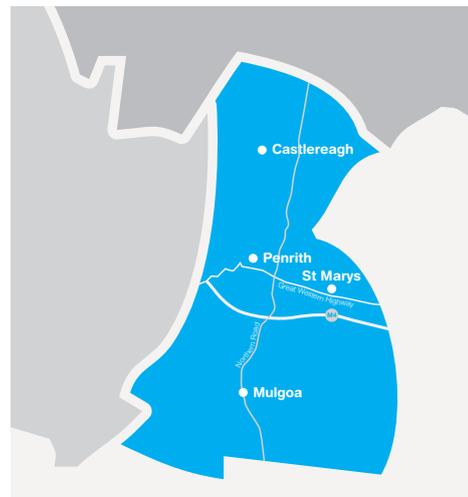
Penrith Local Government Area

Encompassing a land area of 407 square kilometres, Penrith LGA is made up of around 80% rural and rural-residential areas. The majority of the urban area is residential, with most of the population living in a linear corridor along the Great Western Highway and the main western railway. There are also commercial and industrial areas, with extractive industries and manufacturing occurring here.

A significant portion of Penrith's rural area is used for agricultural purposes, including dairying, poultry farming, hobby farming, orchards, market gardening and horse breeding. The City of Penrith and St Marys are the key commercial centres and the area 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 (Nepean Blue Mountains Local Health District, 2013, p.1.2).

Figure 1 shows the Penrith region's borders and the urban development along the M4 Western Motorway, which extends from Erskine Park to west Penrith and north to Cranebrook. The surrounding rural areas are predominantly comprised of small and privately owned acreages.

Figure 1: Map of Penrith LGA



The Blue Mountains Local Government Area

Set on the western fringe of the Sydney metropolitan area, the Blue Mountains region is bounded by Hawkesbury City in the north, Penrith City in the east, Wollondilly Shire in the south and Lithgow City and the Oberon Council area in the west.

With its starting point located just 55 kilometres from the Sydney GPO, the region is home to a total of 28 villages, which stretch in a corridor from Lapstone to Mount Wilson along a 100-kilometre sandstone ridge. Designated as a World Heritage Area, the Blue Mountains attracts millions of visitors each year and tourism is a core industry for the region (Nepean Blue Mountains Local Health District, 2013).

Figure 2 highlights the vastness of the region and the dominance of National Parks, and the resulting restrictions in terms of road access. The corridor of communities is clustered around the main access route (Great Western Highway), which weaves its way across the mountain range.

Figure 2: Map of Blue Mountains LGA



The Hawkesbury Local Government Area

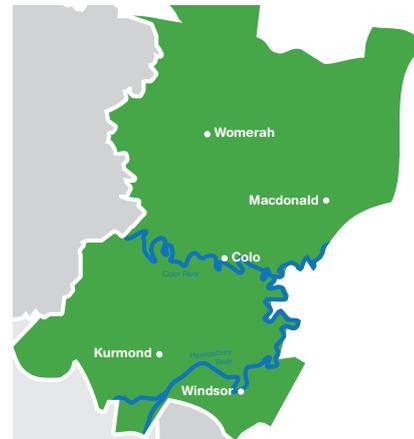
Located on the north-western fringe of the Sydney metropolitan area, Hawkesbury LGA is about 50 kilometres from the Sydney GPO. Hawkesbury City is bounded by the Singleton Council area and Cessnock City in the north, Gosford City and The Hills Shire in the east, Blacktown, Penrith and Blue Mountains Cities in the south, Lithgow in the west and Rylstone in the north-west.

Predominantly comprised of national and state parks, with some residential, commercial, industrial and military land use, the LGA encompasses a total land area of about 2,800 square kilometres, of which more than 70% is National Park (Nepean Blue Mountains Local Health District, 2013). The main population centres are Windsor and Richmond, with 13 other townships scattered across the area. The majority of the population reside in the south-eastern section of the region and the whole area is served by Bells Line of Road, Singleton Road, Wollombi Road, Richmond-Blacktown Road and the main western railway line. The area's service and tourism industries are significant.

The Hawkesbury is divided by five river systems – the Nepean, Hawkesbury, Grose, Colo and MacDonalld rivers. Being located on the Hawkesbury/Nepean floodplain, the area experiences regular flood devastation, while the alluvial soils contribute to the predominant market-garden industry. These geographical features contribute to some aspects of the area being considered 'remote', with residents experiencing difficulty in accessing health services (Nepean Blue Mountains Local Health District, 2013).

The diversity of the landscape is reflected in Figure 3, with the residential areas predominantly in the south and southeast of the Hawkesbury LGA and less-populated sectors to the north, northeast and northwest.

Figure 3: Map of Hawkesbury LGA



The Lithgow Local Government Area

Located in the Central Tablelands of NSW, Lithgow LGA is about 140 kilometres west of Sydney and is bounded by the Mid-Western Regional Council area and the Singleton Council area in the north, Hawkesbury LGA in the east, Blue Mountains LGA and the Oberon Council area in the south, and the Bathurst Regional Council area in the west (Nepean Blue Mountains Local Health District, 2013).

Encompassing a total land area of around 4,550 square kilometres, Lithgow LGA is a predominantly rural area, with rural-residential and residential areas in several townships, and some industrial land use. Nearly two thirds of the area is national park or

Figure 4: Map of Lithgow LGA



state forest. Settlement is based in the township of Lithgow, the smaller townships of Portland and Wallerawang, and numerous small villages. Rural land is primarily used for farming, grazing and mining (particularly coal mining).

As a rural area, Lithgow LGA faces a number of issues relating to access of health services, notably access to locally based and specialist health services, rural transport, staff recruitment and retention issues, and service sustainability. On a positive note, these challenges have prompted the development of innovative solutions such as mobile outreach services, alternative service-delivery models and telehealth initiatives. The area is served by the Castlereagh Highway, the Great Western Highway and the main western railway line. Figure 4 outlines the region's border.

Population

In 2011, approximately 348,165 people lived in the NBM region. This figure is projected to increase by 11% to nearly 400,000 people by 2021 and by 28% to nearly 450,000 people by 2036 (see Figure 5). All age groups will experience increasing numbers to 2021, with the greatest proportionate increase in the older populations, especially those aged 70 years and over. The NBM region is also one of only three local health districts (LHDs) in NSW projected to experience growth in its younger population (Nepean Blue Mountains Local Health District, 2013, p. 4).

The NBM region has a large Aboriginal population residing in the area, representing approximately 2.6% of the total population, as well as a culturally and linguistically diverse population. The Dharug, Gundungurra and Wiradjuri people are acknowledged as the traditional owners of the land covered by the region. The number of people identifying as Indigenous in the 2006 Census has been increasing in recent years and is estimated to be 8,825 in 2011, although this figure is widely regarded as an underestimate. The largest Aboriginal community resides in Penrith and is younger than the wider NBM region community, with 55.6% aged under 25 (Nepean Blue Mountains Local Health District, 2013, p. 2.9).

In 2011, the largest proportions of pre-school aged children (less than 5 years) were in the Penrith (7.9%) and Hawkesbury LGAs (7.5%). Conversely, LGAs with the highest proportion of residents aged 70 years and over were Lithgow (11.8%) and Blue Mountains (9.7%). In the period from 2011 to 2021, the proportion of the population aged less than 10 years is expected to remain steady (from 14.1% to 14.2%), while the proportion of older residents will increase from 7% to 10%.

Population Projections

For the period from 2011 to 2036, significant population increases (28%) are projected in the NBM region, with approximately 100,000 additional people expected to be living in the area by 2036 (Nepean Blue Mountains Local Health District, 2013, p. 2.8).

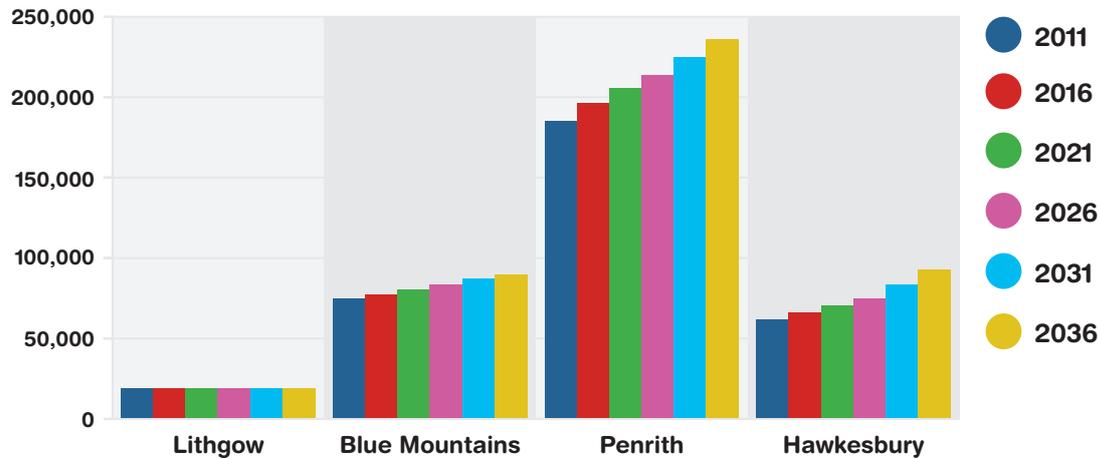
Compared to other NSW LHDs, the NBM region has a younger population and is expected to see a 20% increase in the 0-14 years population by 2036. For the older population, the NBM region will experience much higher growth compared to NSW, with latest figures indicating a 134% growth in the 70 years and over age group for

the region, compared to 104% in NSW by 2036 (Nepean Blue Mountains Local Health District, 2012).

Figure 5 provides details of the population growth for each of the NBM LGAs. Penrith will experience the highest increase in population and a relatively consistent growth rate for each five-year period up to 2036. As indicated, Lithgow will experience a decrease in population growth for the period from 2031 to 2036. The Hawkesbury and Blue Mountains LGAs are shown to have marginal population growth up to 2036 (Nepean Blue Mountains Local Health District, 2013, p. 1.2).

Figure 5: Population Growth of NBM Region

Population Growth for NBMLHD from 2011 to 2036, All Ages by LGA by Year



Source: NSW and LGA Population projections: 2014 Final. Strategic Analysis and Investment Unit, Health System Planning and Investment Branch, NSW Ministry of Health.

Population Growth

Births and new arrivals to the area contributed to population growth in the NBM region. In 2011 there were 4,902 births to NBM residents. The highest total fertility rate occurred in Lithgow and Hawkesbury (2.1 children per woman), followed by Blue Mountains and Penrith (2.0 children per woman). Greater density of dwellings in older areas and new arrivals of refugees and other migrants contribute to population growth. In 2010, NBM region received 503 migrants, 79% of whom settled in Penrith LGA, the main recipient of these new settlers for the NBM region (Nepean Blue Mountains Local Health District, 2014).

Characteristics of the NBM Population

The NBM region is comprised of a diverse population group across both rural and metropolitan areas. The demography and epidemiology of the region directly and indirectly influence the healthcare requirements across the four LGAs, giving a sense of some of the challenges faced by healthcare providers.

Table 1 details the breakdown of the region’s population by LGA, including the proportion of Aboriginal people within each LGA. Penrith is the most populated LGA, while Lithgow has the highest percentage of people aged 65 years and the highest proportion of Aboriginal people.

Table 1: Population of Nepean Blue Mountains Region, 2011

Area	Population	Proportion Aboriginal people	Proportion 65 years and over (%)
Penrith LGA	184,589	3%	9.5%
Blue Mountains LGA	78,553	1.7%	15.4%
Lithgow LGA	20,850	4.5%	17.8%
Hawkesbury	64, 234	2.6%	11.6%
NBM region	348,345	3.0%	11.7%
NSW	7,218,528	2.5%	14.5%

Source: Strategic Analysis and Investment Unit, Health System Planning and Investment Branch, NSW Ministry of Health.

Note: The Aboriginal proportions are based on ABS quickstats. Planning figures put the Aboriginal population at 3.2% of NBMLHD population.

Age Distribution of Population

Table 2 represents the demographics of the region's population.

Table 2: Demographics of Residents in Nepean Blue Mountains Local Health District, 2011

Area	Total Population						Aboriginal Population**			Overseas Born Population
	Estimated resident population	% aged under 5 years	% working age	% aged over 70 years	Median age in years	SEIFA of Disadvantage score	ERP	% of total population	Median age in years	% of total population
Penrith	184,681	7.6%	69.3%	6.2%	33.8yrs	996	-	-	21yrs	25.7%
Blue Mountains	78,391	6.2%	65.5%	10.4%	41.8yrs	1039	-	-	21yrs	22%
Hawkesbury	64,234	6.8%	67.5%	7.6%	36.2yrs	1020	-	-	20yrs	17.8%
Lithgow	20,790	6.3%	63.7%	12.1%	42.1yrs	924	-	-	20yrs	15.2%
NBMLHD	348,100*	7.1%	-	7.5%	-	-	11,196	3.2%	21yrs	22%
NSW	7,211,468	6.6%	66.7%	10.3%	37.7yrs	-	208,476	2.9%	21yrs	31.4%

Source: Australian Bureau of Statistics (<http://www.abs.gov.au/>). Population estimates as at 30 June each year. Components may not add up to the total exactly, due to rounding. ABS population estimates for the total population are based on the 2011 census. Aboriginal population estimates are based on 2011 Census released in SAPHaRI August 2014. This new data is not available at LGA level at this time. Notes: *The LGA figures from the ABS website add up to 348,096. However, the NBMLD total is derived from SAPHaRI for consistency with other SAPHaRI population figures. **Aboriginal persons comprised of Aboriginal, Torres Strait Islanders and both Aboriginal and Torres Strait Islanders. N/a refers to where data are not available.

Aboriginal population in 2011 Census

Based on the 2011 Census, Aboriginal residents (11,196) comprised 3.2% of the NBM region population, compared with 2.9% of the NSW population. The Aboriginal profile showed the NBM region had a young Aboriginal population, with the median age being 21 years (Nepean Blue Mountains Local Health District, 2014).

Overseas-born population in 2011 Census

Overseas-born residents made up 22% of the NBMLHD population, compared with 31.4% of the NSW population. Overseas-born residents of the NBM region who do not speak English well or at all (4.4% of the overseas-born population) was lower than for NSW (12%). However, the percentage of new arrivals who do not speak English well or at all is increasing, especially in Penrith LGA (22% of new arrivals in 2011).

Overseas-born Population by LGA

The following tables reflect the overseas-born population by LGA. Across all LGAs, England and New Zealand are the most prevalent countries of birth. The Philippines and India are presented in the Penrith LGA, with percentages similar to NSW figures.

Penrith LGA

In Penrith LGA, 74% of people were born in Australia and a total of 45,794 residents (25.7% of the Penrith LGA population) were born overseas. This is a lower proportion than for NSW (31.4%). The most common countries of birth other than Australia were England 3.7%, New Zealand 1.8%, Philippines 1.7%, India 1.3% and Malta 0.7%, with all other overseas countries comprising 17% of the population. Table 3 shows the proportion of the population from other overseas countries is similar to NSW percentage rates. It is expected these percentages will change over the next five years due to increasing numbers of refugees settling in the area (Australian Bureau of Statistics).

Table 3: Penrith LGA – Country of Birth, 2011

Country of birth – top responses	Number	% LGA	% NSW
England	6,651	3.7	3.3
New Zealand	3,243	1.8	1.7
Philippines	3,070	1.7	1.0
India	2,251	1.3	1.4
Malta	1,336	0.7	0.2
Other overseas countries	29,243	17	24
Australia	132,673	74.3	68.6
Total population	178,467	100	100

Source: ABS QuickStats – 2011 Census – Penrith LGA.

Blue Mountains LGA

In Blue Mountains LGA, 78% of people were born in Australia and a total of 16,706 residents (22% of the population) were born overseas. This is a lower proportion than for NSW (31.4%). The most common countries of birth other than Australia were England 6.1%, New Zealand 1.5%, Scotland 0.8%, Germany 0.8% and United States of America 0.6%, with all other overseas countries comprising 12.2% of the population. Table 4 shows the proportion of the population from other overseas countries is approximately half that of NSW percentage rates.

Table 4: Blue Mountains LGA – Country of Birth, 2011

Country of birth – top responses	Number	% LGA	% NSW
England	4,596	6.1	3.3
New Zealand	1,147	1.5	1.7
Scotland	616	0.8	0.5
Germany	573	0.8	0.4
United States of America	429	0.6	0.4
Other overseas countries	9,345	12.2	25.1
Australia	59,236	78.0	68.6
Total population	75,942	100	100

Source: ABS QuickStats – 2011 Census – Blue Mountains LGA.

Lithgow LGA

In Lithgow LGA, 84.8% of people were born in Australia and a total of 3,056 residents (15.2% of the population) were born overseas. This is a much lower proportion than for NSW (31.4%). The most common countries of birth other than Australia were England 2.7%, New Zealand 0.8%, Scotland 0.7%, Germany 0.4% and the Philippines 0.3%, will all other overseas countries comprising 10.2% of the population. The Philippines is not ranked in the Blue Mountains LGA, which sits between the Penrith and Lithgow LGAs, yet has a ranking in the Lithgow LGA, as shown in Table 5.

Table 5: Lithgow LGA – Country of Birth, 2011

Country of birth – top responses	Number	% LGA	% NSW
England	536	2.7	3.3
New Zealand	161	0.8	1.7
Scotland	132	0.7	0.5
Germany	89	0.4	0.4
Philippines	59	0.3	1.0
Other overseas countries	2,079	10.2	24.4
Australia	17,104	84.8	68.6
Total population	20,160	100	100

Source: ABS QuickStats – 2011 Census – Lithgow LGA.

Hawkesbury LGA

In Hawkesbury LGA, 82.2% of people were born in Australia and a total of 11,113 residents (17.8% of the population) were born overseas. The most common countries of birth other than Australia were England 4.0%, New Zealand 1.4%, Malta 0.7%, Netherlands 0.5% and Germany 0.5%, with all other overseas countries comprising 10.7% of the population. Table 6 shows England and New Zealand are the two most common countries of birth for the region.

Table 6: Hawkesbury LGA – Country of Birth, 2011

Country of birth – top responses	Number	% LGA	% NSW
England	2,521	4.0	3.3
New Zealand	846	1.4	1.7
Malta	421	0.7	0.2
Netherlands	305	0.5	0.3
Germany	301	0.5	0.4
Other overseas countries	6,719	10.7	25.5
Australia	51,240	82.2	68.6
Total Population	62,353	100	100

Source: ABS QuickStats – 2011 Census – Hawkesbury LGA.

References

Department of Health, 2015. *The Primary Health Networks Performance Framework*, Canberra: Department of Health.

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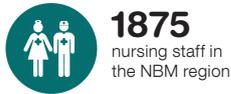
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3

Health Service Profile

Health Service Profile



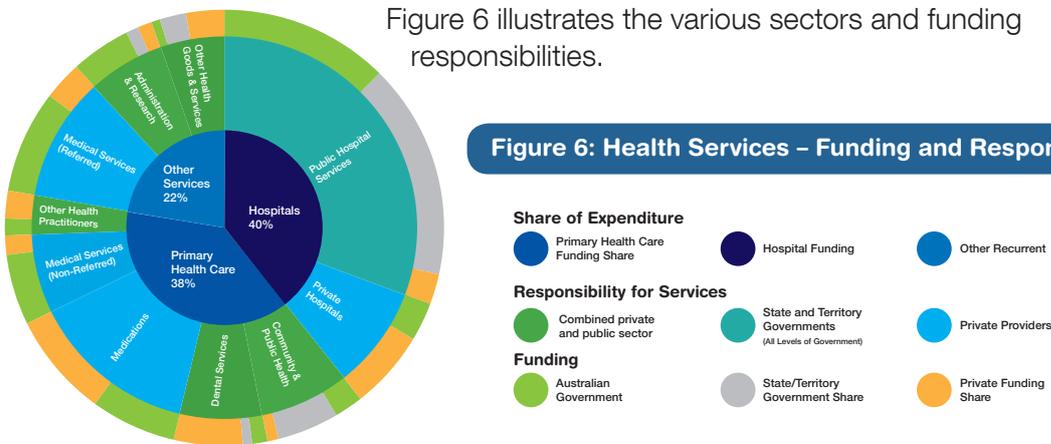
Australia's Healthcare System

Healthcare in Australia is provided and funded by both private organisations and government institutions. Medicare, the country's publicly funded and universal healthcare system, was instituted in 1984 and is administered by the Federal Government. The Medicare scheme subsidises out-of-hospital medical treatment and funds free access to hospital treatment. In addition to Medicare, the Federal Government funds the Pharmaceutical Benefits Scheme, whereby a range of prescription medications are significantly subsidised (Australian Institute of Health and Welfare, 2014).

Medicare coexists with the private health system. Offered by a number of companies, private health insurance covers individuals for hospital treatment and ancillary treatments such as dental and physiotherapy. Most health funds offer a range of policies that can be tailored to the needs of their clients. Private health insurers are prohibited by law from offering benefits for medical services that are provided out of hospital, and can only fund medical treatment provided in hospital to admitted patients.

Health services across the country are provided by a variety of organisations and health professionals, including medical practitioners, nurses, allied and other health professionals, hospitals, clinics, pharmacies and government and non-government agencies. Together, they deliver a wide range of services – from public health and preventive services in the community to primary healthcare, emergency health services, hospital-based treatment in public and private hospitals, and rehabilitation and palliative care (Australian Institute of Health and Welfare, 2014).

Figure 6 illustrates the various sectors and funding responsibilities.



Note: The inner segments indicate the relative size of expenditure in each of the health system's three main sectors (Hospitals, Primary Healthcare and Other Services). The middle ring indicates the relative expenditure on each service in the sector (shown by the size of each segment) and who is responsible for delivering the service (shown by the colour code). The outer ring indicates the relative size of the funding (shown by the size of each segment) and the funding source for the different services (shown by the colour code).

Primary Healthcare

Typically an individual's first contact with the health system, primary healthcare broadly encompasses care that is not related to a hospital visit. The term covers a range of activities, such as health promotion, prevention, early intervention, treatment of acute conditions and management of chronic conditions. Services provided by primary healthcare vary from prevention and health promotion activities to the treatment and management of illness. The primary healthcare system can provide community based, patient-centred care by a team of health professionals (Australian Institute of Health and Welfare, 2014).

Primary healthcare is delivered in a variety of settings, including general practices, community health centres and allied health practices, and via communication technology such as telehealth and video consultations. Services are delivered by a range of health professionals, including general practitioners, nurses, nurse practitioners, allied health professionals, midwives, pharmacists, dentists and Aboriginal and Torres Strait Islander health workers.

Role of NBMPHN

Established in July 2015, Primary Health Networks (PHNs) replaced Medicare Locals. The fundamental role of PHNs is to facilitate improvements in the primary health system, promote coordination and pursue integrated healthcare. The Nepean Blue Mountains Primary Health Network (NBMPHN) aims to achieve these keystones by working collaboratively with the region's health-sector stakeholders, including general practitioners, allied health professionals, secondary health providers, hospitals and non-government organisations.

To maintain an integrated approach, NBMPHN is working closely with the Local Health District and other partners and stakeholders to address agreed health priorities across the region. A joint health planner position has been established within the LHD in order to support this approach, oversee health needs and work towards implementing health services that complement each other and are not duplicated. The aim is to maximise the range of health services while targeting areas of need.

This fits with NBMPHN's two key objectives:

- To increase both the efficiency and effectiveness of medical services for patients at risk of poor health outcomes
- To improve coordination of care to ensure patients receive the right care in the right place at the right time (Department of Health, 2015)

On a national scale, PHNs have six priorities for targeted work – mental health, Aboriginal and Torres Strait Islander health, population health, the health workforce, eHealth, and aged care (Department of Health, 2015).

The Commonwealth Department of Health funds PHNs to purchase health services based on their region's identified health needs. Looking forward, PHNs will see their remit

shift from delivering health services to the outsourcing and ‘commissioning’ of health services relevant to local needs. This new way of doing business has been designed to provide opportunities for PHNs to purchase health services that can be tailored to local needs, ensuring the efficient spending of scarce resources.

Commissioning

The Commonwealth Government’s definition of ‘commissioning’ is:

A strategic approach to purchasing that seeks to ensure that services meet the health needs of the population and contribute towards service and system improvement and innovation.

Commissioning is a cyclical process that begins with assessment of the community’s healthcare needs. The next phase is identifying the services and facilities to provide these services, followed by a selection process to determine the most appropriate service providers. The final phase involves continually monitoring and evaluating the delivery of those services. In terms of relying on PHN resources, the commissioning phase will be consuming and will require significant staff training.

A core component of NBMPHN’s commissioning framework, the NBM region’s Health Needs Assessment will inform the direction of the services to be commissioned.

Our Hospital Partners

Health services across the NBM region are provided by a range of facilities and include acute services, subacute inpatient services supported by outpatient and outreach services, and community based health services. Hospital services include both public and private facilities.

Table 7: Hospital Services Across the NBM Region

LGA	Facilities	Number of beds	Total overnight bed days
Penrith	Nepean Hospital	500 beds	146,308
	Nepean Private Hospital	109 beds	-
Blue Mountains	Blue Mountains District Hospital	97 beds	19,846
	Springwood Hospital	30 beds	8,885
Lithgow	Lithgow Hospital	42 beds	9,227
	Portland Tabulam Health Centre	22 ageing in place low-level residential	-
Hawkesbury	Hawkesbury Hospital	125	24,836
	St John of God Hospital Richmond (Private)	88 mental health beds	-

Source: Nepean Blue Mountains Local Health District, 2013. Activity based on 2010/11 data.

Figure 7: Hospital locations across the NBM region



In conjunction with hospital services, the NBM region provides community based health services in the following service streams:

- Primary care and community health
- Mental health
- Drug and alcohol services
- Oral health services
- Satellite renal dialysis service

Figure 8: Community Health Centres across NBM Region



Primary Healthcare Workforce

Across the NBM region, primary healthcare services are delivered by various health professionals, including general practitioners, nurses, nurse practitioners, allied health professionals, midwives, pharmacists, dentists and Aboriginal and Torres Strait Islander health workers.

In 2011, a total of 488 general practitioners covered the four LGAs, with the distribution reflected in Table 8.

Table 8: GP Representation across the Region, 2011

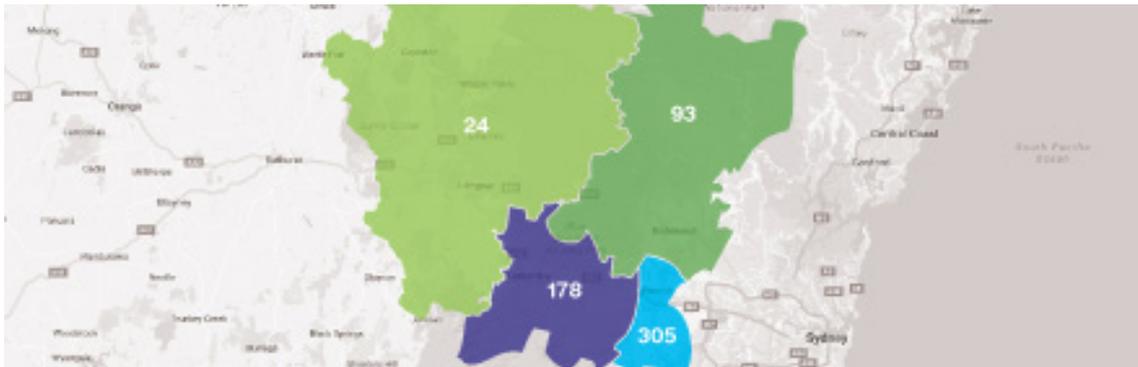
LGA	Number of GPs	Population	GP per 100,000
Lithgow	33	20,160	143.8
Blue Mountains	112	75,942	104
Hawkesbury	94	62,353	113.9
Penrith	249	178,467	99.2
Total	488	336,922	105.7
National Average (GPs per 100,000 population)			138.9
National Average (GPs per 100,000 population)			134.9

Source: Chilli Database – Nepean Blue Mountains PHN.

In 2012, a total of 1,875 nursing staff were employed in the NBM region, with approximately 47% aged over 45.

In 2015, the most represented allied health professionals for the region were Dental therapists, Exercise physiologists, Pharmacists, Physiotherapists and Psychologists. The map below reflects the dispersion of all allied health professionals across the NBM region with clearly the majority of allied health professionals in the more populous regions such as the Penrith LGA.

Figure 9: Allied Health Services by NBM LGA



Category	Penrith	Blue Mountains	Hawkesbury	Lithgow	Outside NBMML	Null
Aboriginal and Torres Strait Islanders	7	6	1	-	-	-
Audiology	9	8	6	4	2	-
Chiropractic	16	18	3	1	-	-
Dental Health Professional	57	21	19	2	2	1
Diabetes Education	3	-	-	-	-	-
Dietetics	11	6	4	-	-	-
Exercise Physiology	38	13	3	-	-	-
Mental Health	2	-	1	1	-	-
Multi Disciplinary	2	2	1	1	1	1
Occupational Therapy	8	3	2	1	-	1
Optometry	20	7	10	3	-	-
Osteopathy	5	9	5	1	-	-
Pharmacy	45	15	14	5	4	-
Physiotherapy	29	9	6	2	1	-
Podiatry	10	6	4	1	-	-
Psychology	25	48	7	-	1	2
Radiography Sonography	8	1	2	-	1	4
Social Work	3	1	-	-	-	-
Speech Pathology	7	5	5	2	7	-

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Department of Health, 2015. *The Primary Health Networks Performance Framework*, Canberra: Department of Health.

Nepean Blue Mountains Local Health District, 2012. *Strategic Plan 2012-2021*, Penrith: Nepean Blue Mountains Local Health District.

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4

Determinants of Health

Determinants of Health

Social Determinants



77.7%

In 2010, 77.7% of the eligible NBM population received the aged pension



23,492

In 2010, there were 23,492 NBMLHD residents receiving disability or sickness benefits

Lithgow and Penrith have suburbs with SEIFA scores ranked with the most disadvantaged 10% of suburbs in NSW.

Environmental Determinants



The NBM region is categorised as a District of Workforce Shortage

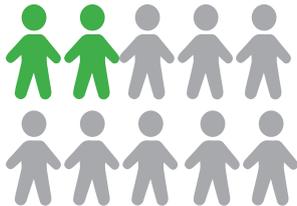


Culturally appropriate services are not always available

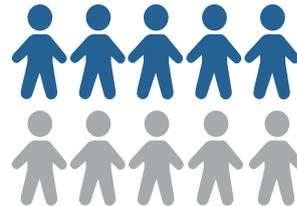


Transport was one of the key issues in accessing health services

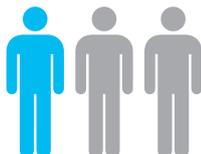
Behavioural Determinants



22% In 2012, almost 22% of residents aged over 16 smoked



60% In 2012, almost 60% of the population aged over 16 was overweight or obese



1 in 3

One-third of the population consumes high-risk levels of alcohol

Determinants of health are factors that influence how likely we are to stay healthy or become ill or injured. The three key determinants are social, behavioural and biomedical risk factors (Australian Institute of Health and Welfare, 2014).

Social determinants are the conditions in which we are born, grow up, live, work and grow old. The conditions most frequently regarded as social determinants of health are:

- Individual and household income
- Income distribution in the society
- Employment and working conditions
- Education and literacy, including health literacy
- Gender
- Housing, health and social services, including early childhood development support
- Social cohesion
- Environmental such as healthy transport

The further down the social ladder in society the more likelihood that life expectancy is shorter and diseases are more common, with poor social and economic circumstances affecting health throughout life. Disadvantage takes many forms, both absolute and relative and the longer people are exposed to poorer socio-economic circumstances and the associated physical and psychological stress this brings, the less likely they are to enjoy a healthy old age (Wilkinson and Marmot, 2003).

In addition, we all have attributes, characteristics and exposure to influences that increase the likelihood, or risk, of developing a disease or health disorder – referred to as behavioural and biomedical risk factors. Behavioural risks are those we can change ourselves, such as what we eat and how often we exercise; the use of alcohol, drugs and tobacco. Biomedical refers to the state of our physical or mental health, with risk factors including whether or not we are born with a certain disease or disorder (Australian Institute of Health and Welfare, 2014).

NBMPHN is aware of the determinants affecting the region and understands that the health of local communities cannot be improved without considering each of the social determinants that influence the health of a community.

A snapshot of health determinants that affect the health of the NBM region is highlighted in the infographics below.

Social Determinants



↓ \$500

In 2011, 9.4% of households of the NBMLHD population had a weekly income of less than \$500



77.7%

In 2010, 77.7% of the eligible population received the aged pension



23,492

In 2010, there were 23,492 residents receiving disability or sickness benefits – 10% of the eligible population (NBMLHD Epidemiological Profile 2014 – Chapter 1)



76%

In 2011, 76% of the population aged 16 or over felt safe walking after dark



31.9%

In 2011, 31.9% of the population had the highest year of schooling – Year 10 or equivalent



5.7%

In 2011, 5.7% of the population were a one-parent family with children aged under 15 (NBMLHD Epidemiological Profile 2014 – Chapter 1)

Environmental Determinants



Workforce shortages and an ageing workforce threaten adequate healthcare delivery in the NBM region



Culturally appropriate services are not always accessible



10,000

Over 10,000 people across the region found it difficult or were unable to access transport to health services (PHN Health Profile)



92.9%

92.9% of GP consultations are bulk billed

Behavioural Determinants



21.6%

In 2012, 21.6% of the region's population aged over 16 smoked tobacco



59%

In 2012, 59% of the region's population aged over 16 had a high body mass



53.9%

One-third of the population consume more than two drinks of alcohol per day



1 in 3

53.9% of region's population aged over 16 undertake inadequate levels of physical activity



5.7%

In 2012, 5.7% of region's population aged over 16 consume recommended vegetable servings (Nepean Blue Mountains Local Health District, 2014)

Socio-Economic Indexes for Areas

Measures of social disadvantage are recognised by an index known as Socio-Economic Indexes for Areas (SEIFA). Comprising a suite of five summary measures, SEIFA is created from Census information. Each index summarises a different aspect of the socio-economic conditions within an area, allowing for different sets of social and economic information to be summarised. The indexes can be used to explore different aspects of socio-economic conditions by geographic area (Nepean Blue Mountains Local Health District, 2014).

For each index, every geographic area in Australia is given a SEIFA number that shows how relatively 'disadvantaged' that area is compared with other areas in the country. There are also rankings for each state and territory (Australian Bureau of Statistics, 2011). SEIFA rankings provide insight into contributing factors for health variations and the subsequent challenges within the NBM region.

The statistics for each of the four LGAs reflect SEIFA scores from the 2011 Census, and the purpose of examining SEIFA of Disadvantage by smaller geographical units is to reveal extreme pockets of disadvantage. The correct method of comparing the SEIFA scores of LGAs is by rankings, percentiles and deciles (Nepean Blue Mountains Local Health District, 2014).

Based on 2011 SEIFA scores, the NBM region has LGAs at both ends of the spectrum. Scoring well below the 1,000 average, Lithgow (937) was among the most disadvantaged areas in NSW, characterised by low income and educational attainment, and high levels

of unemployment. The LGAs of Blue Mountains (1,051), Hawkesbury (1,033) and Penrith (1006) were at the opposite end, scoring over 1,000, which suggests least disadvantage (Nepean Blue Mountains Local Health District, 2014).

NBMPHN supports LGAs at all ends of the social spectrum, acknowledging there are some geographic pockets of significant social disadvantage, as detailed further in this report.

Penrith LGA – SEIFA of Disadvantage

Although less disadvantaged than 72% of LGAs in NSW, Penrith LGA’s SEIFA score was below the Australian average of 996, ranking it among the 153 LGAs in the state that fall in the 72nd percentile. There is diversity across the area, with pockets of significant disadvantage and areas that are less disadvantaged. Compared with the other NBM LGAs, Penrith LGA, had the highest number of disadvantaged residents in the region by far, and experienced the greatest disparity in SEIFA across the SA1s.

Figure 10 depicts the SEIFA scores (colour-coded by suburb), which reflect significant diversity. The most disadvantaged areas (colour-coded in black) are readily identifiable, and there is a clustering pattern for the suburbs of St Marys and North St Marys. Cranebrook is also identified as a suburb of significant disadvantage.

Table 9 outlines the SEIFA rankings and scores. Cranebrook had the highest disparity in SEIFA scores of SA1s in the area, showing a variation of 615. This means there are significant differing levels of disadvantage in the suburb. The same outcome applies to Penrith and Kingswood, which scored 322 and 298 respectively, however these scores were not as severe as Cranebrook.

The SEIFA rankings shown in Table 9 reveal St Marys and North St Marys to be the most disadvantaged suburbs in the Penrith LGA.

Summary of SEIFA of disadvantage of Penrith LGA, 2011 Census

SEIFA Measures

SEIFA score of Penrith LGA	996
Percentile of Penrith LGA	29 (least disadvantaged 29% of LGAs in NSW)
Ranking of Penrith LGA	110 (ranking 153 is the least disadvantaged LGA in NSW)
Suburbs with lowest SEIFA scores	North St Marys and St Marys (in most disadvantaged 10% of suburbs in NSW)
Sa1 with lowest SEIFA score	488 in Cranebrook
Sa1 with highest SEIFA score	1140 in Glenmore Park
Suburb with greatest disparity SEIFA scores	488-1104 Cranebrook

Figure 10: Index of Relative Socio-Economic Disadvantage, Penrith LGA, 2011 Census

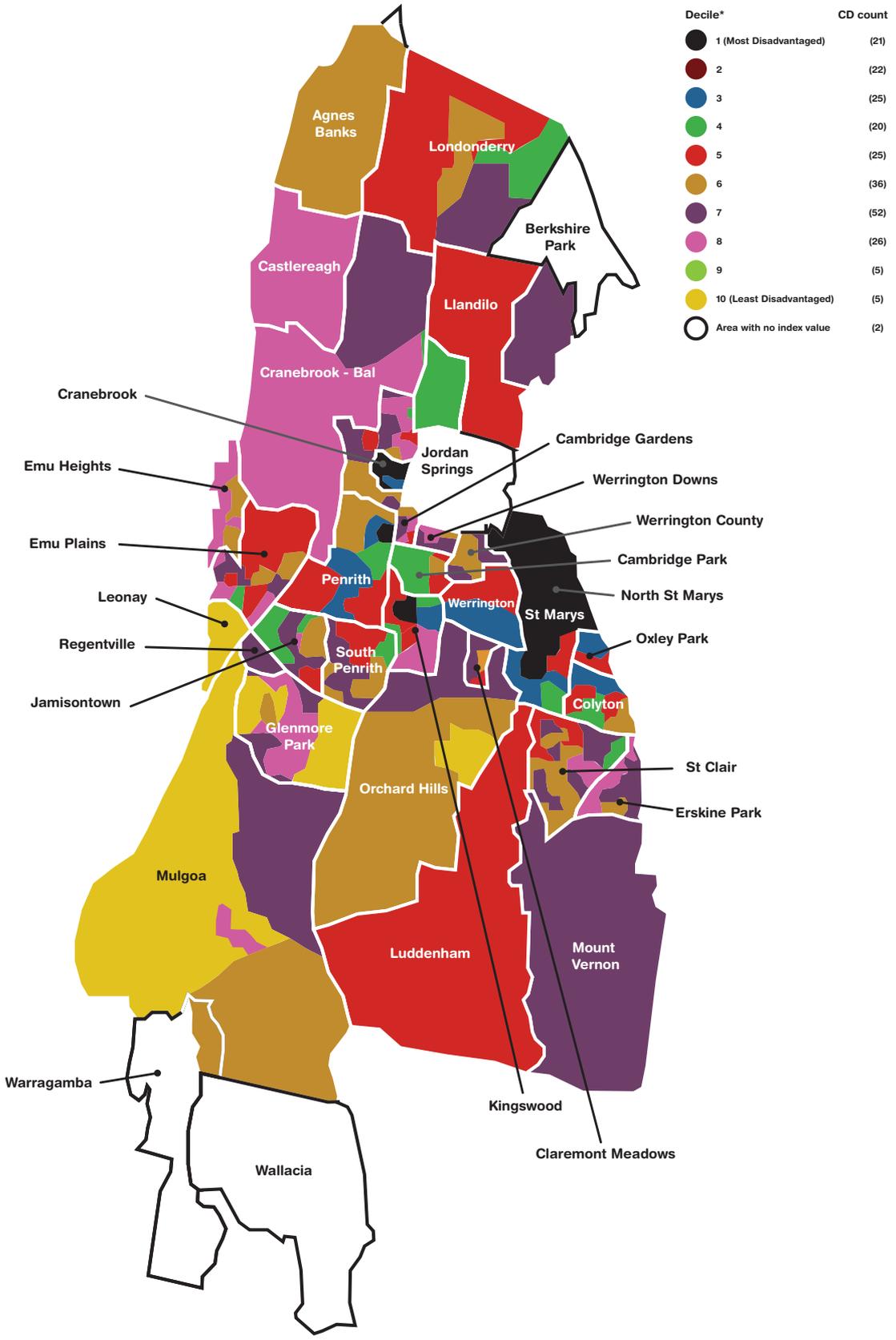


Table 9: SEIFA of Disadvantage, Penrith LGA by Suburb, 2011 Census

2011 Suburb name	Usual Resident Population		SEIFA	In NSW suburbs			SEIFA scores of SA1s in areas		
	No.	% of LGA	Score	Rank	Decile	Percentile	Minimum	Maximum	Difference
Leonay	2,425	1.49%	1,094	2,332	10	91	1,071	1,124	54
Mount Vernon	1,034	0.63%	1,080	2,215	9	87	1,039	1,124	85
Glenmore Park	20,281	12.44%	1,073	2,145	9	84	992	1,140	148
Mulgoa	1,786	1.10%	1,058	1,954	8	77	1,026	1,098	72
Orchard Hills	1,911	1.17%	1,051	1,874	8	74	982	1,100	118
Wallacia	1,689	1.04%	1,038	1,712	7	67	949	1,076	127
Werrington Downs	3,256	2.00%	1,035	1,668	7	66	999	1,058	59
Agnes Banks	831	0.51%	1,031	1,623	7	64	1,030	1,032	2
St Clair	19,841	12.17%	1,029	1,588	7	62	916	1,074	158
Claremont Meadows	4,161	2.55%	1,028	1,577	7	62	990	1,069	79
Regentville	618	0.38%	1,027	1,562	7	61	1,027	1,027	0
Luddenham	1,495	0.92%	1,024	1,532	6	60	991	1,058	67
Berkshire Park	1,709	1.05%	1,020	1,480	6	58	999	1,041	42
Werrington County	3,677	2.26%	1,019	1,469	6	58	989	1,057	68
South Penrith	11,644	7.14%	1,017	1,443	6	57	864	1,067	203
Cambridge Gardens	2,040	1.25%	1,014	1,404	6	55	997	1,041	44
Jamisontown	5,236	3.21%	1,009	1,329	6	52	900	1,072	172
Londonderry	3,819	2.34%	1,000	1,199	5	47	937	1,046	109
Cranebrook	14,719	9.03%	997	1,155	5	46	488	1,104	615
Llandilo	1,596	0.98%	993	1,109	5	44	932	1,051	119
Kemps Creek	2,307	1.42%	982	959	4	38	955	1,026	71
Cambridge Park	6,161	3.78%	969	826	4	33	920	1,014	95
Colyton	7,999	4.91%	948	627	3	25	868	988	120
Kingswood	9,110	5.59%	922	416	2	17	770	1,069	298
Penrith	11,804	7.24%	920	405	2	16	757	1,078	322
Werrington	3,847	2.36%	918	391	2	16	856	1,009	153
Badgerys Creek	454	0.28%	914	362	2	15	914	914	0
Oxley Park	2,925	1.79%	906	333	2	13	881	952	71
St Marys (NSW)	10,960	6.72%	886	217	1	9	755	991	237
North St Marys	3,688	2.26%	849	120	1	5	769	919	150

Source: Information downloaded from ABS website (May 2013) – <http://www.ausstats.abs.gov.au/ausstats/>

 Decile 10 = Least disadvantaged 10% of suburbs in NSW.

 Decile 1 = Most disadvantaged 10% of suburbs in NSW.

Blue Mountains LGA – SEIFA of Disadvantage

SEIFA scores for the Blue Mountains LGA indicated low levels of disadvantage and high levels of economic resources, education and employment in professional occupations. Compared with Penrith LGA, scores indicated significantly lower levels of disadvantage. While Figure 11 shows there are some pockets of disadvantage (colour-coded in black), overall the LGA represents households with higher incomes and qualifications, and a more highly skilled population. Table 10 indicates Katoomba is the most disadvantaged suburb and has the greatest variation in SEIFA scores of SA1s in the area – ranging from 760 to 1,033, with a variation of 273.

Summary of SEIFA of disadvantage of Blue Mountains LGA, 2011 Census

SEIFA Measures

SEIFA score of Blue Mountains LGA	1039
Percentile of Blue Mountains LGA	17 (least disadvantaged 17% of LGAs in NSW)
Ranking of Blue Mountains LGA	128 (where ranking 153 is the least disadvantaged LGA in NSW)
Suburbs with lowest SEIFA scores	Katoomba (in most disadvantaged 20% suburbs in NSW)
Sa1 with lowest SEIFA score	760 in Katoomba
Sa1 with highest SEIFA score	1149 in Mount Riverview
Suburb with greatest disparity SEIFA scores of Sa1s	760-1033 in Katoomba

Figure 11: Index of Relative Socio-Economic Disadvantage, Blue Mountains LGA, 2011 Census

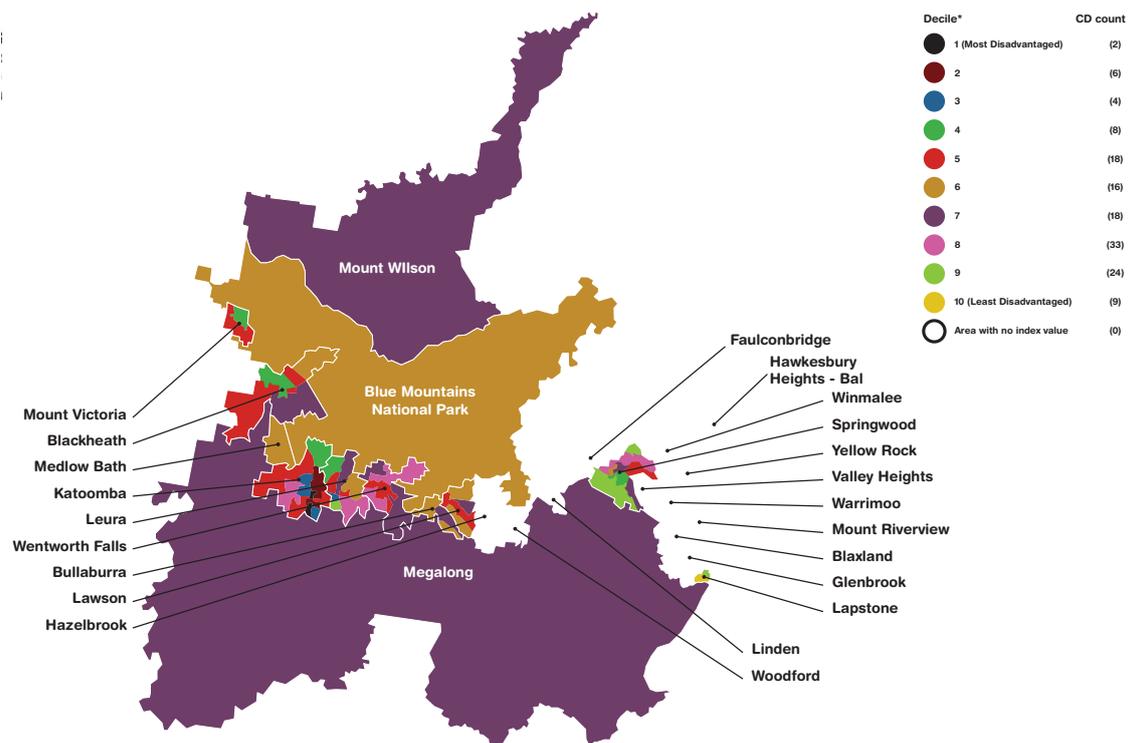


Table 10: SEIFA of Disadvantage, Blue Mountains LGA by Suburb, 2011 Census

2011 Suburb name	Usual Resident Population		SEIFA	In NSW suburbs			SEIFA scores of SA1s in areas		
	No.	% of LGA	Score	Rank	Decile	Percentile	Minimum	Maximum	Difference
Glenbrook	4,942	6.6%	1,095	2,344	10	92	1,070	1,141	71
Mount Riverview	2,964	3.9%	1,095	2,339	10	92	1,079	1,149	70
Lapstone	912	1.2%	1,091	2,313	10	91	1,075	1,098	23
Warrimoo	2,343	3.1%	1,079	2,198	9	86	1,040	1,101	61
Valley Heights	1,381	1.8%	1,076	2,167	9	85	1,048	1,095	46
Yellow Rock	912	1.2%	1,076	2,165	9	85	1,055	1,108	53
Winmalee	6,612	8.8%	1,073	2,144	9	84	1,045	1,097	52
Linden (NSW)	590	0.8%	1,070	2,114	9	83	1,052	1,091	39
Blaxland	7,329	9.7%	1,066	2,060	9	81	951	1,128	177
Woodford (NSW)	1,842	2.4%	1,066	2,058	9	81	1,047	1,087	40
Faulconbridge	3,983	5.3%	1,065	2,043	8	80	1,007	1,095	88
Springwood	8,432	11.2%	1,052	1,887	8	74	945	1,106	161
Leura	4,368	5.8%	1,031	1,618	7	64	961	1,094	133
Hazelbrook	4,532	6.0%	1,031	1,616	7	64	998	1,071	72
Bullaburra	1,208	1.6%	1,027	1,563	7	61	1,017	1,031	14
Wentworth Falls	5,940	7.9%	1,018	1,459	6	57	949	1,069	120
Medlow Bath	544	0.7%	1,005	1,272	5	50	1,005	1,005	0
Blackheath (NSW)	4,570	6.1%	1,000	1,204	5	47	949	1,046	97
Lawson (NSW)	2,884	3.8%	995	1,137	5	45	972	1,013	41
Mount Victoria	893	1.2%	985	993	4	39	983	996	13
Katoomba	8,010	10.7%	934	509	2	20	760	1,033	273

Source: Information downloaded from ABS website (May 2013) – <http://www.ausstats.abs.gov.au/ausstats/>

 Decile 10 = Least disadvantaged 10% of suburbs in NSW.

 Decile 2 = Most disadvantaged 20% of suburbs in NSW.

Hawkesbury LGA – SEIFA of Disadvantage

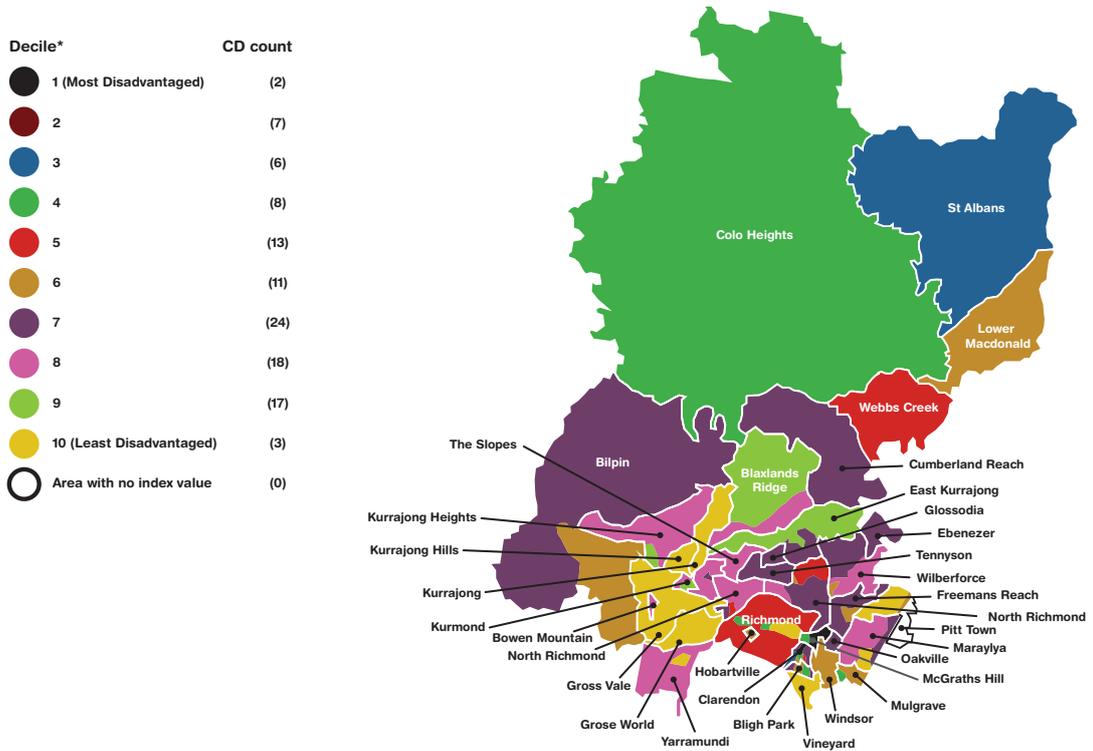
SEIFA scores for the Hawkesbury LGA indicated lower levels of disadvantage than in the Penrith LGA. South Windsor emerged as the region’s most disadvantaged suburb, as shown in Table 11. South Windsor also showed the greatest variation in SEIFA scores of SA1s, with the difference in score equal to 279, followed by Richmond, with a score of 237. In Figure 12, the region’s SEIFA scores are colour coded – while there are some pockets of disadvantage, overall the LGA represents households with higher incomes and qualifications, and a more highly skilled population.

Summary of SEIFA of disadvantage of Hawkesbury LGA, 2011 Census

SEIFA Measures

SEIFA score of Hawkesbury LGA	1020
Percentile of Hawkesbury LGA	22 (in least disadvantaged 22% of LGAs in NSW)
Ranking of Hawkesbury LGA	121 (where ranking 153 is the least disadvantaged LGA in NSW)
Suburbs with lowest SEIFA scores	South Windsor (in most disadvantaged 20% suburbs in NSW)
Sa1 with lowest SEIFA score	750 in South Windsor
Sa1 with highest SEIFA score	1122 in Windsor Downs
Suburb with greatest disparity SEIFA scores of Sa1s	750-1028 in South Windsor

Figure 12: Index of Relative Socio-Economic Disadvantage, Hawkesbury LGA, 2011 Census



Summary of SEIFA of Disadvantage, Hawkesbury LGA, 2011 Census

Table 11: SEIFA of Disadvantage, Hawkesbury LGA by Suburb, 2011 Census

2011 Suburb name	Usual Resident Population		SEIFA	In NSW suburbs			SEIFA scores of SA1s in areas		
	No.	% of LGA	Score	Rank	Decile	Percentile	Minimum	Maximum	Difference
Windsor Downs	1,290	2.0%	1,111	2,455	10	96	1,102	1,122	20
Kurrajong Hills	644	1.0%	1,094	2,333	10	91	1,083	1,104	21
Grose Vale	1,141	1.8%	1,093	2,330	10	91	1,086	1,106	20
Grose Wold	629	1.0%	1,087	2,269	9	89	1,082	1,090	8
Maraylya	1,171	1.8%	1,083	2,243	9	88	1,057	1,097	40
Kurrajong	3,129	4.8%	1,082	2,224	9	87	994	1,105	112
Yarramundi	865	1.3%	1,081	2,220	9	87	1,057	1,101	45
East Kurrajong	2,118	3.3%	1,080	2,211	9	87	1,072	1,089	18
Blaxlands Ridge	465	0.7%	1,079	2,202	9	86	1,079	1,079	0
Cattai	683	1.1%	1,078	2,191	9	86	1,075	1,088	14
Kurrajong Heights	1,231	1.9%	1,078	2,189	9	86	1,045	1,103	58
Tennyson (NSW)	432	0.7%	1,076	2,172	9	85	1,076	1,076	0
Pitt Town	1,957	3.0%	1,068	2,089	9	82	1,050	1,095	45
Kurmond	877	1.4%	1,068	2,088	9	82	1,062	1,071	8
The Slopes	247	0.4%	1,062	2,006	8	79	1,062	1,062	0
Oakville	1,845	2.9%	1,059	1,971	8	77	1,035	1,072	37
Bowen Mountain	1,457	2.3%	1,054	1,912	8	75	1,028	1,117	89
Berambing	30	0.0%	1,053	1,898	8	75	1,053	1,053	0
Lower Portland	549	0.8%	1,050	1,853	8	73	1,030	1,068	39
Cumberland Reach	195	0.3%	1,049	1,849	8	73	1,049	1,049	0
Ebenezer (NSW)	968	1.5%	1,046	1,807	8	71	1,041	1,051	10
McGraths Hill	2,506	3.9%	1,042	1,767	7	69	1,022	1,060	38
Glossodia	2,860	4.4%	1,041	1,752	7	69	996	1,066	70
Bilpin	934	1.4%	1,040	1,739	7	68	1,024	1,049	25
Sackville	249	0.4%	1,035	1,682	7	66	1,035	1,035	0
Wilberforce	2,879	4.5%	1,035	1,681	7	66	852	1,079	227
Freemans Reach	2,119	3.3%	1,035	1,673	7	66	995	1,065	69
Agnes Banks	831	1.3%	1,031	1,623	7	64	1,030	1,032	2
Richmond Lowlands	221	0.3%	1,014	1,405	6	55	1,014	1,014	0
Mountain Lagoon	328	0.5%	1,013	1,382	6	54	1,013	1,013	0
Bligh Park	6,482	10.0%	1,012	1,373	6	54	959	1,081	122
North Richmond	4,602	7.1%	1,011	1,365	6	54	918	1,075	158
Hobartville	2,847	4.4%	993	1,107	5	44	971	1,015	44
Wisemans Ferry	185	0.3%	988	1,049	5	41	988	988	0
Leets Vale	276	0.4%	985	1,002	4	40	985	985	0
Vineyard	1,227	1.9%	976	901	4	36	954	989	35
St Albans	304	0.5%	973	874	4	35	973	973	0
Lower Macdonald	263	0.4%	966	792	4	31	966	966	0
Richmond	5,280	8.2%	962	753	3	30	833	1,070	237
Colo Heights	329	0.5%	954	689	3	27	954	954	0
Putty	320	0.5%	950	652	3	26	950	950	0
Windsor	,805	2.8%	939	549	3	22	862	1,031	169
South Windsor	5,859	9.1%	909	343	2	14	750	1,028	279

Source: Information downloaded from ABS website (May 2013) – <http://www.ausstats.abs.gov.au/ausstats/>

 Decile 10 = Least disadvantaged 10% of suburbs in NSW.

 Decile 2 = Most disadvantaged 20% of suburbs in NSW.

Lithgow LGA – SEIFA of Disadvantage

Minimum and maximum SEIFA scores for the Lithgow LGA show that the area has pockets of extreme disadvantage (569) and pockets of relative advantage (1,104) – refer to Table 12. Within the most disadvantaged suburb of Bowenfels there is a wide variation in SEIFA scores, with SA1s of 535 – this demonstrates vast difference in standards of living within the suburb, with Bowenfels variation significantly more apparent than in all other suburbs. Figure 13 shows the majority of the region is disadvantaged, with the most advantaged areas scoring a decile of just 8.

Summary of SEIFA of disadvantage of Lithgow LGA, 2011 Census

SEIFA Measures

SEIFA score of Lithgow LGA	924
Decile of Lithgow LGA	Decile 2 (in least disadvantaged 20% of LGAs in NSW)
Ranking of Lithgow LGA	23 (where ranking 153 is the least disadvantaged LGA in NSW)
Suburbs with lowest SEIFA scores	Bowenfels, Hermitage Flat, Vale of Clwydd, Cullen Bullen (in most disadvantaged 10% suburbs in NSW)
Sa1 with lowest SEIFA score	569 in Bowenfels
Sa1 with highest SEIFA score	1104 in Bowenfels
Suburb with greatest disparity SEIFA scores of Sa1s	569-1104 in Bowenfels

Figure 13: Index of Relative Socio-Economic Disadvantage, Hawkesbury LGA, 2011 Census

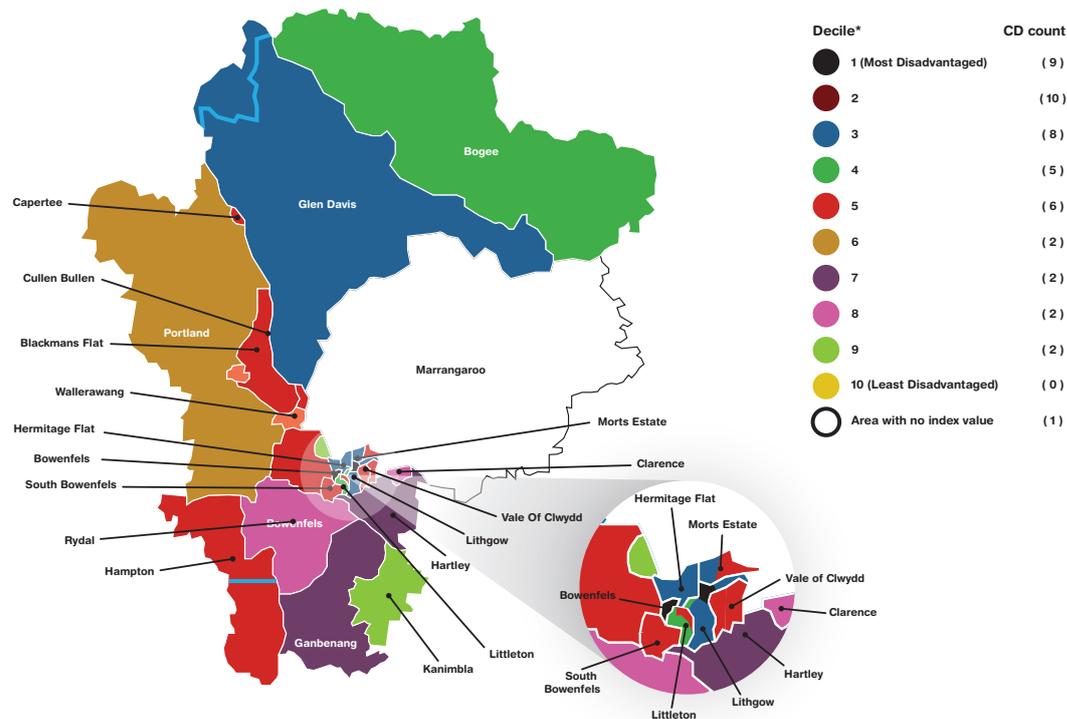


Table 12: SEIFA of Disadvantage, Lithgow LGA by Suburb, 2011 Census

2011 Suburb name	Usual Resident Population		SEIFA	In NSW suburbs			SEIFA scores of SA1s in areas		
	No.	% of LGA	Score	Rank	Decile	Percentile	Minimum	Maximum	Difference
Springside	230	1.17%	1,061	1,990	8	78	1,061	1,061	0
South Bowenfels	1,001	5.07%	1,058	1,960	8	77	1,031	1,081	51
Marrangaroo	821	4.16%	1,057	1,944	8	76	976	1,091	115
Little Hartley	536	2.72%	1,057	1,941	8	76	1,039	1,083	44
Hartley	297	1.50%	1,033	1,646	7	65	1,033	1,033	0
Clarence	224	1.13%	1,032	1,628	7	64	1,032	1,032	0
Meadow Flat	353	1.79%	1,028	1,586	7	62	1,028	1,028	0
Lidsdale	515	2.61%	999	1,196	5	47	985	1,014	29
Littleton	871	4.41%	987	1,032	5	41	986	988	2
Dargan	103	0.52%	970	839	4	33	970	970	0
Glen Davis	289	1.46%	964	781	4	31	964	964	0
South Littleton	255	1.29%	963	765	3	30	963	963	0
McKellars Park	222	1.12%	954	688	3	27	954	954	0
Rydal	189	0.96%	945	602	3	24	945	945	0
Wallerawang	1,904	9.65%	935	512	2	20	830	1,006	176
Capertee	370	1.87%	924	433	2	17	924	924	0
Portland	2,308	11.69%	918	392	2	16	818	1,034	215
Morts Estate	432	2.19%	902	305	2	12	902	902	0
Oaky Park	332	1.68%	901	301	2	12	901	901	0
Lithgow	5,649	28.62%	897	271	2	11	803	984	181
Cullen Bullen	18	0.92%	843	107	1	5	843	84	0
Vale Of Clwydd	52	2.65%	835	9	1	4	835	83	0
Hermitage Flat	346	1.75%	814	80	1	4	814	81	0
Bowenfels	1,786	9.05%	753	30	1	2	569	1104	535

Source: Information downloaded from ABS website (May 2013) – <http://www.ausstats.abs.gov.au/ausstats/>

 Decile 8 = Least disadvantaged 30% of suburbs in NSW.

 Decile 1 = Most disadvantaged 10% of suburbs in NSW.

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5

Health Needs

Health Needs

Determinants of Health that may Affect Outcomes



21.6%
of adults smoke



59%
of adults are overweight

In the NBM region, 59% of adults are overweight or obese and 21.6% smoke. Nearly half of the adult population (46.1%) does not get enough physical activity, and one-third consumes excessive alcohol.

Residents of low socio-economic areas are also at risk due to higher rates of smoking.

Social Gradient

Throughout the transitions of life from early childhood to retirement, the social gradient, or where one sits on the social ladder along with the material and psychosocial influences along the way, will determine outcomes of serious illness and premature death. Social and economic disadvantage are closely linked to poorer diets, less exercise and addiction to alcohol, smoking and drugs resulting in greater risk of developing chronic diseases and poorer health outcomes (Wilkinson and Marmot, 2003).

Chronic Diseases Prevalent in NBM Region:



Cardiovascular Disease



Diabetes



COPD

Hospitalisation rates for region were higher than NSW rates for injury, poisoning and mental disorders.



Main causes of death in 2011 were cardiovascular disease, cancer, respiratory diseases, injury, poisoning and mental disorders



Chronic Obstructive Pulmonary Disease (COPD) was the leading cause of potentially avoidable hospitalisations in 2011/12

The top 5 potentially avoidable hospitalisations in 2011/12 were COPD, UTI, dehydration and gastroenteritis, dental conditions and asthma.



21.6%

21.6% of NBM population over 16yrs smoke



59%

59% of adults are overweight



50%

Approx. 50% of NBM population do not get enough exercise

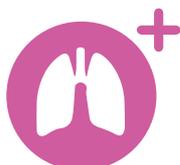
In 2011/12 the NBM region had higher rates of avoidable deaths and potentially avoidable hospitalisations than most other metropolitan health regions.



Breast and cervical cancer screening rates decreased in the last 5 years



Maternal smoking in pregnancy rates have been consistently higher than NSW



Asthma prevalence in 16yrs + in 2011 was the highest compared to all metropolitan health regions

Identifying the health of our region by prevalence of disease, this chapter highlights the areas of growing concern and need. Developing strategies and implementing activities that target lifestyle habits, such as smoking and high body mass, are fundamental to avoiding the development of chronic disease.

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 places increasing pressure on our health system to address the need for coordinated and integrated patient care across diverse healthcare settings.

Traditionally, the design of health systems was around the institutions that delivered services rather than the populations they served. Going forward, a range of services will need to be provided outside of hospitals, involving multidisciplinary models of care delivered by a variety of health professionals.

Chronic and Preventable Conditions

At present, chronic disease imposes the most significant burden on our health services. In 2010, chronic diseases were the leading cause of death in Australia, with the most common causes including cardiovascular disease, cancer, chronic lower respiratory diseases and diabetes. Lifestyle factors, such as smoking, poor diet and physical inactivity, further increase the risk of developing chronic disease (Australian Institute of Health and Welfare, 2014).

With the increasing prevalence, there is a growing focus on primary care to better manage chronic disease, including prevention. Chronic diseases are a major cause of hospitalisation, particularly if adequate prevention and management strategies are not in place at the primary care level. The high rates of comorbidity between chronic diseases such as diabetes and cardiovascular disease, chronic disease and mental health, obesity and diabetes, and diabetes and renal dialysis result in complex care needs with associated high treatment costs (Australian Institute of Health and Welfare, 2014).

The increasing demand on health services is a consequence of the rise in chronic illness. The need to develop stronger links with general practitioners and identify and manage these illnesses effectively is crucial to alleviating the demand. It is well documented that ineffective management of chronic conditions in primary care leads to worse health outcomes and higher costs (H. Swerissen, 2016).

Given the trend in chronic disease, it is clear that prevention and health promotion are key to addressing this important issue. The risk factors can be readily modified through a unified targeted approach, which the PHN will aim to achieve.

Problematic chronic and preventable conditions which are dominant in the region are outlined below.

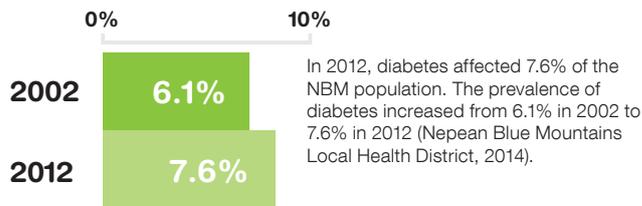
Diabetes

Diabetes mellitus (DM) is a chronic condition characterised by elevated blood glucose levels, which over time may lead to damage to the heart, blood vessels, eyes, kidneys and nerves. Negative health outcomes of diabetes can potentially include kidney failure, amputations of limbs and diabetic eye disease. Diabetes is also a major risk factor for other chronic conditions, such as cardiovascular disease (World Health Organisation, 2016).

Diabetes occurs when the pancreas is not producing enough insulin or the body's cells are not responding properly to the insulin produced.

There are three main types of diabetes mellitus:

- Type 1:** DM results from failure of the pancreas to produce enough insulin. This form was previously referred to as 'insulin-dependent diabetes mellitus' (IDDM) or 'juvenile diabetes' and the cause is unknown.
- Type 2:** DM begins with insulin resistance, a condition whereby cells fail to respond to insulin properly. As the disease progresses, a lack of insulin may also develop. This form was previously referred to as 'non-insulin-dependent diabetes mellitus' (NIDDM) or 'adult-onset diabetes'. The primary cause is excessive body weight and not enough exercise (Diabetes Australia, 2016).
- Gestational Diabetes:** The main form, this occurs when pregnant women with no previous history of diabetes develop high blood-sugar levels (Diabetes Australia, 2016).



In 2012, diabetes affected 7.6% of the NBM population. The prevalence of diabetes increased from 6.1% in 2002 to 7.6% in 2012 (Nepean Blue Mountains Local Health District, 2014).



Risk Factors

Risk factors such as being overweight or obese, smoking, excessive alcohol consumption and having a sedentary lifestyle can contribute to various chronic disease conditions, including diabetes, cardiovascular disease and chronic obstructive pulmonary disease (COPD) (Nepean Blue Mountains Local Health District, 2014). All of these risk factors affect the NBM population in varying degrees, however a significant risk factor affecting the region is the prevalence and increasing incidence of obesity, a recognised risk in the development of diabetes and cardiovascular disease. Insufficient physical activity, poor diet and failing to maintain a healthy abdominal weight are other key factors.

In the NBM region, 59% of adults are overweight or obese and 21.6% smoke. Nearly half of the adult population (46.1%) do not get enough physical activity, and one-third of the adult population undertakes excessive alcohol consumption. One in three youths are overweight or obese and drink alcohol excessively.

Burden of Disease

In the study *The burden of disease and injury in Australia, 2003*, 60.1% of the burden of diabetes was attributable to the risk factors of high body mass (54.7%) and physical inactivity (23.7%). People with diabetes are two to four times more likely to develop cardiovascular disease, and about two-thirds die from the disease (H. Swerissen, 2016). The table below clearly indicates the joint effect of unhealthy weight combined with lack of exercise towards individuals developing diabetes is considerable (Begg S, 2003) (Australian Institute of Health and Welfare, 2003).

Table 13: Burden of Diabetes Attributable to Risk Factors, Australia, 2003

Rank	Risk Factor	Attributable Burden %
1	High Body Mass	54.7%
2	Physical Inactivity	23.7%
	Joint Effect	60.1%*

Note: *Figures for joint effects are not column totals.

Figures from 2011-12 showed that around 68% of people who had diabetes (based on measured and self-reported data) also had cardiovascular disease and/or chronic kidney disease (Australian Institute of Health and Welfare, 2016).

Prevalence in the NBM Region

Diabetes prevalence increased overall in the NBM region, from 6.1% in 2002 to 7.6% in 2012. In determining the prevalence, the PHN sourced additional details from national

registers. The National Diabetes Services Scheme (NDSS) is a voluntary scheme that people with a medical practitioner or nurse diagnosed diabetes can enrol with the NDSS coverage of the population with diagnosed diabetes is about 80-90%. Based on these registrations, figures show that compared to the region average of 5.6%, Lithgow is highest at 7.2%, followed by Penrith at 6.1%. Blue Mountains and Hawkesbury LGAs reported 4.6% each, less than the total for the region (NBM Medicare Local, 2014).

It is believed that primary care reporting of diabetes in the NBM region is likely to be significantly underreported. This finding resulted from a 2013 assessment of diabetes registrations for 49 general practices within the region, which indicated that approximately 64% of patients with diabetes, and registered with the NDSS, were not accounted for in the participating practice diabetes registers (NBM Medicare Local, 2014). Reasons for this have not been explored.

Further assessment showed the uptake of the Diabetes Practice Incentive Program by eligible general practices in the NBM region was insufficient for the number of people with diabetes. The program was introduced by the Department of Health to support general practice activities through continuing quality improvements and improve health outcomes for patients. This incentive relates to the completion of an annual cycle of diabetes care and the management of recall and reminder systems for patients with diabetes.

Our findings showed that during 2012, a total of 3,231 occasions of service for the Diabetes Practice Incentive Program were billed for the Nepean Blue Mountains by 94 general practitioners (NBM Medicare Local statistics). This relates to approximately 1% of the total population. Noting that the incidence rate of diabetes is 7.6% suggests there is a shortfall in billing for this specific item. It is difficult to conclude, as reasons for the difference may be attributed to the general practice uptake of the MBS diabetes practice incentive payments (PIP) which is accessible only to accredited practices; which is approximately 64% within the NBM region. Additionally practice nurse related billing for chronic-disease monitoring is not specifically identified for diabetes related services. During 2012, a total of 4,731 chronic-disease checks were billed. Individuals with chronic diseases are also managed via GP management plans and Team Care Arrangements. During 2012, a total of 30,149 GP management plans were billed for the NBM region, once again this is not defined by disease state.

Attributable Deaths

The burden of disease of diabetes in the NBM region population is reflected in the number of diabetes-related deaths. In 2007 there were 405 diabetes-related deaths (232 male and 173 female). Diabetes has also been identified as a major contributor to potentially avoidable deaths (Nepean Blue Mountains Local Health District, 2014). Hospitalisations rates with diabetes as the principal diagnosis equated to 515 hospitalisations in 2010 (245 male and 220 female) (Nepean Blue Mountains Local Health District, 2014).

The correlation between diabetes and end-stage kidney disease is well known, with details of kidney disease for the region detailed on the next page.

Kidney Disease

Undiagnosed kidney disease is common in people with diabetes. Around 40% of people with type 2 diabetes have kidney disease and a 23% higher risk of dying over 10 years than people without diabetes (H. Swerissen, 2016). Diabetes is the most common cause of end-stage kidney disease in Australia, resulting in approximately 50% of cases (Nepean Blue Mountains Local Health District, 2014). People with end-stage kidney disease require dialysis or a kidney transplant to survive.

In 2012-13, dialysis was a major reason for hospitalisation in the NBM population, with statistics indicating this was the second-leading cause of male hospitalisations (11.4% of total male hospitalisations) and the sixth leading cause of female hospitalisations (6.2% of total female hospitalisations). In total, there were 10,872 hospitalisations for dialysis (6,725 male and 4,147 female), equating to 8.6% of total hospital admissions for the period (Nepean Blue Mountains Local Health District, 2014).

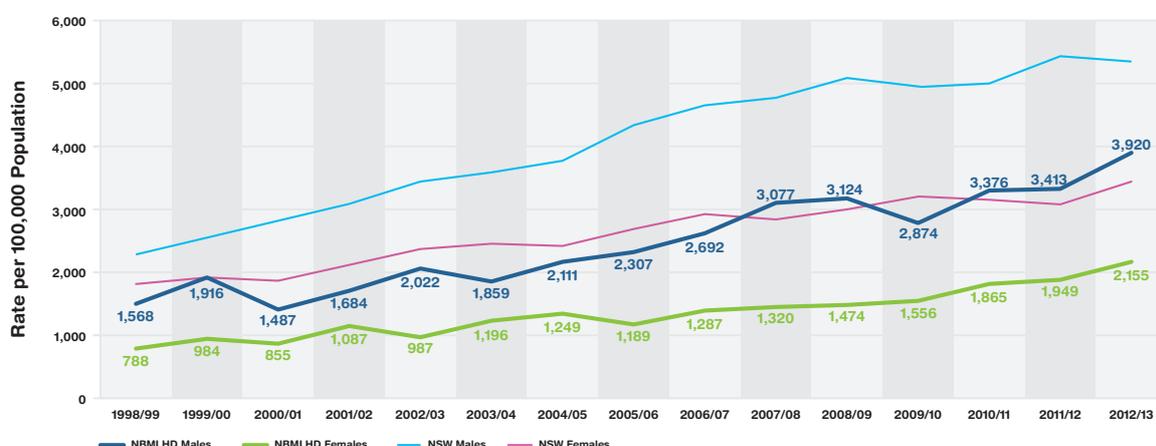
Increase in Dialysis Hospitalisations

Population growth and ageing of the population are the major drivers for the observed and expected increase in the number of NBM residents who will require dialysis support. For the male NBM population, figures showed an undesirable trend, with NBM male dialysis hospitalisation rates significantly increasing – from 1,568 hospitalisations per 100,000 people in 1998-99 to 3,920 hospitalisations per 100,000 people in 2012-13.

Figures for the female NBM population also showed an undesirable trend, with NBM female dialysis hospitalisation rates significantly increasing – from 788 hospitalisations per 100,000 people in 1998-99 to 2,155 hospitalisations per 100,000 people in 2012-13 (Nepean Blue Mountains Local Health District, 2014).

Figure 14 provides a picture of the trend in dialysis hospitalisation rates. Clearly over the past 15 years (1998 to 2013), dialysis rates increased, with rates for the region's female's almost tripling and male rates almost doubling. This trend is consistent with the NSW trends for male and females and the increase in kidney disease in the NBM region, and has led to a widespread implementation of 'dialysis at home' model of care.

Figure 14: Trend in dialysis hospitalisation rates by sex, NBM region and NSW, 1998-99 to 2012-13



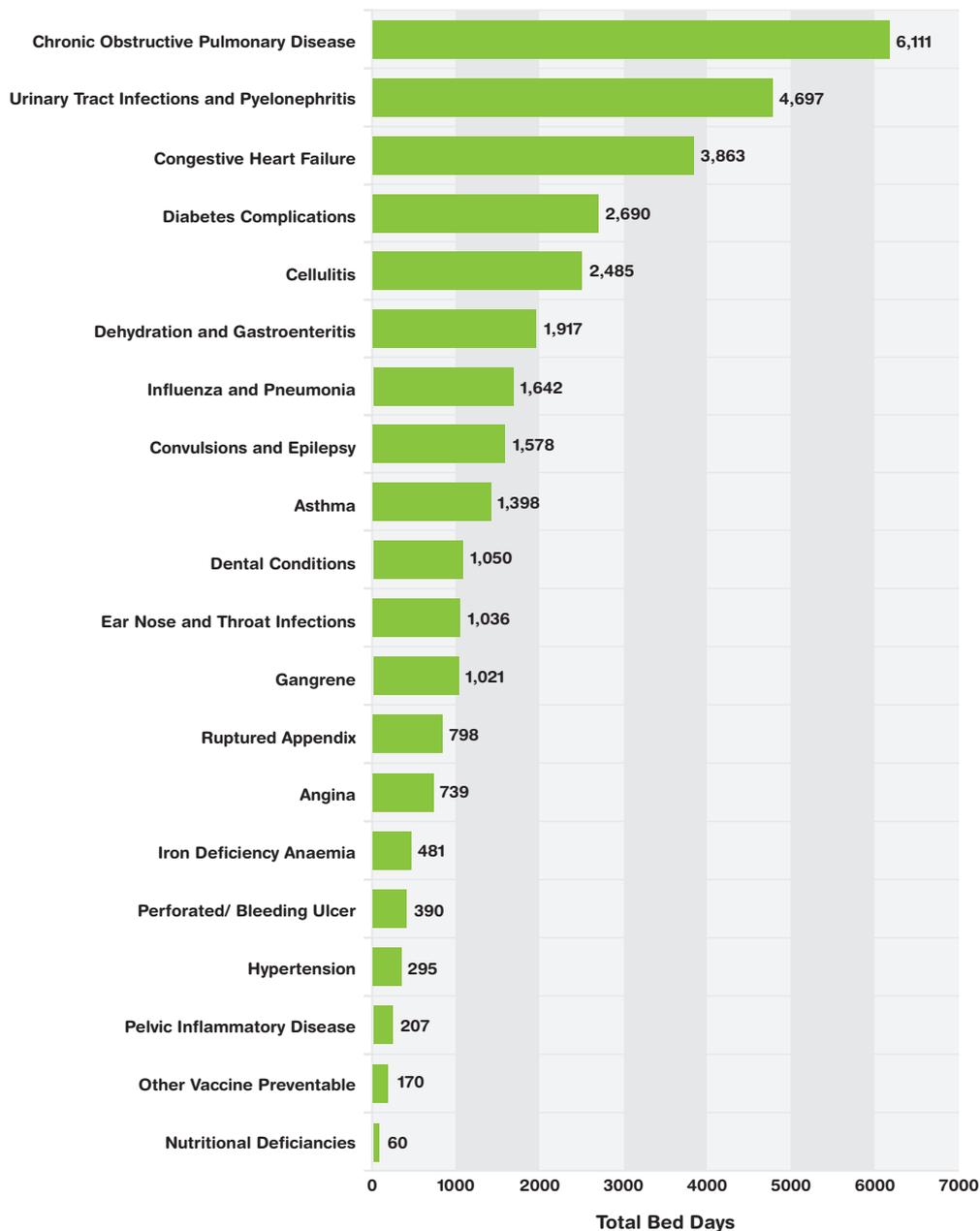
NSW Admitted Patient Data Collection and ABS population estimates (SAPHaRI). Centre for Epidemiology and Evidence, NSW Ministry of Health. Note: Rates are age-adjusted. The ICD10 chapter Factors influencing health has been divided into two categories: Dialysis and Other factors influencing health in the analysis. ICD10 code= Z49. NBM male and female dialysis. Hospitalisation rate labels only shown.

Potential to Avoid Hospitalisation

Potentially preventable hospitalisations or ambulatory care-sensitive conditions are those whereby hospitalisation is considered potentially avoidable through preventive care and early disease management, usually delivered in an ambulatory setting such as primary healthcare.

Diabetes complications attributed to a total of 2,690 total bed days and ranked as one of the top-five conditions, with the highest number of total bed days for potentially preventable conditions. Figure 15 shows the total bed days by specific condition and highlights the demand on acute services caused by diabetes complications (Nepean Blue Mountains Local Health District, 2014).

Figure 15: Total Bed Days – potentially preventable hospitalisations by specific condition in the NBM population during 2011-12 for all hospitals in the region.



Cardiovascular Disease

Cardiovascular disease (CVD) is a collective term for diseases of the heart and blood vessels. Among these diseases, the four types responsible for the most deaths in NSW are:

- Coronary heart disease (or ischaemic heart disease)
- Stroke (or cerebrovascular disease)
- Heart failure
- Peripheral vascular disease (Nepean Blue Mountains Local Health District, 2014)

Coronary heart disease (CHD) is the most common form of cardiovascular disease in both Australia and the NBM region. A heart attack (often known as acute myocardial infarction) is a life-threatening event that occurs when a blood vessel supplying the heart itself, suddenly becomes completely blocked, threatening to damage the heart muscle and its functions. Angina is a chronic condition whereby short episodes of chest pain can occur periodically when the heart has a temporary deficiency in its blood supply (World Health Organisation, 2016).

In 2010-11, cardiovascular disease was the leading cause of death in the NBM region, representing 32.1% of all deaths (Nepean Blue Mountains Local Health District, 2014).



32.1%
(2012)

Risk Factors

Behavioural risk factors, including tobacco smoking, physical inactivity, poor diet and risky alcohol consumption, lead to the physiological risk factors in cardiovascular disease. These are high blood pressure, elevated blood lipids, diabetes mellitus, and overweight or obesity (Australian Institute of Health and Welfare, 2014).

Psychosocial and Socioeconomic Risk Factors

In patients with coronary heart disease, psychosocial risk factors contribute both to the risk of developing coronary heart disease and the worsening of clinical course and prognosis.

These factors are:

- Low socioeconomic status
- Lack of social support
- Stress at work and family life
- Depression and anxiety
- Hostility

These factors may act as barriers to treatment adherence and efforts to improve lifestyle in patients and populations. In addition, distinct psychobiological mechanisms have

been identified, which are directly involved in the pathogenesis of coronary heart disease (Albus, 2010). Within the NBM region, pockets of low socioeconomic status and poor health literacy compound this problem.

Relevant to the region, attributable risk factors include smoking rates, prevalence of high body mass, physical inactivity and below recommended consumption levels of fruit and vegetables.

Burden of Disease

In 2013, coronary heart disease was the leading cause of death in Australia, representing 13% of all deaths (Australian Institute of Health and Welfare, 2014).

One measure of the burden a disease has on a health service is the number of hospitalisations. Within the NBM population, there were 6,303 hospitalisations due to cardiovascular diseases (3,583 male and 2,720 female) in 2011-12. This represented 4.7% of NBM hospitalisations overall (Nepean Blue Mountains Local Health District, 2014). Heart failure represented 9.3% of cardiovascular disease hospitalisations for the same time period (Nepean Blue Mountains Local Health District, 2014).

Figures provided by the LHD show coronary heart disease was the most common type of cardiovascular disease for 2011-12, making up 28% of cardiovascular disease hospitalisations in the NBM region. There were 1,748 coronary heart disease hospitalisations for the same time period, with 1,209 male hospitalisations and 539 female hospitalisations (Nepean Blue Mountains Local Health District, 2014).

Overall, hospitalisations for cardiovascular disease in 2011-12 comprised a total of 5.7% of total male hospitalisations and 3.8% of total female hospitalisations (Nepean Blue Mountains Local Health District, 2014).

Prevalence in the NBM Region

In 2010-11, cardiovascular disease was the leading cause of death in the NBM population, accounting for 629 deaths (334 male and 295 female) and representing 32.1% of all deaths (Nepean Blue Mountains Local Health District, 2014).

Potential To Avoid Hospitalisation

Heart failure accounted for 3,863 bed days in 2011-12 and ranked one of the top-three conditions for potentially avoidable hospitalisations (Nepean Blue Mountains Local Health District, 2014).

At-Risk Populations

Aboriginal people are twice as likely to develop coronary heart disease as the non-Aboriginal population (Australian Institute of Health and Welfare, 2014).

Respiratory Diseases – COPD and Asthma

Respiratory diseases include acute diseases (influenza and pneumonia) and chronic diseases (asthma, chronic obstructive pulmonary disease, asbestosis and respiratory tuberculosis) (Nepean Blue Mountains Local Health District, 2014). In *The burden of disease and injury in Australia 2003*, respiratory disease accounted for 7.1% of the burden of disease in the Australian population. Chronic obstructive pulmonary disease accounted for 46% and asthma 34% of this burden (Begg S, 2003). The average cost of a single hospital admission for chronic obstructive pulmonary disease without any other complications is around \$5,500 (Primary Health Care Advisory Group Final Report, 2015).

Chronic Obstructive Pulmonary Disease

Chronic obstructive pulmonary disease (COPD) is a serious, progressive and disabling condition that limits airflow in the lungs and is a type of chronic airways disease (Australian Institute of Health and Welfare, 2014). Emphysema and chronic bronchitis are the most common features of the disease. People with COPD are often short of breath and may have frequent coughing (Australian Institute of Health and Welfare, 2014). The condition mainly affects older people and the main cause is active smoking or exposure to smoking.

Risk Factors

The biggest risk factor is tobacco smoking and/or exposure to tobacco smoking (Nepean Blue Mountains Local Health District, 2014).

Burden of Disease

Within the NBM population, the burden of respiratory diseases is recognised by deaths and hospitalisation rates. In 2010-11, respiratory disease was the third-leading cause of death in the region, accounting for 8.6% of male deaths and 10.6% of female deaths. For the same time period, there were on average 188 deaths per year from respiratory diseases (Nepean Blue Mountains Local Health District, 2014).

In 2011-12, respiratory disease accounted for 4.9% of hospitalisations, with a total of 6,488 respiratory diseases hospitalisations (3,345 male and 3,144 female). COPD, asthma, influenza and pneumonia are the most problematic respiratory diseases in the region.

In 2003, COPD was estimated to account for 2.9% of the disease burden in Australia (Begg S, 2003), with 2013 statistics revealing COPD to be the fifth-leading cause of death in the country (AIHW 2016). Cigarette smoking is the main risk factor, and current COPD incidence rates reflect smoking rates of 20 years and more (Nepean Blue Mountains Local Health District, 2014).

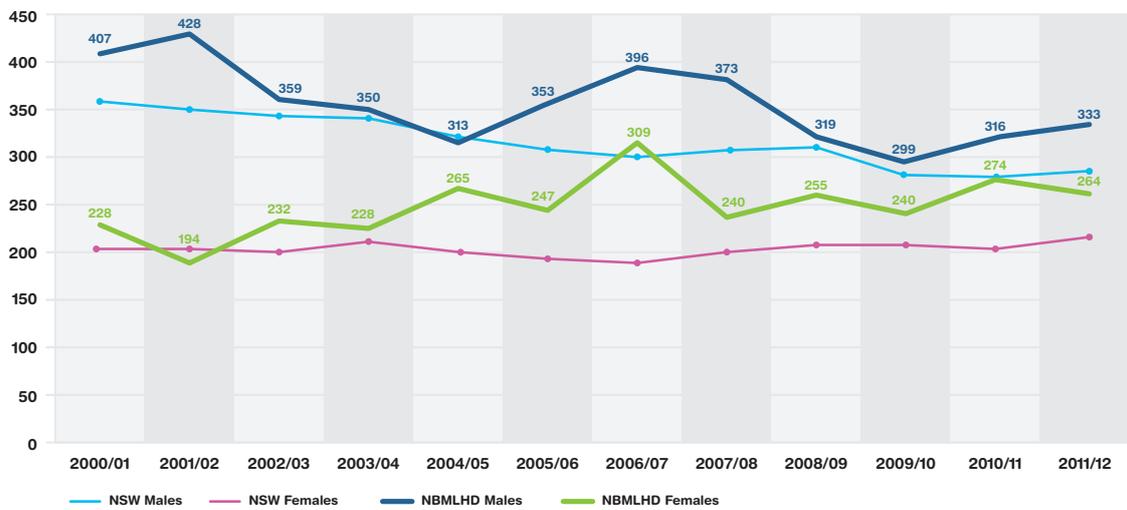
In 2011-12, there were 970 hospitalisations for COPD in the region (481 male and 498 female). During this time period, COPD was the leading cause of potentially preventable hospitalisations, accounting for 6.1 bed days on average for each episode of care

(Nepean Blue Mountains Local Health District, 2014). The male hospitalisation rates for COPD were significantly higher than NSW COPD male hospitalisation rates overall.

While the NBM COPD male hospitalisation rates have decreased over the past 10 years, the cost to the health budget remains significant. Conversely, COPD female hospitalisation rates have increased and were significantly higher than NSW COPD female hospitalisation rates overall (Nepean Blue Mountains Local Health District, 2014).

Figure 16 shows hospitalisation rates have declined over the period for the region's males, however in recent years there has been an increase for male hospital rates.

Figure 16: Chronic Pulmonary Disease hospitalisation rates by sex, NBMLHD and NSW, 2000/01 to 2011/12



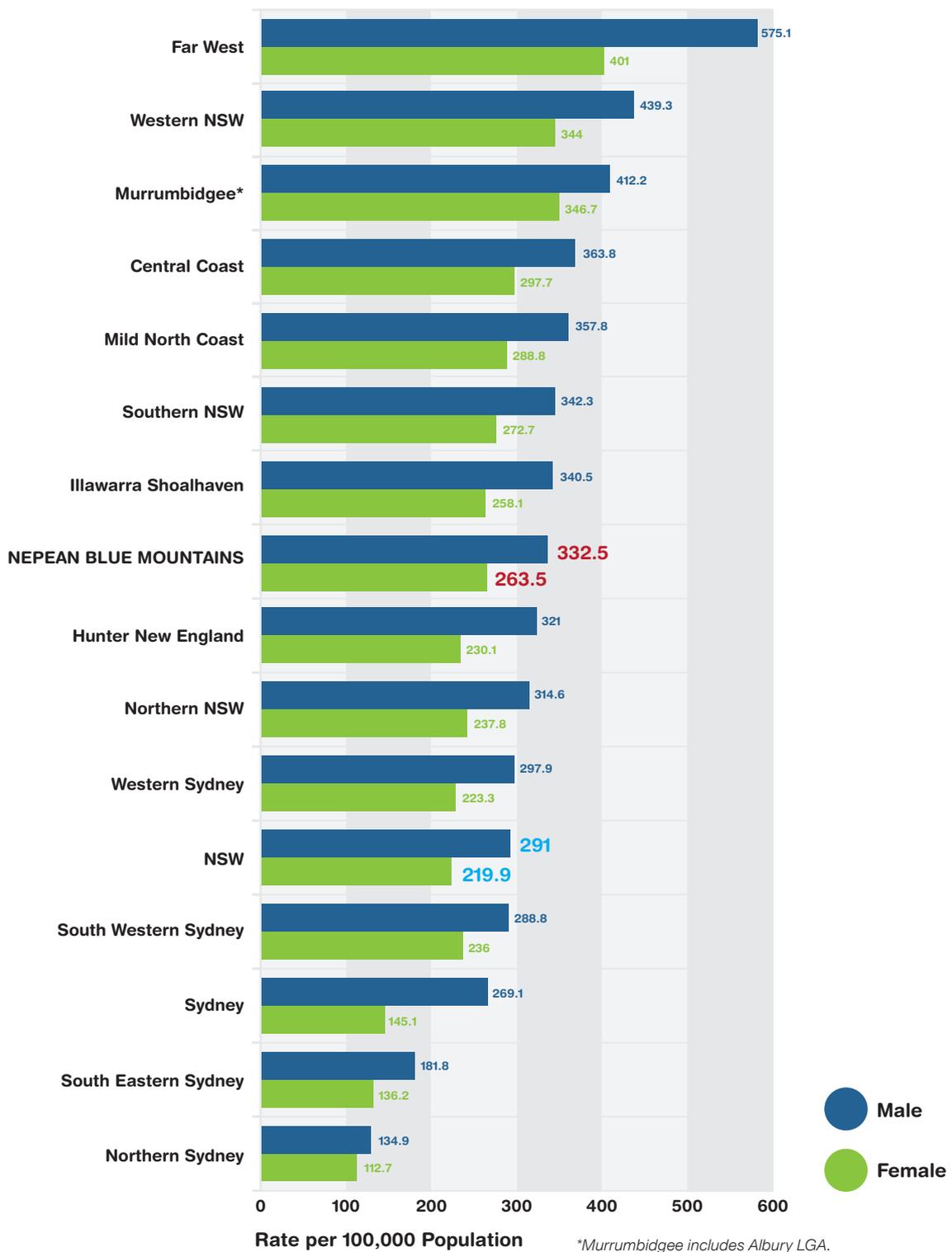
Source: NSW Admitted Patient Data Collection and ABS population estimates (SAPHaRI). Centre for Epidemiology and Evidence, NSW Ministry of Health.
 Note: Hospital separations were classified using ICD-9-CM up to 1997-98 and ICD-10-AM from 1998-99 onwards. Rates were age-adjusted using the Australian 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. NBM male and female COPD hospitalisation rate labels shown only.

Latest AIHW reports advise that COPD is the leading cause of burden for those aged 75-84 (Australian Institute of Health and Welfare, 2016).

Potential to Avoid Hospitalisations

In 2011-12, there were 970 hospitalisations for COPD in the NBM population (481 male and 498 female). For the same timeframe, COPD was the leading cause of potentially preventable hospitalisations in the NBM population, accounting for an average of 6.1 bed days for each episode of care (Nepean Blue Mountains Local Health District, 2014).

Figure 17: Chronic Obstructive Pulmonary Disease Hospitalisation Rates by Sex and NSW Local Health Districts, 2011-12



Asthma

People with asthma experience episodes of wheezing, shortness of breath, coughing and chest tightness due to widespread narrowing of the airways. The symptoms of asthma vary over time and may be present or absent at any point in time¹. Asthma affects people of all ages and has a substantial impact on the community.

The symptoms of asthma are usually reversible, either with or without treatment. The severity of asthma ranges from mild and intermittent symptoms, causing few problems for the individual, to severe and persistent wheezing and shortness of breath. In a few people with asthma, the disease has a severe adverse impact on quality of life and may be life-threatening.

Risk Factors

While the underlying causes of asthma are still not well understood, there are a number of genetic, environmental and lifestyle factors that may increase the risk of developing asthma. A number of factors can trigger asthma symptoms, and triggers may differ between individuals. Triggers may include:

- Viral respiratory infections, such as colds
- Exercise
- Exposure to specific allergens (if a person is allergic to them), such as:
 - *house dust mites*
 - *pollens*
 - *mould spores*
 - *pets and animals*
- Environmental irritants, such as:
 - *tobacco smoke and other air pollutants*
 - *cold/dry air*
- Dietary triggers, such as:
 - *food chemicals/additives (if a person is intolerant)*
- Medicines such as aspirin and other non-steroidal anti-inflammatory drugs (NSAIDs)
- Occupational exposures to specific allergens, dust and fumes

Burden of Disease

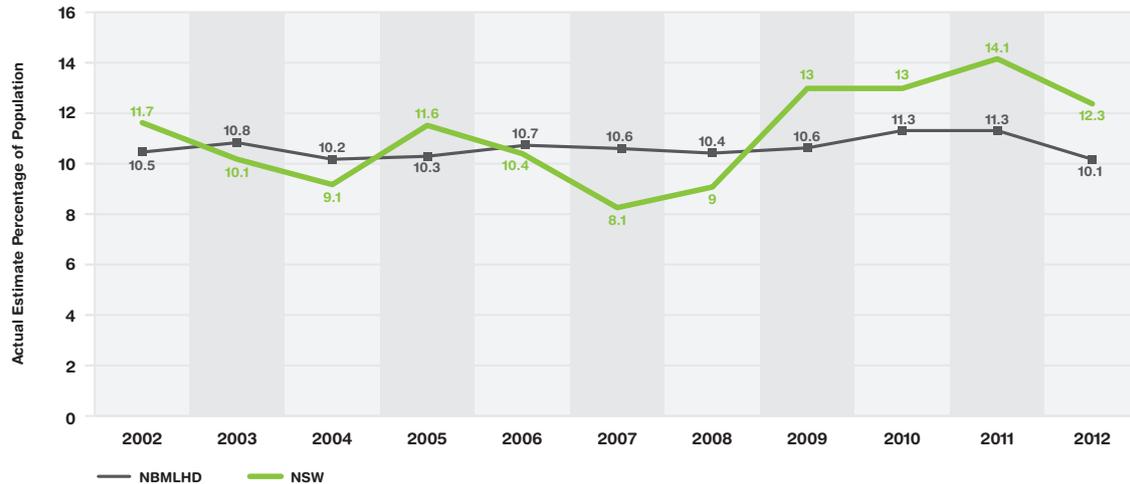
Asthma is a significant public-health problem in Australia and it is estimated that Australian prevalence rates are among the highest in the world. In 2003, asthma was estimated to account for 2.3% of the disease burden in Australia. Asthma is the leading cause of disease burden for Australian children, accounting for over 18% of the total disease burden (Begg S, 2003).

¹ National Asthma Council. *Understanding Asthma 2015* www.nationalasthma.org.au/

Prevalence

In 2007, prevalence of asthma in the NBM population aged 16 and over was at its lowest (8.1%) then rose to 12.3% in 2012. These changes were not statistically significant. (Nepean Blue Mountains Local Health District, 2014) In 2012, the prevalence was 18.5% of the population for the 2-15 years age group. As seen in Figure 18, the prevalence is trending downwards, suggesting treatment therapies are proving to be effective.

Figure 18: Trend in asthma prevalence, persons aged 16 and over, NBM and NSW, 2002 to 2012



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

Hospitalisations

There has been a decrease for hospitalisation rates across the region, with a downward trend for both male and female hospitalisation rates, suggesting that primary care and/or self management have improved over time.

Potential to Avoid Hospitalisations

Asthma ranked ninth for conditions contributable to potentially avoidable hospitalisations, with a total of 1,398 bed days during 2011-12 (Nepean Blue Mountains Local Health District, 2014).

Overweight and Obesity

Body mass index (BMI) is a simple index of weight-for-height commonly used to classify overweight and obesity in adults. It is defined as a person's weight in kilograms divided by the square of his/her height in meters (kg/m²). According to the World Health Organisation (WHO), a BMI greater than or equal to 25 is overweight and obesity is determined by a BMI of 30 or more.

The health consequences of being overweight and obese or having a high body mass are many and varied, ranging from an increased risk of premature death to several non-fatal but debilitating complaints that have an adverse effect on quality of life (WHO, 1999). Obesity is a risk factor in the developmental trajectory of illness, as well as leading to complexity in the management of illness (World Health Organisation, 2016).



34.7%



23.8%

34.7% of 16 years and under were overweight and 23.8% obese in 2014



64%

Percentage of adults reported to be overweight or obese in the NBM region for 2011-12 was 64%

Risk Factors

High levels of disadvantage compound the incidence of obesity. Approximately 10% of the Penrith LGA population lives in two suburbs considered amongst the most disadvantaged suburbs in NSW – St Marys and North St Marys. (Nepean Blue Mountains Local Health District, 2014).

Burden of Disease

In 2013-14, 1,764 hospitalisations in the NBM region were attributable to high body mass (Nepean Blue Mountains Local Health District, 2014).

Prevalence

Results from the 2011-12 Australian Bureau of Statistics Australian Health Survey indicate almost two-thirds (63%) of the population aged 18 and over were overweight or obese (35% overweight, 28% obese). Only one-third (36%) of Australian adults had a healthy body weight. The proportion of overweight or obese adults in the population (based on measured height and weight) has increased in recent decades, from 57% in 1995 to 61% in 2007-08 and 63% in 2011-12. This was largely driven by an increase in the level of obesity from 19% to 27% over the period, with the proportion of overweight but not obese adults remaining similar (36% to 38%).

The percentage of adults reported to be overweight or obese in the NBM region for 2011-12 was 64% (35% overweight, 29% obese), with NBM ranking medium-high compared to the other 60 regions (Nepean Blue Mountains Local Health District, 2014).

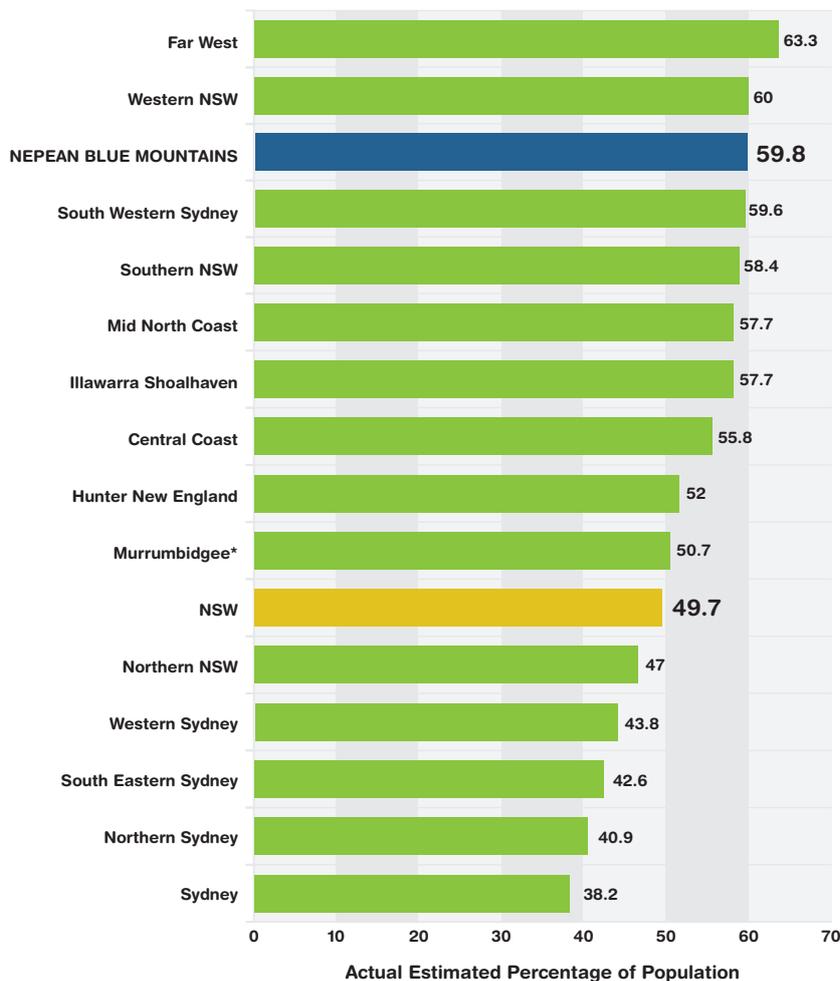
One in five people were reported to be obese within the NBM population for 2014, and one in three people were overweight. High body mass contributed to 5.8% of NBM deaths, with male and female death rates the highest compared to eight other metropolitan health regions.

In 2012, the *NSW Adult Population Health Survey* showed 24.5% of the NBM population aged 16 and over was obese, while 35.3% was overweight.

The prevalence of obesity is steadily increasing in the region. This is concerning, as evidence suggests the association between obesity and disease begins early in life, and one of the consequences is its persistence into adulthood. A strong link has been identified between obesity and diseases such as type 2 diabetes, hypertension and musculoskeletal and cardiovascular problems. Due to these close relationships, the healthcare costs have been escalating and the economic burden is predicted to get much worse (Western Sydney LHD, 2012).

Figure 19 shows the NBM region's rates for overweight and obesity are aligned to rates for regional areas known to have much poorer health outcomes and risk factors than urban regions. Rates of high body mass are significantly higher in the NBM region than in peer regions such as Western Sydney and other metropolitan regions of NSW. Long term, this trend will compound the increasing incidence of chronic disease, with potential to increase hospitalisation rates and complications associated with high body mass after surgery or during treatment for a disease.

Figure 19: Obesity or Overweight Prevalence of Persons Aged 16 and Over, NSW Local Health Districts, 2012



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

Note: Body mass is derived from a person's weight and height. The Body Mass Index (BMI) is the weight in kilograms divided by the square of the height in metres (kg/m²). A person considered overweight or obese has a BMI of at least 25 kg/m². For 18 years and over, BMI is calculated as follows: BMI = weight (kg)/height (m)². Categories for this indicator include: underweight (BMI less than 20.0), healthy weight (BMI from 20.0 to 24.9), overweight (BMI from 25.0 to 29.9) and obese (BMI of 30.0 and over). Obesity was further classified into: Obesity Class I (BMI between 30.0 and 34.9), Obesity Class II (BMI between 35.0 and 39.9) and Obesity Class III (BMI of 40.0 or over).

*Murrumbidgee includes Albury LGA.

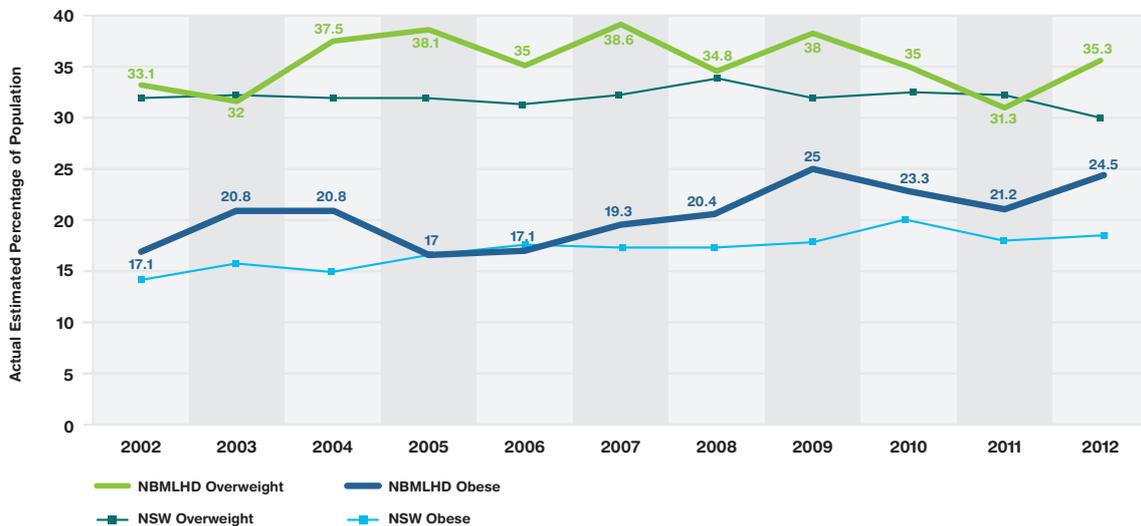
Trend in Prevalence of Overweight and Obesity in NBM Region and NSW

Overall, the prevalence of overweight in the NBM population aged 16 and over did not significantly change (from 33.1% of the population in 2002 to 35.3% in 2012). However, the prevalence of obesity in those aged 16 and over increased overall from 17.1% in 2002 to 24.5% in 2012 (Nepean Blue Mountains Local Health District, 2014).

Rates of obesity in the region are increasing. Unless strategies are put into place to reverse or halt the trend, the outcome is further increases in rates of hospitalisations and premature deaths for conditions where obesity is a contributing factor.

Figure 20 charts the prevalence in the NBM region, compared to that of NSW across a 10-year period. Both overweight and obesity rates are trending up for the region, while across NSW the rates are trending downwards (Nepean Blue Mountains Local Health District, 2014)

Figure 20: Overweight and obesity prevalence, persons aged 16 and over, NBM and NSW, 2002 to 2012



Source: NSW Adult Population Health Survey (SAPHaRI), Centre for Epidemiology and Evidence, NSW Ministry of Health.
 Notes: Body mass is derived from a person's weight and height. The Body Mass Index (BMI) is the weight in kilograms divided by the square of the height in metres (kg/m²). A person considered overweight or obese has a BMI of at least 25 kg/m². For 18 years and over, BMI is calculated as follows: BMI = weight (kg)/height (m)². Categories for this indicator include: underweight (BMI less than 20.0), healthy weight (BMI from 20.0 to 24.9), overweight (BMI from 25.0 to 29.9) and obese (BMI of 30.0 and over). Obesity was further classified into: Obesity Class I (BMI between 30.0 and 34.9), Obesity Class II (BMI between 35.0 and 39.9) and Obesity Class III (BMI of 40.0 or over). NBM percentage labels shown only.

Other issues apparent in the region include the need to provide bariatric services that cater to morbidly obese clients. Some of the challenges with morbid obesity include the impact on physical structures such as door widths, bed and bedroom sizes, wheelchairs and toilets.

Physical Activity

To maintain good health, national physical activity guidelines for adults recommend at least 30 minutes of moderate activity on most, and preferably all, days of the week. Moderate-intensity activity includes brisk walking, dancing, swimming or cycling, which can be undertaken in shorter bursts such as three lots of 10 minutes (World Health Organisation, 2016).

Exercise of this nature has significant benefits for overall health. For instance, it can reduce the risk of cardiovascular diseases, diabetes, colon cancer, breast cancer and depression. Moreover, adequate levels of physical activity will decrease the risk of a hip or vertebral fracture and help control weight. Mental-health benefits are also widely documented.

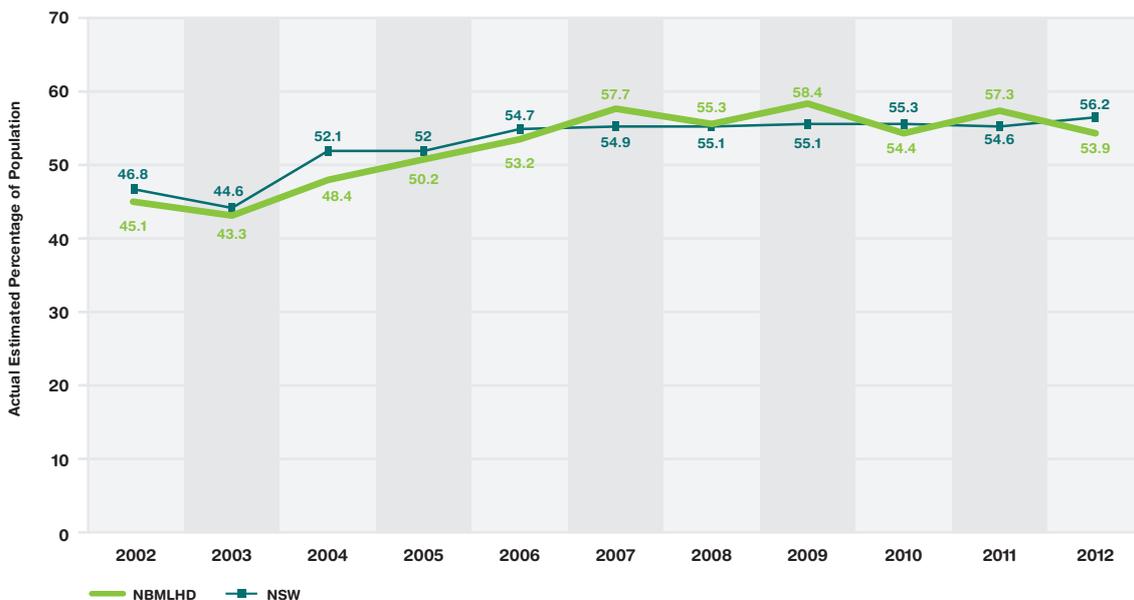
According to the World Health Organisation (WHO), 60-85% of people in the world – from both developed and developing countries – lead sedentary lifestyles, making it one of the more serious yet insufficiently addressed public-health problems of our time. It is estimated that nearly two-thirds of children are also insufficiently active, with serious implications for their future health.

In 2007, physical inactivity contributed to 6.6% of the Australian burden of disease (Nepean Blue Mountains Local Health District, 2014).

The trend in the prevalence of adequate physical activity from 1998 to 2012 showed that, overall, the percentage of the NBM population aged 16 and over that reported participating in adequate physical activity increased from 45.1% in 2002 to 53.9% in 2012. However, this change was not statistically significant (Nepean Blue Mountains Local Health District, 2014).

Increasing levels of physical activity is one of the simplest and cheapest means of improving overall health. It is well documented that exercise not only benefits physical wellbeing but has very positive effects on mental health. The region's levels of physical activity are trending downwards, while NSW is trending upwards, although as shown in Figure 21, rates are not too dissimilar.

Figure 21: Adequate physical activity prevalence of persons aged 16 and over, NBM and NSW, 1998 to 2012



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

Chronic Pain

Chronic pain is often defined as constant daily pain for a period of three months or more in the past six months (National Pain Strategy, 2015).

Burden of Disease

It is estimated that chronic pain costs the Australian economy \$34 billion per annum, or \$10,847 for each person affected, and is the nation's third most costly health problem (National Pain Strategy, 2015).

Prevalence

One in five Australian's, including children and adolescents, will suffer chronic pain in their lifetime. Influencing the prevalence of chronic pain is an ageing population which is associated with an increasing burden of painful pathology. More than 20% of people over 65 years living in Australia report persistent pain of various types, having a moderate or more severe impact on daily life in more than a half. The prevalence of pain in residential aged-care facilities is much higher, with rates around 50-80% (National Pain Strategy, 2015).

With the increasing prevalence of chronic disease and the ageing population, there is a growing need to address the management of chronic pain. A number of reports have been published in relation to this area, including the NSW Pain Management Taskforce Report, which recommended the following:

- Integrating multidisciplinary care across primary, secondary and tertiary care
- Education, training and workforce development for health professionals in all disciplines
- Research
- Community wide strategies to reduce the stigma of chronic pain
- Better access to early intervention
- That NSW Health formally recognises chronic pain as a chronic disease (NSW Ministry of Health, 2014)

Among the elderly, there are recurring reports of under treatment of pain, specifically in those with communication difficulties and those who want to remain independent and active, for whom pain treatment is generally limited to medicines. This carries the risk of falls and adverse interactions with other medicines (National Pain Strategy, 2015).

The Australian Atlas of Healthcare Variation (2015) identified concerns regarding opioid dispensing and has recommended PHNs work in partnership with general practice and health-service providers to implement systems for real-time monitoring of opioid dispensing. In 2013-14, nearly 14 million prescriptions were dispensed through the PBS for opioids – medicines that relieve moderate to severe pain. These medicines are very effective in relieving acute pain and cancer pain, and in palliative care. However, studies have shown they are also being prescribed for chronic non-cancer pain. Current evidence does not support the long-term efficacy and safety of opioid therapy for chronic non-cancer pain.

Ageing is associated with an increasing burden of painful pathology, the magnitude of which will rise with the ageing of Australia's population. More than 20% of people aged over 65 living in the Australian community report persistent pain of various types, with a moderate or more severe impact on daily life occurring in more than half. The prevalence of pain in residential aged-care facilities is even higher, with rates at 50-80% (National Pain Strategy, 2015). This is an area the PHN will further explore in light of the evidence above, in addition to the high incidence of fall-related hospitalisations in the region for clients aged over 65 (Nepean Blue Mountains Local Health District, 2014).

Immunisation and Vaccination

Immunisation is a safe and effective public health initiative for the prevention of communicable diseases that can cause hospitalisations, adverse health outcomes and, in rare cases, death. Immunisation can offer significant economic savings by reducing direct healthcare costs and indirect societal costs (Department of Health, 2015). Very high immunisation coverage can lead to complete blocking of transmission for many vaccine-preventable diseases. The worldwide eradication of smallpox and the near eradication of polio from many countries provide excellent examples of the role of immunisation in disease control (Department of Health, 2015).

Vaccination against a range of bacterial and viral diseases is an integral part of communicable disease control worldwide. Vaccination against a specific disease not only reduces the incidence of that disease but reduces the social and economic burden of the disease on communities.

Vulnerable groups that require immunisation:

- Pregnant women
- People aged 65 and older
- Aboriginal Australians aged 15 and older
- People aged six months and older with medical conditions that put them at risk of severe influenza (Nepean Blue Mountains Local Health District, 2014)

The Difference Between Immunisation and Vaccination

- **Vaccination:** Having a vaccine – i.e. getting an injection
- **Immunisation:** Both receiving a vaccine and becoming immune to a disease, as a result of being vaccinated

Childhood Immunisations

The Australian Childhood Immunisation Register (ACIR) provides information on the immunisation status of all Australian children aged seven and under. In the NBM region, immunisation rates are below national targets and reflect a wide variation in rates across the LGAs and for some postcode groups. New government policies, such as 'No Jab, No Pay', may influence future immunisation rates.

NBMPHN, in conjunction with the NBMLHD population health unit, has recently realigned organisational Childhood Immunisation Target Rates of 90% with those from NSW Health of 92% for all age groups (one, two and five years) of Aboriginal and non-Aboriginal children.

In 2011, full immunisation of Aboriginal children aged 12-15 months in the NBM population was one of the lowest rates for Aboriginal children (87%) among NSW Local Health Districts. This was significantly lower than the general population rate of 92% in the region. Recent strategies target an increase in Aboriginal children's immunisation rates have proved successful (Nepean Blue Mountains Local Health District, 2014).

Performance for the NBM region at the time of this needs assessment was generally below average for the state, as shown below. The exception is for immunisation of non-Aboriginal children at 5 years of age. Percentages for 2013-14 were:

- **1 year of age** – non-Aboriginal 90% (below NSW average of 90.1%)
- **1 year of age** – Aboriginal 87.7% (below NSW average of 89.2%)
- **2 years of age** – non-Aboriginal 91.2% (above NSW average of 90.7%)
- **2 years of age** – Aboriginal 89.9% (below NSW average of 91.3%)
- **5 years of age** – non-Aboriginal 93.5% (above NSW average of 92.3%)
- **5 years of age** – Aboriginal 93.97% (below NSW average of 94.4%) (Nepean Blue Mountains Local Health District, 2014)

Going forward, the variation in immunisation rates across LGAs and for some postcode groups highlights the need for further work in this area. Findings for the region are detailed below.

Across all age groups, Blue Mountains LGA has consistently underperformed in childhood immunisation rates compared to the other LGAs. Conscientious objector data from ACIR indicate high representation across the Mid to Upper Blue Mountains, peaking at Katoomba (2780) and Blackheath (2785). Similar pockets of conscientious objectors are seen in the Hawkesbury LGA, however in smaller numbers (Nepean Blue Mountains Local Health District, 2014).

Lithgow LGA has shown some improvement in rates, with the figures provided by NBM LHD earlier this year (2016) at:

- **1 year of age** – 88.3%
- **2 years of age** – 83.9%
- **5 years of age** – 90.6%

Postcode data for the upper Blue Mountains indicates low rates of immunisation compared to national averages:

Katoomba (2780)

- **1 year of age** – 76.8%
- **2 years of age** – 75.8%
- **5 years of age** – 85.6%

Blackheath (2785)

- **1 year of age** – 85.4%
- **2 years of age** – 80.0%
- **5 years of age** – 76.8%

Note: Blackheath data is linked to warnings due to small samples.

Anecdotal evidence suggests the possibility of even lower levels for Blackheath than Katoomba.

Influenza and Pneumococcal Immunisations

Influenza and pneumococcal disease immunisation among NSW Local Health Districts show that for 2011, in the NBM region and NSW populations aged 65 and over, immunisation was significantly higher for influenza disease than for pneumococcal disease.

The rate for the NBM population aged 65 and over immunised against influenza (73.9%) was not significantly different to NSW (72.4%), with the region ranking fifth highest among the 15 NSW Local Health Districts and third highest among the eight NSW Metropolitan Local Health Districts (Nepean Blue Mountains Local Health District, 2014).

In 2011, the rate of the NBM population aged 65 and over immunised against pneumococcal was 57.8%. This was not significantly different to NSW (59.5%), with NBM ranking eleventh highest among the 15 NSW Local Health Districts and third highest among the eight NSW Metropolitan Local Health Districts (Nepean Blue Mountains Local Health District, 2014).

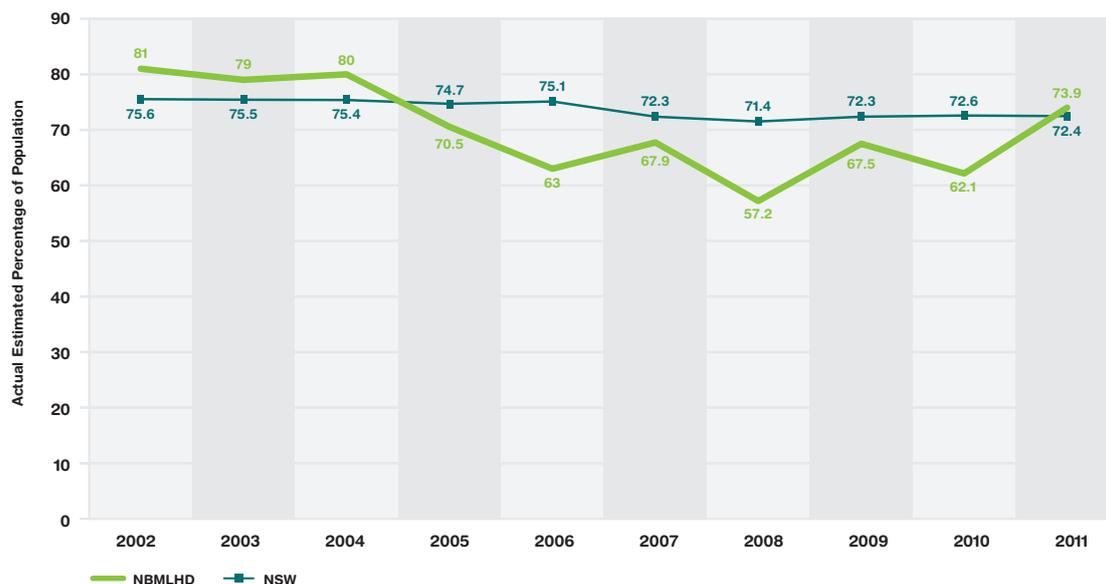
Trend in Influenza and Pneumococcal Disease Immunisation

The percentage of the NBM population aged 65 and over immunised against influenza decreased from 81% in 2002 to 57.2% in 2008, and then increased from 67.5% in 2009 to 73.9% in 2011 (Nepean Blue Mountains Local Health District, 2014).

Trend in Immunisation Against Pneumococcal Disease

The percentage of the NBM population aged 65 and over immunised against pneumococcal disease increased from 40.7% in 2002 to a peak of 63.4% in 2007, and then 57.8% in 2011 (Nepean Blue Mountains Local Health District, 2014).

Figure 22: Influenza and Pneumococcal Disease Immunisation, 65+ age group, NBM and NSW, 2002-11



Source: NSW Adult Population Health Survey (SAPHaRI). Centre for Epidemiology and Evidence, NSW Ministry of Health.
Note: NBM percentage labels shown only.

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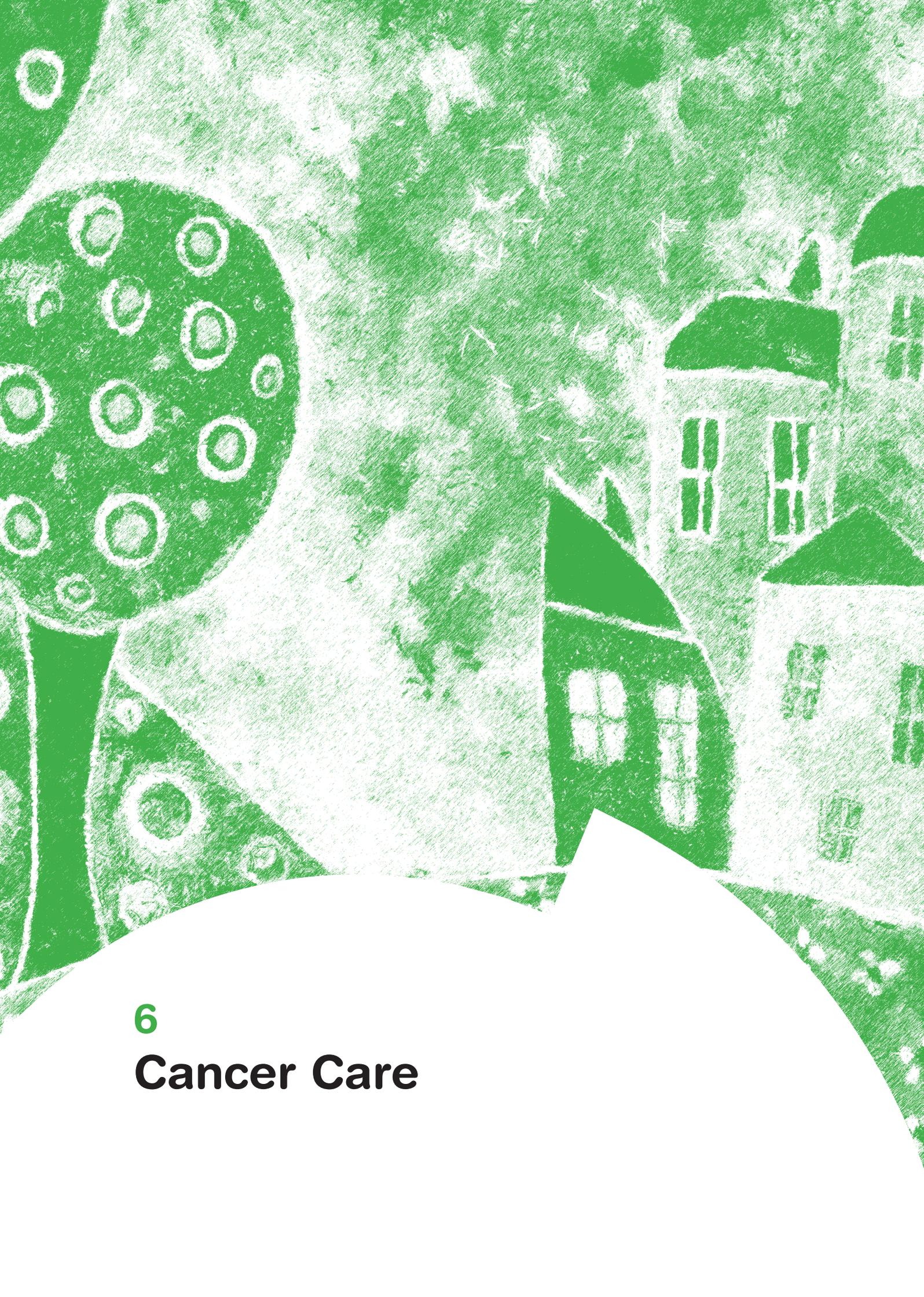
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6

Cancer Care

Cancer Care

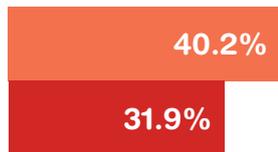


2nd Leading Cause of Death

In 2011-12, cancer was the second leading cause of death in the NBM region



Lithgow
Blue Mountains



Lithgow has the region's lowest breast cancer screening rate – 40.2%
Blue Mountains has low breast cancer screening rates for CALD women – 31.9%



Penrith
50.4%

Penrith has low cervical cancer screening rates – 50.4%, with the suburb of St Marys at 35.6%



Hawkesbury
30.3%

Hawkesbury LGA has low bowel cancer screening rates – 30.3%

Definition

Cancer is a disease of the cells, the body's building blocks. Cancer occurs when abnormal cells grow in an uncontrolled way. These abnormal cells can damage or invade the surrounding tissue, or spread to other parts of the body, causing further damage (Australian Institute of Health and Welfare, 2012).

Cancer screening is a strategy used to identify the prevalence of an undiagnosed disease in individuals who may not show any signs or symptoms. Cancer-screening programs aim to reduce illness and the number of deaths resulting from cancer.

Screening programs across Australia include:

- BreastScreen Australia
- National Cervical Screening Program
- National Bowel Cancer Screening Program

Risk Factors

Most cancers have a unique set of causal factors, however many cancers share risk factors, including:

- Smoking (responsible for the majority of preventable cancers)
- Dietary influences
- Infectious agents
- Radiation (including ultraviolet radiation) (Nepean Blue Mountains Local Health District, 2014)

Prevalence

From 1987 to 2008, new case rates in the NBM region significantly increased overall for female breast cancer and male prostate cancer, while new case rates significantly decreased overall for lung cancer (in both males and females) and cervical cancer.

The increasing rate of new cases of cancer in the NBM region and similarly across NSW populations are believed to be due to:

- Earlier diagnosis of some cancers as a result of screening
- A real rise in new cases of some cancers
- Improved notification of cancer cases

Burden of Disease

Similarly to the NSW population, cancer is the second highest cause of death in the region, with the incidence of cancer also reflecting state averages. The main cancer sites are breast cancer in women, prostate cancer in men, lung cancer and colorectal cancer (Cancer Institute NSW, 2015).

In 2010-11, there were 592 deaths from cancer – 324 male and 268 female – representing 32% of male deaths and 28% of female deaths. In the NBM region, cancer was the second leading cause of death overall (leading cause of death for males and the second leading cause of death for females). For the under-75 age group, cancer was the leading cause of avoidable death from preventable causes. These statistics are not significantly different to NSW male cancer or female cancer death rates (Nepean Blue Mountains Local Health District, 2014).

At 45.6%, the NBM region has the lowest rates for the proportion of people who have never smoked, indicating a comparatively high proportion of smoking uptake in youths. This view is supported by the high proportion of women who smoke during pregnancy – the highest ranking for all regions. Aboriginal women who smoke during pregnancy represent 47.7% of this population group, compared to 12.9% for non-Aboriginal women, representing a very high-risk group and a priority for smoking cessation strategies (Nepean Blue Mountains Local Health District, 2014).

Regional priorities for tobacco control are:

- Accessing opportunities for brief interventions to support smoking cessation
- Identifying teachable ‘moments’ for pregnant women or women planning to get pregnant who smoke, with a priority on interventions involving Aboriginal women

The impact of smoking cessation strategies in the region has been demonstrated by a reduction in smoking prevalence – from 22.5% in 2005 to 15.7% in 2012 (Australian Institute of Health and Welfare, 2015).

Cancer Screening Rates in the NBM Region

Cervical Screening

Women who are unscreened or under-screened to detect cervical abnormalities are at risk of developing cervical cancer (Cancer Institute, 2014). Cervical cancer screening decreased from 56.9% of the NBM female population aged 20-69 years in 2007-08 to 51.5% in 2010-12 (Nepean Blue Mountains Local Health District, 2014).

NBM is the fourth-lowest ranking PHN region within the state, with 54.5% compared to the NSW state average of 57.7%. Similarly, when compared to 31 PHN regions Australia-wide, NBM is the seventh-lowest ranking region in the country. At 50.4%, Penrith LGA has the lowest screening rate. There is currently no data available to show variations in Culturally and Linguistically Diverse (CALD) women or for Aboriginal women (Nepean Blue Mountains Local Health District, 2014).

Breast Screening

Breast screening rates have been relatively stable in the region, with increases reflecting population growth. At 44.8%, NBM is the second-lowest ranking PHN region within NSW, compared to the state average of 50.9%. When compared to 31 PHN regions Australia-wide, NBM is the third-lowest ranking region in the country (Nepean Blue Mountains Local Health District, 2014).

While Lithgow and Penrith LGAs have the lowest screening rates for the region, all LGAs report lower than state average screening rates (Cancer Institute NSW, 2015).

Breast Screening in Aboriginal Women

The screening participation rate for Aboriginal women has improved, which is also a state-wide trend. However, screening rates for Aboriginal women are well below the state average at 27.3% compared to 36.3%. The rates across LGAs varies with Lithgow reporting the lowest at 17.6%. Hawkesbury LGA rate of 33% is higher than the average for the region at 27.3% (Cancer Institute NSW, 2015).

Breast Screening in CALD Women

CALD communities in the Blue Mountains, Lithgow and Penrith report lower than state averages. At 32.1% for women aged 50-69, Blue Mountains LGA compares poorly to the state average of 44.8% (Cancer Institute NSW, 2015).

Rescreening Rates

There has been an increase in the number of women who are not rescreening. Further information is needed to explore potential barriers or disincentives to regular screening after previous participation in breast screening. BreastScreen Australia's NSW goals have targeted an additional 3,820 breast screen episodes for the region (Cancer Institute NSW, 2015).

Bowel Screening

Low rates of bowel cancer screening are not limited to the NBM region, with annual bowel-screening participation rates for NSW around 32.8%. The Cancer Institute NSW has identified bowel cancer screening as a priority and will work closely with the primary care sector. The Agency for Clinical Innovation and Cancer Institute NSW are collaborating to develop improved patient pathways and identification of best practice for bowel screening. NBMPHN will continue to work with general practice to identify barriers that effect participation rates.

At 31.2%, NBM is the fourth-lowest ranking PHN region for breast cancer screening in the state, compared with 32.8%. Similarly, NBM is the sixth-lowest ranking region in Australia when compared to 31 PHN regions Australia-wide. At 29.4%, Penrith LGA has the lowest screening rate (Nepean Blue Mountains Local Health District, 2014). There is currently no data available to show variations for CALD persons or for Aboriginal persons.

Table 14 presents a clearer picture of where our region sits compared to other PHNs nationally, NSW screening rates and areas with the lowest screening rates for the region. Clearly there is a need to increase screening rates across all programs, which the PHN has recognised and is addressing by working closely with the NSW Cancer Council to develop strategies aimed at increasing participation rates.

Table 14: Cancer screening rates by program for the NBM region. (Cancer Institute NSW, 2015)

Cancer screening Program	NBMPHN screening rate vs. NSW (2013-14)	NBMPHN rank vs. other PHNs (2013-14)	Our LGAs with lowest screening (2013-14)	Our population groups with lowest Screening
Breast Screening	44.8% vs. 50.9%	9/10 NSW PHNs	Lithgow (40.2%)	Aboriginal women in Lithgow (15.8%)
		29/31 PHNs Australia-wide	Penrith (43.7%)	
Cervical Screening	54.5% vs. 57.7%	7/10 NSW PHNs	Penrith (50.4%)	Women aged 20-24 (42.1%)
		25/31 PHNs Australia-wide	Lithgow (53.8%)	Women aged 65-69 (48.3%)
Bowel Screening	31.2% vs. 32.8%	7/10 NSW PHNs	Penrith (29.4%)	Men across all age strata, in particular 50-54 years
		26/31 PHNs Australia-wide	Hawkesbury (30.3%)	

Hospitalisation

In 2011-12, there were 4,361 hospitalisations for cancer within the NBM population (2,431 male hospitalisations and 1,930 female hospitalisations), comprising 3.6% of total hospitalisations.

Determinants of Health that may Affect Outcomes

In Australia, high-risk population groups are:

- Socio-economically disadvantaged
- Those living in rural and remote areas
- Aboriginal people
- Pregnant women
- The unemployed
- People who identify as homosexual or bisexual
- People with mental illness
- Those with high levels of psychological distress

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7

Older Persons

Older Persons



The NBM region has the highest rate of injury related overnight-stay hospitalisations for those aged 65 and over, across all NSW health districts



Over 70s
By 2026, the population of those aged 70 and over is expected to increase by 7.5%



The need for assistance with cognitive and emotional tasks was four times greater for Australians aged 85 and over (28%) than Australians aged 65–84 (7%)

Ageing Population and Impact on Services

One of the most significant issues facing the region in the next decade is the very marked growth of people aged over 70 and the subsequent pressures this will place on health services (NBM Local Health District, 2013). The rising population and increasing proportion of older people poses new and significant challenges in meeting their primary healthcare needs, and in coordinating with acute-care services, especially when coupled with the growing number of people in the community living with chronic health conditions.

Because the prevalence of chronic health conditions and disability increases with age, we can expect that more assistance and care is needed for people aged 85 years and over compared with younger age groups. According to the 2012 Survey of Disability, Ageing and Carers (ABS 2013a):

- the need for assistance with cognitive and emotional tasks was four times greater for Australians aged 85 and over (28%) than Australians aged 65-84 (7%)
- over one-half (59%) of Australians aged 85 years and over reported a need for assistance with health-care compared with one-fifth (20%) of Australians aged 65-84
- a higher proportion of women aged 85 and over (69%) reported the need for assistance with personal activities than men in the same age group (56%); these figures compare with 38% and 41% of women and men aged 65-84 needing assistance, respectively
- in terms of personal activities, the most common type of assistance required for both men and women in this age group was mobility assistance (39% and 54% respectively) followed by self-care (33% and 44%) and communication (14% and 19%). This was a similar pattern to that for Australians aged 65-84, although this younger group had less need for assistance overall (Australian Institute of Health and Welfare, 2015)

Compared to the state average of 3.30% growth in older persons as a proportion of total population, NBM will experience an overall growth rate of 5.13% between 2011 and 2026. At 6%, Penrith LGA will experience the highest growth – almost double the state average (NBM Local Health District, 2013).

Table 15: NBM Population Projections for the 70+ Age Group

Area	Population 70+ years (2011 census)	Population Projection 70+ years (average Annual Growth Rate 2011-2026)
Nepean Blue Mountains	7.5%	5.13%
Penrith	6.2%	6.00%
Hawkesbury	7.6%	4.73%
Blue Mountains	10.4%	4.49%
Lithgow	12.1%	3.57%
NSW Average	10.3%	3.30%

Source: ABS and Draft Overview of Population Projection and Characteristics, NSW Health, NBMLHD 2014.

From 2011-2026, the 75-79 age group will experience the highest growth at 6.07% (from 6,889 to 16,674 people), followed by the 80-84 age group with growth of 5.08% (from 5,012 to 10,538 people). The 70+ age group will observe a rapid increase in population numbers across all LGAs in the NBM region (NBM Local Health District, 2013).

One important implication of the ageing population is the increase in chronic illness and associated specific illnesses and types of injuries. The increasing prevalence of chronic pain associated with ageing will see a need for adequate pain relief, which carries an increased risk of falls that require admission to hospital.

General practice has and will continue to experience increasing pressure to coordinate services for older persons. Figures from 2011-12 show the average cost to treat patients aged 75 and over in the NBM region was \$9,544 per patient – 2.4% higher than the NSW average of \$9,329 per patient (Agency for Clinical Innovation, 2014). Current statistics across Australia indicate that resource use in general practice by people aged over 65 substantially increased between 2001 and 2015.

- Encounters increased from 22.8% to 27.8%
- GP clinical time increased from 23.9% to 28.7%
- Problems managed increased from 26.9% to 35%
- Medications increased from 28.2% to 35.8%
- Tests ordered increased from 24.9% to 30.8%
- Referrals made increased from 24.2% to 32.3% (Britt H, 2016)

The growth in the aged population will place considerable demand on nursing homes and residential aged-care facilities (RACFs) in the area. Current aged-care services for the NBM region are tabled on next page:

Table 16: Aged-Care Services Currently Provided in the Region

LGA	RACFs	Beds	Respite Beds	Secure Dementia Beds
Blue Mountains	8	818	4	38
Lithgow	4	169	2	32
Hawkesbury	6	450	12	66
Penrith	10	878	12	82
Total	28	2,315	30	218

Source: NBMML from data retrieved 26/5/15 from Comprehensive Needs Assessment

Implications of new aged-care policies may create a greater ratio of care recipients requiring complex care in RACFs. The impact of this on RACFs business models requiring more qualified staff is unknown, as are pending changes to staff/patient ratios in RACFs.

Medication – Poly Pharmacy

Older persons suffer significant issues around medication use. Problems encountered include incorrect usage, polypharmacy and confusion around generic and trade-name prescriptions. The review of home medicines to prevent accidental misuse of medications is a key factor in preventing hospitalisation. Closely linked to this is the review of pain medication that can and does lead to fall incidents in the aged and frail. As highlighted in the Australian Atlas of Healthcare Variation, opioid medicines are very effective in relieving acute pain and cancer pain and in palliative care, however the prescribing of opioids for chronic pain is increasing and evidence is growing of the adverse effects of their long term use.

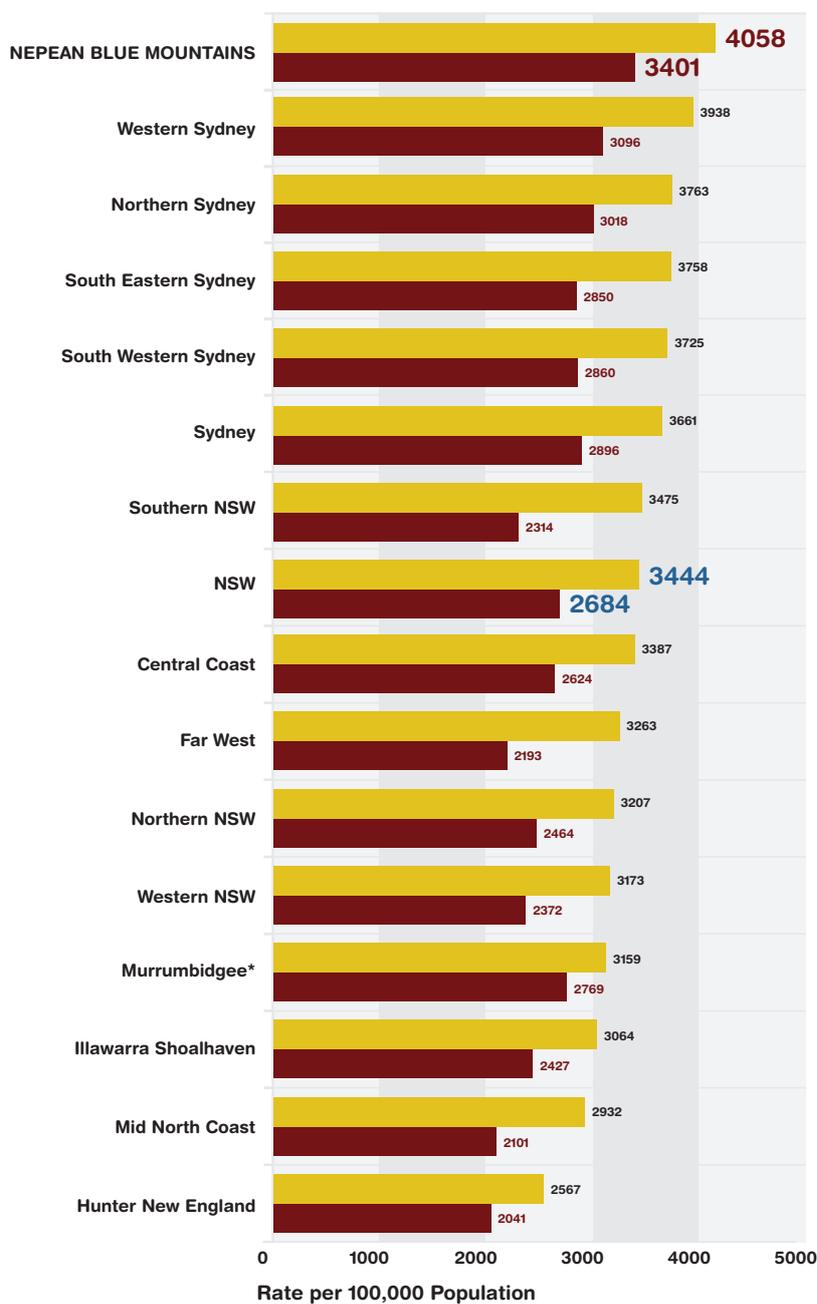
Falls

In 2010-11, there were 1,444 hospitalisations for falls that required an overnight stay in the NBM population aged 65 and over (925 females and 519 males). The hospitalisation rates for this age group were significantly higher compared to NSW male and female hospitalisation rates and, as seen in Figure 23, NBM rates were the highest among the 15 local health districts (NBM Local Health District, 2014). Recent policy changes around the Home and Community Care (HACC) program, which aims to keep older persons living at home for longer, emphasise the need to strengthen medication review for vulnerable older persons who live alone. While the benefits of remaining at home for the older person is well documented, trends in fall rates raise concerns around the safety requirements for this age group. For example, the trend in fall-related injury hospitalisations for those aged 65 years and over in the region shows a consistent increase over the past five years, with female rates much higher than male rates (NBM Local Health District, 2014).

Advance Care Directives

Advance Care Directives provide information about an individual's desire in terms of future medical treatment. This planning process enables healthcare professionals and family members to identify and understand the wishes of an elderly person should they become seriously ill or injured and cannot make decisions about their medical care. General practitioners can play an active part in the process by discussing this with clients, as can health professionals in all spheres of service delivery. Once a plan has been completed, it can be uploaded to My Health Record for ready access by healthcare professionals.

Figure 23: Fall-related injury resulting in overnight stay hospitalisation in 65+ age group, by NSW Local Health Districts, 2010-11



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

Note: 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. Only NSW residents are included. Figures are based on where a person resides, not where they are treated. Hospital separations were classified using ICD-10-AM from 1998-99 onward. 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.

* Murrumbidgee Local Health District includes Albury Local Government Area.

Female
Male

Social Isolation

Within the NBM region, consumers have identified increasing social isolation as a major and increasing risk impacting older people. Recent healthcare reforms focused on increasing support needs for older persons so they can be cared for at home, however social isolation is an increasing problem associated with this reform. Caring for the cognitively impaired among older people is inadequate to meet present and increasing needs for home-based care. Additionally, support for independent living at home is not adequate enough to meet present and increasing needs in primary care services.

Poor health literacy is also common among older persons, who find it very difficult to navigate the system. *My Aged Care Portal*, recently established by the Commonwealth, was designed to be a one-stop shop for consumers and health professionals, allowing users to locate health services by postcode, as well as conduct telephonic aged-care assessments and referrals. The portal has proven to be problematic to use, however, with issues including navigation difficulties for both consumers and service providers, lost referrals, referrals not being actioned within appropriate timeframes and long wait times for receiving technical support via the help line.

Access to services before crisis point and after-hours support is impeded by lack of awareness among health professionals, carers and older people. Primary care providers, including general practitioners, reported limited access to up-to-date and comprehensive information needed to direct older persons to available supports and services.

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8

Cultural and Demographic Factors Affecting Health Status

Cultural and Demographic Factors Affecting Health Status



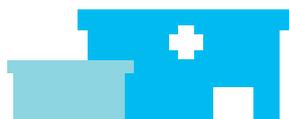
2.5%

Aboriginal people comprise 2.5% of the total population NBM



14.6%

14.6% of the total NBM population or 49,302 people responded as speaking a language other than English



NBM Aboriginal residents has a higher proportion of hospitalisations (3%) where the patient left against medical advice



53.1%

In 2011, the rate of smoking during pregnancy for NBM Aboriginal women was 53.1% of confinements



22%

Overseas born residents made up 22% of the region's population in 2011

In 2010, NBM region received 503 refugee migrants, 79% of whom settled in the Penrith LGA.

NBMPHN's Needs Assessment identified a number of issues around this theme for Aboriginal people, CALD communities and refugee populations.

Statistics for overseas-born residents across the NBM region, based on the 2011 Census, are tabled below. A total of 22% of the NBM region's population is made up of residents born overseas. While the overall figure is lower than NSW percentages, the percentage of the population that doesn't speak English very well equates to approximately one-quarter of the overseas-born population – 4.4% for the NBM region, compared with 12% in NSW (Australian Bureau of Statistics, 2011).

Table 17: Overseas-born residents in the NBM region

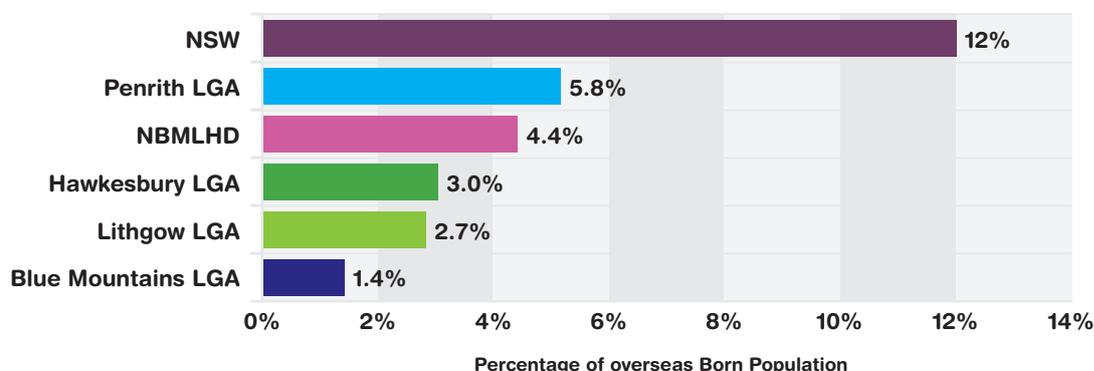
LGA/area	% of total population born overseas	% of total population who speak a language other than English at home	% of overseas born population who do not speak English well or at all
Penrith LGA	25.7%	14.6%	5.8%
Blue Mountains LGA	22%	5.1%	1.4%
Hawkesbury LGA	17.8%	5.3%	3.0%
Lithgow LGA	15.2%	3%	2.7%
NBM Region	22%	9.8%	4.4%
NSW	31.4%	22.5%	12%

Source: Graph compiled from 2011 Census, data from the Australian Bureau of Statistics <http://www.abs.gov.au/AUSSTATS/abs@nrf.nsf/Latestproducts/LGA1Population/People12007>

With regards to the percentage of people who do not speak English well or at all, the 2011 Census showed variation among NBM LGAs. In Penrith LGA, 5.8% of the population stated that they did not speak English very well or at all, compared with 3% in Hawkesbury LGA, 2.7% in Lithgow LGA and 1.4% in Blue Mountains LGA (Figure 24). A higher proportion of NBM residents born overseas (60%) reported that they spoke English only, compared with 38% of NSW residents born overseas.

A total of 49,302 people responded as speaking a language other than English, which equates to 14.6% of the total NBM population. Penrith LGA recorded the highest numbers (34,081), followed by Blue Mountains LGA (7,341), Hawkesbury LGA (6,009) and Lithgow (1,871) (Nepean Blue Mountains Local Health District, 2011).

Figure 24: Overseas-born residents who did not speak English well or at all, NBM LGAs and NSW, 2011 Census



Source: Graph compiled from 2011 Census, data from the Australian Bureau of Statistics.

Anecdotal evidence suggests figures from the 2011 Census may be under-reported, and there may be a larger proportion of the NBM and NSW populations who do not speak English than reflected. As seen in Figure 24, the percentage of residents who did not speak English very well or at all is more prevalent in Penrith LGA and half that of NSW results.

Aboriginal Population

The NBM region has a high proportion of Aboriginal residents, compared to the proportion of population for other metropolitan health districts. Across the region, there is considerable diversity of Aboriginal peoples, with three Aboriginal nations represented in the NBM region that roughly equate to LGAs. The people of the Nepean and Hawkesbury LGAs are living on the land of the Dharug people. The Blue Mountains LGA roughly equates to the land of the Gundungurra people, while Lithgow LGA is part of the Wiradjuri people's land, which extends through to central NSW (NBM Sharing and Learning Circles, 2014).

NBMLHD reports that the population who identified as Aboriginal in 2011 comprised 2.5% of the total NBM population – 8,827 people. This represents 5.32% of the NSW population of Aboriginal people and as a proportion of the total population, the NBM region reported the highest percentage among the eight NSW Metropolitan districts.

Based on the 2011 Census, the estimated populations of Aboriginal people residing in each LGA showed Penrith (5,351), Blue Mountains (1,259), Hawkesbury (1,513) and Lithgow (703) (NBM Local Health District, 2014).

In 2011, the median age of Aboriginal residents in the region was 21. NBM Aboriginal people aged under 25 represented 55.5% of the total Aboriginal population, compared to 35.5% of people aged under 25 in the non-Aboriginal population. At 12.3%, those aged 15-19 represented the largest percentage of the population (NBM Local Health District, 2014).

However, Indigenous population estimates across Australia are widely regarded as underestimated. Between the 2006 and 2011 censuses, there was a 30% increase in the estimate of the Indigenous population across Australia. Local consultations with Aboriginal people and staff involved in the 'Closing the Gap' and 'Healthy4Life' NBMPHN programs suggest current population estimates for the NBM region are substantially underestimated, due to the reluctance of some Aboriginal people to formally acknowledge their identity (Australian Health Ministers' Advisory Council, 2014).

NBMPHN needs analysis findings for this population group highlighted inequitable access evidenced by low rates of cataract surgery yet high rates of blindness, low rates of hip and knee replacement procedures compared with non-Aboriginal population, limited or lack of culturally appropriate health services and high rates of hospital discharge against medical advice compared with non-aboriginal residents.

Quality and continuity of care provided to patients while in hospital, and the weeks following discharge, is measured according to the proportion of people who leave hospital against medical advice and according to readmission within 28 days of hospitalisation. Statistics for 2014 provided by the LHD for the NBM Aboriginal residents revealed a higher proportion of hospitalisations (3%) where the patient left against medical advice, compared to all hospitalisations for non-Aboriginal residents (0.8%) which suggests that in hospital health services may not be culturally appropriate.

NBM Aboriginal residents had a lower proportion of hospitalisations (6.1%) where the patient was readmitted within 28 days, compared to all hospitalisations for non-Aboriginal residents of (6.8%) (NBM Local Health District, 2014).

Equitable access to optimal care is an indicator of the performance of the public health system. The following information highlights procedure percentages based on the NBMLHD Epidemiology Report 2014.

2010-11 Revascularisation Procedure for Coronary Heart Disease

In the NBM region, there was less disparity between the Aboriginal population (28.5%) and non-Aboriginal population (28.2%), compared with the NSW Aboriginal population (20%) and non-Aboriginal population (27.9%). However, as Aboriginal people have higher rates of coronary heart disease, it is expected the Aboriginal rate for equitable access would be higher than the rate for the non-Aboriginal population.

2010-11 Cataract Surgery

The national blindness rate of the Aboriginal population is 1.9%. This is 6.2 times greater than for non-Aboriginal people. The NBM rate for cataract surgery in the Aboriginal population was 377 per 100,000. This was nearly half that of the non-Aboriginal population, at 713 per 100,000.

2010-11 Total Knee and Hip Replacements

Aboriginal people have significantly lower rates of access to joint replacements compared to non-Aboriginal people. The age standardised rate for total knee and hip replacement procedures in the Aboriginal population was 183 per 100,000 population. This was nearly half that of the NBM region's non-Aboriginal population – at 306 per 100,000.

2010-11 Inpatient Rehabilitation

Aboriginal people have an increased need for inpatient rehabilitation due to higher rates of stroke and injury than the general population. However, Aboriginal people have lower rates for rehabilitation. Inpatient rehabilitation hospitalisation in the NBM region's Aboriginal population was 750 per 100,000, less than one-quarter of the rate for the non-Aboriginal population, at 3,172 per 100,000 (NBM Local Health District, 2014).

These results suggest barriers to accessing health care services for Aboriginal people in the region are still prevalent, and lack of culturally appropriate services may be a contributing factor.

Selected socioeconomic indicators from the 2006 Census demonstrate the relative disadvantage of the Aboriginal population in NSW when compared with the non-Aboriginal population. Compared with the non-Aboriginal population, larger percentages of Aboriginal people were unemployed, had no post-school qualifications, had no household internet connection, had a weekly household income less than \$500, rented housing, lived in multi-family households and resided in dwellings with seven or more people. Of these, the largest categories of disparity were unemployment, no post-school qualifications and rental accommodation.

In the NBM region, 2011-12 hospitalisation rates that may be attributed to smoking show Aboriginal people had a rate of 1,263 hospitalisations per 100,000 people, compared to 550 per 100,000 for non-Aboriginal residents. In 2011, the rate of smoking during pregnancy for NBM Aboriginal women was 53.1% of confinements. This was significantly higher than the 14.2% of confinements for non-Aboriginal NBM mothers. For the same period, rates of hospitalisation attributable to alcohol for the region shows Aboriginal people had a rate of 1082.5 hospitalisations per 100,000 people. The rate for non-Aboriginal people was 731.3 hospitalisations per 100,000 people (NBM Local Health District, 2014).

During 2011-12, the NBM Aboriginal hospitalisation rates were 43,885.7 per 100,000 people. This was significantly higher than the non-Aboriginal hospitalisation rates of 33,080.3 and significantly lower than the NSW Aboriginal hospitalisation rate of 63,658.4 per 100,000 people. The highest numbers of Aboriginal hospitalisations were for: dialysis (716); maternal, neonatal and congenital causes (357); injury and poisoning (331); and digestive diseases (215) (NBM Local Health District, 2014).

The NBM rate of 4,187.1 hospitalisations per 100,000 people for potentially preventable hospitalisations among Aboriginal residents was significantly higher than for non-Aboriginal residents, at 2,405.8. It was also significantly lower than for NSW, at 6,486.3 per 100,000 people (NBM Local Health District, 2014).

CALD Communities

Residents from culturally and linguistically diverse populations (CALD) can be distinguished as those born overseas in English-speaking countries and those born overseas in non-English speaking countries. Overseas-born residents made up 22% of the region's population and 31.4% of the NSW population. In the 2011 Census, Penrith LGA had the highest proportion of overseas born residents (25.7%), while Lithgow LGA had the lowest (15.2%) (NBM Local Health District, 2014).

After Australia, the most frequently reported countries of birth were the United Kingdom (5.1% of population), New Zealand (1.6%), Philippines (1%), India (0.8%), Germany (0.6%) and Malta (0.5%).

The Indo-Aryan language group, which includes Bengali, Hindi, Punjabi, Sinhalese, Urdu and 'other', has replaced Arabic as the top language group for the Local Health District. These are followed by Filipino, Italian, Chinese, Maltese, Spanish, Greek, Croatian and German (NBM Local Health District, 2014).

Refugee Population

The NBM region is home to a small, diverse and growing population of refugees and asylum seekers who have fled from situations of war, violence, persecution and abuse of human rights. This population has complex health, social and medical needs (Nepean Blue Mountains Local Health District, 2011). Penrith has only recently been recognised as a second settlement site for refugee populations – in 2010, the NBM region received 503 migrants, 79% of whom settled in Penrith LGA.

Refugees come from many parts of the world, but their identified health needs after arrival in Australia are common and include:

- Psychological issues due to torture and trauma
- Physical consequences of torture
- Infectious diseases
- Poor oral and optical health
- Poorly managed chronic diseases, such as heart disease, diabetes and hypertension
- Malnutrition and Vitamin D deficiency
- Issues surrounding growth and development in children
- Issues surrounding sexual and reproductive health
- Under-immunisation rates

Once in Australia, the ability of this population group to improve their health status is dependent on their knowledge of the health system, ability to access health services and programs, and ability to successfully engage in work and education (Nepean Blue Mountains Local Health District, 2011).

Refugee communities within the NBM region are statistically small yet significant and diverse, which presents considerable challenges when it comes to meeting their needs. Many of the newly arrived refugee communities have not been able to establish community structures or hierarchy due to their small numbers, lack of community elders and lack of resources. In addition, it is too early in their settlement process for them to start adopting Australian structures in the way longer-established communities have. This results in a lack of familiar social landmarks, support structures and self-supporting mechanisms (Nepean Blue Mountains Local Health District, 2011).

Counting Communities

The Sudanese community was canvassed for the first time in the 2011 Census, with a total of 276 persons recording Sudan as their country of birth. The majority of the South Sudanese community is aged under 35, with over one-third aged under 11². The emerging Bhutanese refugee community was also represented for the first time in the 2011 Census, with a total of 63 people recording Bhutan as their country of birth. Many of these refugees will have spent up to 20 years in a Nepalese refugee camp and have had children born there. The numbers for Nepal-born residents in the NBM region totals 280, with a percentage of this number being children born to the Bhutanese refugees over the past 20 years. Estimates by Bhutanese community leaders bring the figure to approximately 100 Bhutanese refugees who have recently settled in the NBM area. The 2011 Census does not provide a reliable measure, which could be partially due to people from refugee backgrounds not completing the Census forms correctly.

The cultural barriers that influence the health of these communities include unfamiliarity with western-style health services and concepts of health such as preventative health care, developmental checks for children and oral health care. The NBM does not currently employ any bilingual community educators to provide health promotion, education and support for areas such as maternity liaison to newly arrived people (Nepean Blue Mountains Local Health District, 2011).

² NSW Refugee Health Plan 2011-2016

Specialist refugee health services are provided via the Auburn branch of the NSW Service for the Treatment and Rehabilitation of Torture and Trauma Survivors STARTTS. Outreach services are available in a range of locations across the Sydney metropolitan area, including schools, TAFE campuses and community health centres <http://www.startts.org.au/services/how-startts-helps-clients/>. In the NBM region, STARTTS provides two days of outreach services per week in two locations, Penrith and St Marys.

A number of Syrian refugees are now being hosted in the NBM region. As previously mentioned, the health needs of refugees are very specific and differ to the non-refugee population. As such, the need to educate and capacity build frontline staff such as general practitioners and practice nurses cannot be overstated and is a recognised priority for both NBMPHN and the LHD.

Other key priorities for the region's CALD communities cover a number of areas, including:

- Improving systems for data collection and quality improvement
- Working with key services within the NBM region, such as Maternal and Child Health, Public Health Unit, Mental Health, Oral Health and Health Promotion, to ensure services are relevant and culturally appropriate
- Developing collaborative projects to enhance social connectedness and improve health literacy for the refugee population
- Providing support in the NBM region to develop cultural and refugee competency of staff
- Organising a refugee forum for service providers to discuss service delivery issues (Nepean Blue Mountains Local Health District, 2011)

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9

Alcohol and Other Drugs

Alcohol and Other Drugs



There are clear links between socioeconomic disadvantage and the risk of dependence on alcohol, nicotine and other drugs



29.6%

In 2012, 29.6% of the NBM population aged 16 years and over consumed more than 2 alcoholic drinks per day



Male death rates attributable to alcohol are significantly **higher than female** death rates in NBM



Penrith LGA

Statistics for Penrith LGA show higher than state averages for amphetamine use or possession



Lithgow LGA

Lithgow LGA reported the highest rates of cannabis use or possession than the other NBM LGAs

Alcohol

Alcohol is consumed widely in Australia and harmful levels of consumption is a major health issue associated with risk of chronic disease, injury and premature death (Australian Institute of Health and Welfare, 2014). Alcohol-related harm to health is not limited to consumers of alcohol – there are collateral effects on families, bystanders and the broader community.

Risky Drinking

The indicator of risky drinking is defined by Guideline 1 of the *2009 National Health and Medical Research Council Guidelines* as: 'Adults who consume more than two standard drinks on a day when they consume alcohol'. This information assists in monitoring the lifetime risk of harm caused from alcohol.

Studies have shown that chronic substance users have a shorter life expectancy – of approximately 15-20 years – compared to the general population. Studies have also found clear links between socioeconomic disadvantage and the risk of dependence on alcohol, nicotine and other drugs.

In 2013, the NSW Legislative Council Standing Committee on social issues reported that alcohol consumption reflected three prominent behaviours:

- Binge drinking
- A preference for shots and pre-mixed drinks
- Pre-loading (when a person consumes alcohol before going out to a club, bar or pub)

Burden of Disease

In Australia, alcohol is second only to tobacco as a preventable cause of drug-related death and hospitalisation (National Health and Medical Research Council 2009). Alcohol consumption is responsible for 2.3% of the burden of death, disease and injury (Begg et al., 2007). This includes 3.3% of the disease and injury burden attributable to the harmful effects, and 1% attributable to the beneficial effects of alcohol consumption (NBM Local Health District, 2014).

Previous research in the Blue Mountains has identified risky drinking at higher than NSW state averages, with the same applying to associated social consequences. In addition, a substantial proportion of youths in the region, particularly Blue Mountains LGA, are believed to be involved in the cannabis and poly-drug culture, which is likely to include methamphetamine use.

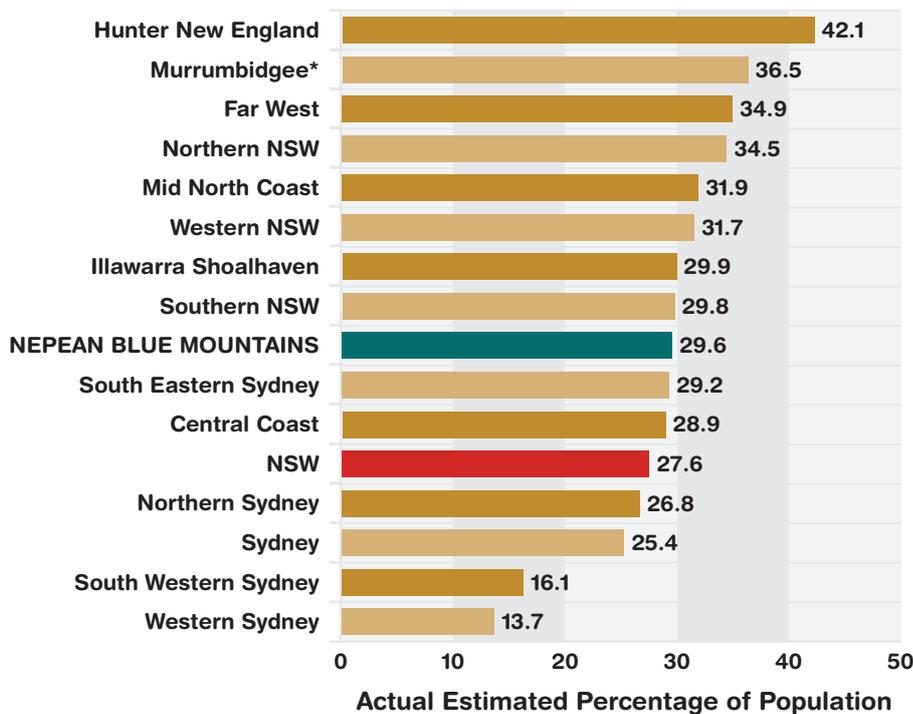
Blue Mountains and Lithgow LGAs reported the highest levels of crime involving alcohol. For the Blue Mountains, 35% of all robberies were alcohol related, compared to 19.3% for the state. Lithgow LGA reported domestic violence involving alcohol at 34%, compared to 33.4% for the state and assault involving alcohol was 38.1% compared to 36.6% for the state while robbery involving alcohol was 42.9% compared to 19.3% for the state.

Risky Drinking in the NBM Region

In 2012, 29.6% of the NBM population aged 16 years and over consumed more than two alcohol drinks per day. This was the second-highest result among the eight NSW Metropolitan Local Health Districts (NBM Local Health District, 2014).

These findings are consistent with feedback from NBM primary care providers, who identified alcohol as a substance-use problem across all ages. This included alcohol abuse and addiction, which often requires medicated detoxification support. Longer-term users were often regarded as using to self-medicate (possibly 20-30%) (NBM Primary Health Network, 2016). Figure 25 highlights the significance of the problem within the NBM region, reflecting higher rates than urban peers such as Western Sydney and correlating with rates in regional areas known to have a higher incidence.

Figure 25: Alcohol consumption at levels presenting lifetime risk to the health of persons aged 16 and over, NBM and NSW Local Health Districts, 2012



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

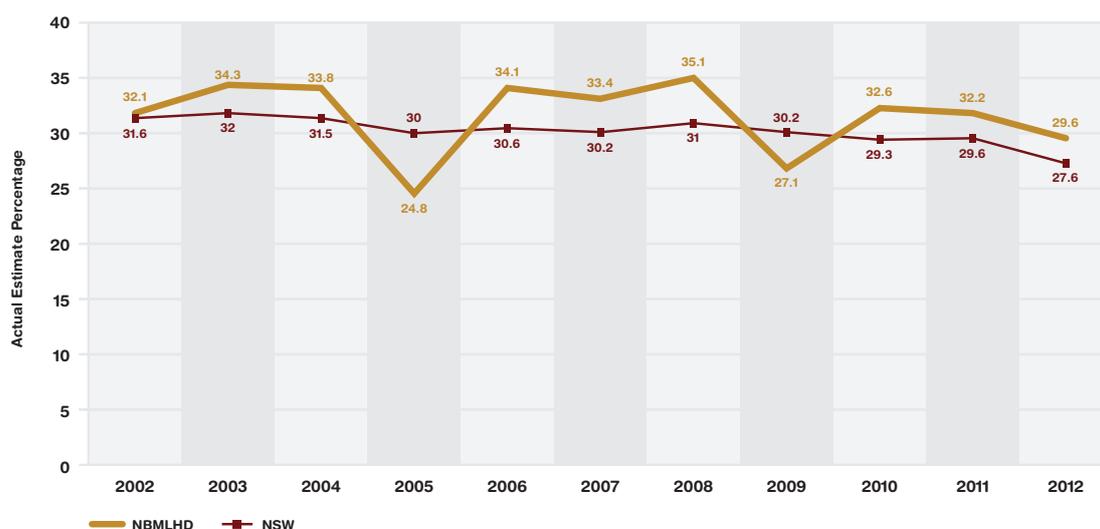
Note: 'Alcohol consumption presenting a lifetime risk' – the questions used to define the indicator were: How often do you usually drink alcohol? On a day when you drink alcohol, how many standard drinks do you usually have? A standard drink is equal to 1 middy of full-strength beer, 1 schooner of light beer, 1 small glass of wine or 1 pub-sized nip of spirits.

*Murrumbidgee includes Albury LGA.

Trend in Prevalence of Risky Alcohol Drinking

For the NBM population aged 16 and over, there was no significant change in the prevalence of risky drinking (32.1% in 2002 and 29.6% in 2012) (NBM Local Health District, 2014). As Figure 26 shows, the number of people aged over 16 that partake in risky drinking behaviours is still significant for the region – at 29.6% or one-third of this population group.

Figure 26: Trend in alcohol consumption at levels presenting a lifetime risk to health of persons aged 16 and over, NBM and NSW, 2002 to 2012



Source: NSW Adult Population Health Survey (SAPHaRI). Centre for Epidemiology and Evidence, NSW Ministry of Health.
 Note: Questions used to define the indicator as in Figure 23.

Alcohol Attributable Deaths

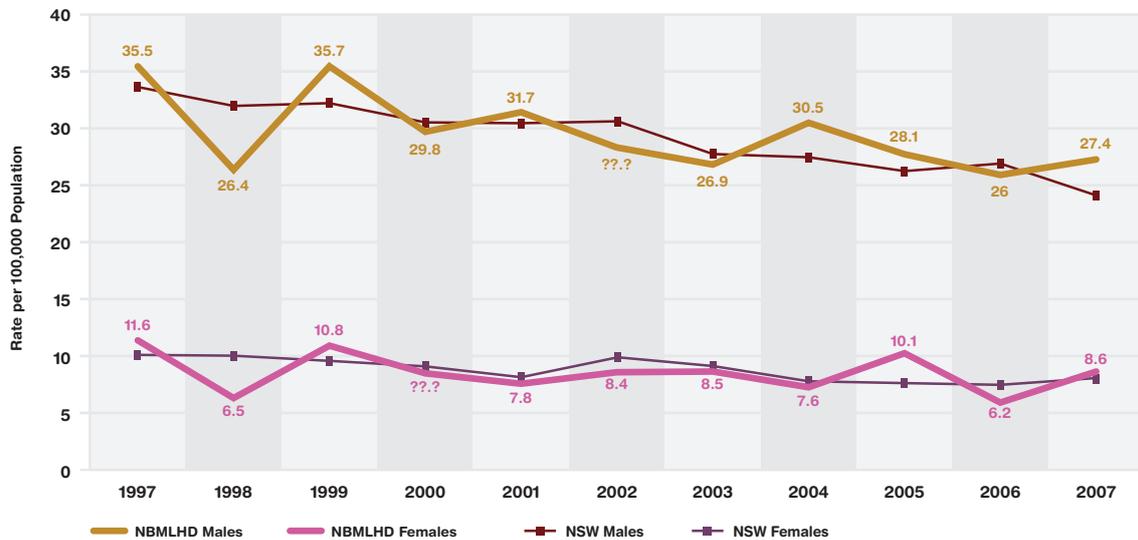
Common causes of alcohol attributable deaths are highlighted below. In 2007 (NBM Local Health District, 2014), the most common cause of alcohol attributable deaths were:

- Alcoholic liver cirrhosis
- Non-pedestrian road injury
- Haemorrhagic stroke
- Suicide
- Colon cancer

NBM male and female alcohol attributable death rates were not significantly different to NSW male and female rates in any year from 1997 to 2007. As seen in Figure 27, the trend for male death rates reflects a significantly higher rate than female death rates. There was a significant decrease in NBM male death rates between 1997 and 2007, while female death rates show no significant change.

Figure 27 identifies deaths by gender, revealing NBM death rates are similar to NSW rates, with gender death rates also correlating with NSW. However, male death rates for this region show a reverse in trend from 2006-2007, while NSW trended down for all years.

Figure 27: Alcohol attributable deaths by gender, NBM and NSW, 1997 to 2007



Source: ABS mortality data and population estimates (SAPHaRI). Centre for Epidemiology and Evidence, NSW Ministry of Health.
 Note: Excludes conditions where low-to-moderate alcohol consumption has an apparent overall protective effect. Calculated using age and sex-specific aetiological fractions from the School of Population Health, University of Queensland and AIHW, 2007. Deaths were classified using ICD-10. Numbers for the latest year of data include an estimate of the small numbers of deaths registered in the subsequent year, data for which were unavailable at the time of production. Indirect age-and-sex standardisation used to calculate standardised mortality or separation rates and ratios; Bayesian smoothing used to calculate the smoothed ratios. NBM male and female alcohol attributable death-rate labels shown only.

Determinants of Health that may Affect Outcomes

In Australia, population groups at high risk of dependence on alcohol, nicotine and other drugs are:

- The socioeconomically disadvantaged
- Those living in rural and remote areas
- Aboriginal people
- Pregnant women
- People who are unemployed
- People who identify as homosexual or bisexual
- People with mental illness
- Those with high levels of psychological distress

High-risk groups are prevalent across the region, with LGA pockets representing the most disadvantaged across the NSW population.

Other Drugs

Illicit Drug Use in the NBM region

There is an apparent high prevalence of illicit drug use in the NBM region, which is supported by the prevalence of drug-related crime. Illicit (or illegal) use of drugs includes cannabis, heroin meth/amphetamines (such as 'ice', also known as 'crystal meth'), non-medical use of pharmaceutical drugs and the inappropriate use of other substances, such as inhalants (NSW Bureau of Crime, Statistics and Research, 2014). Illicit drug use varies across the region, as it depends on the type of drug used and the circumstances surrounding use.

Drug Use and Possession across the Region

Penrith LGA  **121.8**
per 100,000

Statistics for Penrith LGA show higher than state averages for amphetamine use or possession, at 121.8 per 100,000 people, compared to 95.2 per 100,000 for the state. Ecstasy use or possession was also higher, at 58.5 per 100,000 people, compared to 37.6 per 100,000 for the state.

Lithgow LGA  **312.5**
per 100,000  **118.4**
per 100,000

When compared with other LGAs in the region, Lithgow LGA reported the highest rates of cannabis use or possession, at 312.5 per 100,000 people. Amphetamine use was 118.4 per 100,000 people and higher than the state average of 95.2 per 100,000.

Blue Mountains LGA  **132.8**
per 100,000

Regional rates for the possession or use of amphetamines were higher for the Outer Western and Blue Mountains region (132.8 per 100,000 people), when compared to Greater Sydney and the state (110.7 per 100,000 people and 118.1 per 100,000 respectively) (NSW Bureau of Crime Statistics and Research, 2015).

The National Drug Strategy Household Survey 2013 indicated that one in five people smoked and used alcohol at risky levels or used illicit drugs. These rates doubled in remote areas. Based on 2011 census data, more than 70,000 people in the NBM region may be involved in the risky use of tobacco, alcohol and drugs. During 2013, cannabis was the most common of illicit drugs used – 10% of the population over 14 years of age reported use in the previous 12 months and 35% reported lifetime use. Cannabis and amphetamine users are more likely to use at least every few months, at 64% and 52% respectively (NSW Bureau of Crime, Statistics and Research, 2014).

Consultations with NBM primary care providers report the following regarding presentations and referrals for drug and alcohol services:

- Often the first contact with the primary care provider is through family seeking advice regarding another family member
- Cannabis is the leading drug used and ranges from long-term heavy use to recreational use. Long-term users were often regarded as using to self-medicate (possibly 20-30%)
- Users of ICE rarely attended primary care providers. Those that did attend were young to middle aged
- Abuse of prescription drugs and other medications
- Young people are the main group presenting with issues concerning drug use (NBM Primary Health Network, 2016)

Misuse of Pharmaceuticals

In the context of illicit drugs, a pharmaceutical is a drug available from a pharmacy, either over the counter or by prescription, which may be subject to misuse (Australian Institute of Health and Welfare, 2014).

In terms of prescription drug misuse, preliminary stakeholder consultations with NBM primary care providers indicate prevalence of abuse of prescription medications (NBM Primary Health Network, 2016). This is supported by findings from the *National Drug Strategy Household Survey 2013*, which showed an increase in misuse of pharmaceutical medications – from 4.2% in 2010 to 4.7% in 2013 (Australian Institute of Health and Welfare, 2014).

Implications of Drug Use in the NBM Region

Studies have shown chronic substance users have a shorter life expectancy – of approximately 15-20 years – compared to the general population. This trend is consistent with the NBM region, which has identified co-existing physical disorders as a major contributor to early death among chronic substance users.

This finding has given rise to an increasing need for drug and alcohol services to address a range of comorbid physical health issues, including diabetes, circulatory diseases and blood-borne viruses, as well as mental health, depression and neurocognitive deficit disorders. Complicating this finding is the fact that this population group has poor access to preventative health services and high rates of admission to hospital for a range of health issues, in addition to drug and alcohol use (NBM Local Health District, 2016).

Findings for the NBM Region

Research undertaken for alcohol and other drug (AOD) use across the region included broad consultation and review of alcohol and drug-related publications, and identified a number of issues and areas of priority. It found that stakeholders consistently identified the need for improved aftercare as part of AOD treatment. AOD peak bodies have reported that aftercare is not explicitly funded and is therefore not provided consistently across the AOD treatment spectrum, despite being important to preventing relapse following treatment.

In addition, stakeholder consultation over an extended period of time has consistently identified the need for education and support for general practitioners and allied health professionals. Other community based workers and community members have also emphasised the need for education programs to support coordination and integration of services.

In terms of the scope of programs for AOD, it was identified that there are currently a number of NGO-based counselling programs, including diversionary programs operating in the NBM region, as well as state-run programs that provide counselling and education support for youths. Preliminary consultations indicate these programs are not specifically targeted to early intervention for risky substance-use behaviours among youths.

The management of individuals that have alcohol and/or drug addictions is becoming increasingly difficult. Difficult behaviours exhibited by some individuals have resulted in health professionals being unwilling to work in this health sphere. This highlighted the need for capacity building of the health and community workforce, involving coordination and integration of services to respond to drug and alcohol problems, especially those related to methamphetamine use. A high-priority need is the increasing complexity involved in working with people using substances, in particular the increased use of methamphetamine and associated behaviour problems.

AOD education programs will be targeted at effectively equipping participants with the skills to recognise problematic drug and alcohol use, identifying the types of supports and treatments that are effective, and gaining skills to support people who have drug and alcohol problems according to their level of involvement, i.e. professional or other. Education on methamphetamine use is a priority – providing knowledge on how this drug is used, the effects of use and how they can be reduced, first-aid measures, withdrawal, mental-health problems, crisis presentation and opportunistic interventions will help workers and community members.

One high-priority service needs gap is in non-residential rehabilitation programs. There are no state-funded non-residential rehabilitation programs in the region, and just one small NGO service in Katoomba (BM LGA) for women only. Since 2010, formal stakeholder consultations have consistently identified this gap in service provision. The significant upsurge in 'ice' use across the region has increased the level of urgency for local, non-residential treatment programs for people whose substance use is unsuitable for counselling-based treatment.

The complexities involved in providing AOD treatment to people with dual mental health and AOD problems is well known in research and practice, however there is only preliminary knowledge of best-practice models of care for people with dual diagnosis. A summary of the key issues and priorities resulting from the above is provided on next page.

Key Issues for the NBM Region

A number of issues have been identified via stakeholder consultation, including access to drug and alcohol services.

Access issues include:

- Poor access due to hours of service operation
- Difficulties for youths and Aboriginal clients to access services
- Poor access due to inadequate staffing levels
- The need for drug and alcohol services to broaden and implement more smoking-cessation programs
- Lack of appropriate detoxification services for young people related to drug or alcohol withdrawal
- The need for enhanced and targeted communication methods to engage and inform young people about the use of drugs and alcohol

Stakeholders have raised the following concerns regarding community wide engagement and the education of young people:

- The need for better engagement with the 18-25 year age group (the majority of young people using Headspace – Australia’s National Youth Mental Health Foundation – are aged 14-17)
- A lack of proactive identification of children with behavioural problems through primary schools
- A lack of promotion of the Cool Kids Program – a cognitive behaviour therapy program – for children with anxiety
- A lack of education provided to GPs on resources available in the community (NBM Primary Health Network, 2016)

Priorities for the NBM Region

- Targeted early intervention programs for alcohol and risky substance behaviour, including risky drinking and poly-drug use (especially methamphetamine use), particularly among youths
- Establishment of non-residential rehabilitation day programs that are locally accessible and include innovative models for young people and culturally secure models for Aboriginal people
- Workforce and community capacity to respond to increasing drug use, including methamphetamine use and people with dual diagnosis
- Capacity building and coordination of existing services for improved access to extended hours, aftercare and long-term counselling for people with dual diagnosis
- Culturally secure assessment and coordination of services for Aboriginal people with complex problems, including dual diagnosis

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10

Mental Health

Mental Health



Mental and behavioural disorders were the 5th leading cause of death in the NBM



9.7%

In 2013, 9.7% of the population in the NBM region aged over 16 years reported high or very high psychological distress



4th Highest

In 2011/12, the NBM male hospitalisation rate for mental disorder was highest among the 15 NSW Local Health Districts and female hospitalisation rates ranked the 4th highest

In the NBM region there are no step down facilities from acute to sub-acute care.



2x

The hospitalisation rate for Aboriginal men was 2.0 times the rate for non-Aboriginal men



1.4x

The hospitalisation rate for Aboriginal women was 1.4 times the rate for non-Aboriginal women



Prisoners transitioning to the community have **higher** than average incidence of **mental health** and **alcohol and other drugs problems**



4 of 33 Correction Centres

Four of the 33 NSW correctional centres are located in the NBM region

The terms 'mental health', 'mental illness' and 'mental health problem' are often used interchangeably, however each refers to a different part of the spectrum between mental health and wellbeing and illness. Mental health disorders relate to behaviours and conditions that interfere with social functioning and the capacity to negotiate daily life. A mental illness or disorder is a diagnosable illness that significantly interferes with an individual's cognitive, emotional and/or social ability. There are different types of mental disorders, including depression, anxiety, psychosis and substance-use disorder, all of which may occur with varying degrees of severity.

People with mental disorders are more likely to die prematurely from other physical causes, such as cardiovascular disease and cancer. This is due to an increased prevalence of risk factors such as smoking and obesity, as well as socioeconomic disadvantage and issues with accessing healthcare.

Mental health and wellbeing is influenced not only by individual attributes but by the social circumstances in which a person finds themselves, and the environment in which they live. These determinants dynamically interact with each other and may threaten, or protect, an individual's mental health state (World Health Organisation, 2016).

Burden of Mental ill-Health

Mental disorders are the third leading cause of disability burden in Australia, accounting for an estimated 27% of the total years lost due to disability. Major depression accounts for more days lost to illness than almost any other physical or mental disorder. In 2010-11, mental and behavioural disorders were the fifth-leading cause of death in the NBM region, accounting for 4.6% of the total number of deaths (92) (Nepean Blue Mountains Local Health District, 2014). The following conditions account for almost three-quarters of the mental illness burden:

- Anxiety
- Depression
- Alcohol abuse
- Personality disorders (Australian Institute of Health and Welfare, 2016)

Risk Factors

In the most recent Australian Burden of Disease study, the leading attributable risk factors in mental disorders were found to be the harmful effects of alcohol (9.7% of attributable burden), illicit drugs (8%), child sexual abuse (5.8%) and intimate-partner violence (5.5%) (Begg S, 2003). However, among Aboriginal and Torres Strait Islander peoples, up to one-third of the burden of disease and injury due to mental disorders may be attributable to illicit drugs (NSW Ministry of Health, 2015). In 2013-14, the population rate of methamphetamine-related hospitalisation among Aboriginal males was approximately six times higher than non-Aboriginal males. Among Aboriginal females, the rate was just under eight times higher (NSW Ministry of Health, 2015).

Prevalence of Mental Disorders in Adults

The 2007 National Survey of Mental Health and Wellbeing (NSMHWB) estimated that 45% of Australians aged 16 to 85 experienced a mental disorder during their lifetime, and that an estimated 20% had experienced a common mental disorder in the previous 12 months. Anxiety disorders were the most common conditions reported for the 12-month period (14% of the population), followed by affective disorders such as depression (6%) and substance use disorders (5%) (Australian Institute of Health and Welfare, 2015).

Prevalence of Psychotic Disorders in Adults

Estimates from the 2010 NSMHWB *Survey of People Living with Psychotic Illness* indicated that 0.45% of the population aged 18 to 64 accessed treatment annually from public-sector mental health services for a psychotic disorder, with schizophrenia being the most common. About two-thirds of this population experienced their initial episode of psychotic illness before they turned 25 (Morgan VA, 2010).

Prevalence of Mental Disorders Amongst Children And Youth

The *Young Minds Matter* survey (2013-14) showed that 13.9% of those aged 4-17 were assessed as having mental health disorders in the previous 12 months. Males were more likely than females to have experienced disorders in the 12-month period (16.3%, compared to 11.5%). ADHD was the most common disorder (just over 7%), followed by anxiety disorders (just under 7%), major depressive disorder (3%) and conduct disorder (2%) (Lawrence D, 2015).

Prevalence of Psychological Distress

In 2013, 9.7% of the population in the NBM region aged over 16 years reported high or very high psychological distress. This was in line with the NSW rate of 9.8% but well below most previous recordings. In 2011, the corresponding figure for NBM region was 13.0%, compared with the NSW rate of 10.3% (NSW Ministry of Health, 2013).

Rate of Hospitalisation

In 2011-12, the NBM male-hospitalisation rate for mental disorder was highest among the 15 NSW Local Health Districts and significantly higher than all the metropolitan Local Health Districts across NSW. The corresponding female-hospitalisation rate was fourth highest among the 15 NSW Local Health Districts and fourth highest among the eight metropolitan Local Health Districts across NSW (*Nepean Blue Mountains Local Health District, 2014*). The hospitalisation rate for Aboriginal men was 2.0 times the rate for non-Aboriginal men, while the rate for Aboriginal women was 1.4 times the rate for non-Aboriginal women (*Nepean Blue Mountains Local Health District, 2014*).

Mental Health of LGBTI Communities

Preliminary consultations indicate that LGBTI people living in the NBM region may not be receiving adequate support for mental illness. Barriers to health-service access include fear of discrimination or rejection. Unless services are explicitly inclusive, LGBTI people will often assume a lack of understanding and/or potential discrimination.

Prevalence of Suicide

Males

ABS data from 2015 indicates the region has higher suicide rates for males (2.8 times the age standardised rate for women), with peaks at ages 35 to 54, and a substantial spike over age 85.

Men who have previously attempted suicide are an especially high-risk group for subsequently completing suicide. (Rosenberg et al, 2010)

Youth

The *Young Minds Matter* survey (2013-14) reported that 7.5% of 12 to 17 year-olds had seriously considered attempting suicide in the previous 12 months, with 2.4% having attempted suicide in the previous 12 months, and 0.6% having received medical treatment as a result of their injuries. Suicidal behaviour was more common in females

than males, and in 16-17 year-olds compared with younger adolescents. 15.4% of females aged 16-17 years had seriously considered attempting suicide and 4.7% had attempted suicide in the previous 12 months.

56.4% of females aged 12-17 years with a major depressive disorder (based on self-reporting) had seriously considered suicide and 22.1% had attempted suicide in the previous 12 months. In comparison, 13.8% of males aged 12-17 years with major depressive disorder (based on self-reporting) had attempted suicide in the previous 12 months. (Lawrence et al, 2015)

Aboriginal & Torres Strait Islander peoples

Suicide rates for Indigenous Australians are high (2.25 times age standardised, 2001-2010). The rates in NSW are slightly better rates, at 1.4 times age standardised for the same period.

The largest difference between Indigenous and non-Indigenous rates are at younger ages, with the age-standardised rate 4 times higher for 25-29 year old males and more than 5 times higher for 20-24 year old females. (ABS, 2012)

Location

Based on a 10-year sample the highest number of suicides have been in the Lower Blue Mountains (Blaxland to Winmalee), St Marys–Colyton, Cambridge Park, Glenmore Park–Regentville, and Penrith. The highest suicide rates have been in Penrith and Springwood–Winmalee. (ABS, 2013)

National age-standardised suicide rates increase with the remoteness of the person's place of residence. (AIHW, 2014 and SAPHaRI, 2013)

Number of Deaths from Mental Disorders

In 2010-11, mental disorders were the fifth-leading cause of death in the NBM population, with 92 deaths per year (55 males and 37 females). For the same time period in the region, the female death rate for mental disorder deaths was the fifth highest among the eight NSW metropolitan Local Health Districts (26.9 deaths per 100,000 people) (Nepean Blue Mountains Local Health District, 2014).

For males in the region during 2010-11, the rate for mental disorder deaths was the second highest among the eight NSW metropolitan local health districts (30.2 deaths per 100,000 people) (Nepean Blue Mountains Local Health District, 2014).

Key Issues for Mental Health in the NBM Region

GP Uptake of MBS Items

General practice uptake of MBS items for the development and implementation of mental health treatment plans and reviews is variable across the region. The highest levels of uptake are in Blue Mountains LGA and lowest in Lithgow LGA. The Blue Mountains SA3 is in the top decile nationally, with Hawkesbury and Richmond-Windsor SA3s in the 3rd decile, and Penrith SA3 in the 4th decile. Lithgow-Mudgee (which

includes four SA2 regions across the NBM region) is in the 7th decile for the number of mental health treatment plans (age standardised, per 100,000 people) (Australian Atlas of Healthcare Variation, 2015).

The number of people receiving MHNIP services shrunk by 17.2%, from 285 in 2011-12 to 236 in 2014-15. Over the same period, the number of occasions of service (sessions) dropped by 25.5%, from 3,607 to 2,688. As a proportion, males made up 37% of all MHNIP patients and received 27% of occasions of service over the four years (NBM Primary Health Network, 2016).

Uptake of ATAPS

Access to Allied Psychological Services (ATAPS) is a non-MBS program providing short-term psychological support, generally for people with mild to moderate mental illness. The majority of referrals are for high-prevalence disorders such as depression and anxiety. During 2014-15, an overall 2,494 ATAPS referrals were made to ATAPS, resulting in 12,543 occasions of services.

The following ATAPS services were provided across the NBM region for the same timeframe:

- ATAPS general (for people on low incomes)
- ATAPS for children (0-12 years of age)
- ATAPS for women with perinatal mental health issues (pregnant or child up to 12 months of age)
- ATAPS for Aboriginal people
- ATAPS suicide prevention service (for people at mild to moderate risk of suicide)
- ATAPS Bushfire (for people affected by the 2013 Blue Mountains bushfires)

Sessions delivered represent ATAPS services in the following way:

- 54% General ATAPS
- 18% Suicide Prevention
- 13% Bushfire
- 11% Children
- 3.5% Perinatal
- 1.5% Aboriginal people

PBS Prescriptions Dispensed

Review of available data indicates the following: (Australian Atlas of HealthCare Variation, 2015)

- The rate of prescribing antipsychotic medicines for young people aged under 18 is relatively high in Lithgow and Blue Mountains LGAs
- The number of antipsychotic prescriptions is in the 2nd decile for Lithgow-Mudgee SA3 and 3rd decile for the Blue Mountains LGA

- The rate of prescribing ADHD medicines for young people aged under 18 is high across the NBM region. The number of ADHD medicine prescriptions is in the top decile for Lithgow-Mudgee SA3, 2nd decile for Blue Mountains, Penrith and Richmond-Windsor, and the 3rd decile for Hawkesbury
- The rate of prescribing antidepressant and anxiolytic medicines for people aged over 65 is relatively low across the NBM region. Notably, the rate of anxiolytic prescribing in Lithgow-Mudgee SA3 is very low (1st decile)
- The rate of prescribing antipsychotic medicines for people aged over 65 is relatively high across the NBM region, except in Lithgow-Mudgee (Australian Atlas of HealthCare Variation, 2015)

Care Coordination

- Lack of effective coordination, integration and follow-up between acute and primary mental healthcare
- Lack of coordination between outreach areas and Nepean Hospital for acute mental health issues
- Lack of care coordination, referral pathway coordination and case management (including public and private-sector clinical and nonclinical services) to support consumer-centred care based on consumer need rather than available service options
- Need for clinical multidisciplinary approach to care and sharing of information between the public and private sectors (including GPs, allied health providers, psychiatrists and mental health nurses)
- Lack of service coordination and links to support seamless step-up or step-down from services
- Lack of coordination and sharing of information/results of regular screening for physical-health issues between GPs and Community Mental Health
- Consumers with complex trauma need access to long-term integrated care between their GPs, psychiatrists, mental health nurses and psychologists (or equivalent) to support their recovery journey
- A significant number of consumers are not connected to a GP and do not have a 'medical home'
- A significant number of consumers are without a carer, including the vulnerable older age group
- Lack of access to consumer-health information by community managed organisations
- Issues arising from the transition of Partners in Recovery to the NDIS, in particular loss of care coordination capacity for people with severe mental illness who do not access the NDIS, or clinical care coordination for other chronic conditions

Continuity of Care After Discharge from Acute Services

Consultations highlighted the following trends post-discharge:

- Lack of consistent approach to discharge planning, including a lack of coordinated follow up after discharge (unless consumer is on a Community Treatment Order)
- Lack of assertive follow-up – people discharged from Mental Health Inpatient Units do not always make a follow-up appointment with their GP
- Quality of discharge summaries from Nepean Mental Health Inpatient Unit, which are often handwritten and very hard or impossible to read

Gaps in Mental Health Service Provision

Stakeholder consultations highlighted the following perceived gaps in service provision:

- Lack of psychiatric services across the region
- Lack of sufficient bulk-billing by private psychiatrists, and long waiting lists for those who do bulk-bill
- Long waiting lists to access public psychiatrists
- Lack of evidence-based treatment services for consumers with complex trauma (often diagnosed with personality disorders)
- Lack of adequate psychological support for those with higher complexity (trauma) and/or severe mental illness. (NB: ATAPS and Medicare provide for 12/10 subsidised sessions per year, which is inadequate for consumers with moderate to severe issues). An increase in the number of subsidised sessions per year is required for those consumers who need longer-term psychological interventions
- Lack of step-down facilities from acute to sub-acute care
- Lack of step-down services from severe to moderate mental illness
- Inconsistent provision of psychosocial services and appropriate social support for consumers at all stages of their recovery journey across the region (particularly Blue Mountains, Lithgow and Hawkesbury LGAs)
- Lack of appropriate integrated service options (including between LHD and primary care) for consumers with dual mental health and alcohol and other drugs diagnosis
- Lack of access to mental health services for consumers with co-morbid alcohol and other drugs issues – strong gatekeeping and specific eligibility criteria can exclude these consumers
- Difficulty in getting quick access (within a week) to mental health services for consumers in Lithgow LGA due to waiting lists (lack of sufficient services)
- Lack of sufficient subsidised group work (e.g. mindfulness based stress reduction)
- Medicare or ATAPS psychological therapies exclude work with couples or families

Capacity to Support Carers and Consumers

Respite care and other types of support for carers and consumers may be inadequate in the NBM region, and stakeholders have raised the following concerns:

- Carers and families are not adequately informed about the mental health condition so they can stay safe and supportive in their own environment
- Carers and families are not sufficiently included by professionals and do not receive sufficient support (e.g. respite options)
- Lack of support for financial management – consumers accumulate debts, which jeopardise payment for accommodation and living expenses, and may increase anxiety and can contribute to homelessness
- Insufficient education of consumers about prescribed medications, including side-effects
- Lack of peer workers to help increase consumer-health literacy, understanding of treatment and psycho-social support options, and to provide support for people while in acute care and in the community – identified as a high need

Workforce Capacity

There is a general view that workforce capacity for mental health in the region could be substantially improved with training and skills development. The concerns raised by stakeholders include:

- Need to increase GP knowledge of available clinical and non-clinical services, and their referral pathways
- Need to increase GP capacity to identify early if a consumer needs more intensive treatment (not provided through ATAPS or Medicare), such as MHNIP
- Uneven GP mental health engagement in the region
- Lack of GP education in relation to depression in the elderly
- Lack of GP education for dual-diagnosis of drug and alcohol and severe mental illness
- Insufficient dual-diagnosis support and supervision for private therapists
- Need for trauma education for health professionals
- Lack of support workers who are available after hours and on weekends

Mental Health of Aboriginal People

Mental health services provided to Aboriginal people in the NBM region are generally not regarded as being culturally secure and supportive of the needs of Aboriginal people. These include the following, however more detailed issues are likely to be found when comprehensive stakeholder consultation and service mapping is undertaken:

- Lack of indigenous programs run by Aboriginal people
- Lack of culturally appropriate services and lack of Aboriginal workers in identified roles, including psychiatrists and psychologists, and in community programs

- No Aboriginal Controlled Medical Service within the NBM region
- Need for improved and enhanced dual-diagnosis mental health and alcohol and other drugs services

Care Coordination and Service Gaps

The role and importance of care coordination in supporting improved health outcomes is well recognised and exemplified through Closing the Gap programs for chronic disease and Social and Emotional Wellbeing programs through Aboriginal Community Controlled Health Organisations (ACCHOs). Recently the NBMLHD commenced planning for a “Whole Family Team”, in partnership with the Department of Family and Community Services, to provide intense mental health and family support to Aboriginal mental health patients following discharge from hospital where child protection has been involved. The program will involve six months intensive support at home involving the whole family. The family will then be linked to other regional services for ongoing support.

Workforce Training and Capacity Building

The concerns raised by stakeholders in preliminary consultations included the following:

- Mental health services need willingness to engage with Aboriginal communities and need proper guidance from community members (Elders) to build trust
- Need to increase designated Aboriginal specific clinical positions in mental health
- Lack of understanding of stressors affecting the mental health of Aboriginal people, particularly intergenerational trauma and associated PTSD
- Lack of Aboriginal mentors for people undergoing treatment and therapy
- Aboriginal workers are not trained in clinical assessment, and clinical forms are not culturally adapted
- Need to increase mental health literacy in Aboriginal communities

Children and Youth Services

Stakeholders have raised the following concerns in regard to gaps in services for this population:

- Lack of psychiatric services for children and young people
- Lack of after-hours services for youths aged 12-24
- Lack of general intervention programs to support the complex needs of children aged under 12
- Difficulty in finding services for those aged 18-25, and no provision for those aged under 18 to be admitted to the Nepean Hospital Mental Health Unit
- Lack of early intervention mental health and alcohol and other drugs programs for those aged under 16

Stakeholders have identified the potential for poorer service availability in locations where there are higher proportions of young people. The concerns raised by stakeholders included the following:

- Lack of mental health services in the Upper Mountains, Lithgow and Hawkesbury
- Lack of outreach services across all 4 LGAs
- Lack of tertiary mental health unit for children and youth in the region
- Lack of Headspace services in Lithgow, Blue Mountains and Hawkesbury

Stakeholders have indicated that children and young people, who are especially vulnerable, have unmet service needs and raised the following concerns:

- Lack of service provision for children high on the autism spectrum
- Lack of support for young people identifying as LGBTQI
- Lack of Aboriginal and CALD youth/child mental health services
- Lack of service provision for young mothers with children who are experiencing symptoms of anxiety and depression, and antenatal services for young mothers with post-natal depression
- Lack of appropriate support for homeless youths
- Need for better connection for young people in and out of Home Care, Juvenile Justice, Department of Family and Community Services, and health and community managed organisations, through sharing data and information to support integrated care

CALD Communities

A range of service support needs have been identified for CALD communities. The concerns raised by stakeholders include:

- Lack of mental health outreach services for CALD communities
- Lack of culturally appropriate psychiatric and psychological services
- Lack of CALD clinicians, e.g. counselling services in own language
- Lack of post-natal support/services for people suffering post-natal depression
- Lack of support for people from CALD communities who remain isolated in their own homes and remain hesitant to access mental health services

A range of workforce issues have been identified for CALD populations. The concerns raised in preliminary stakeholder consultation include:

- More education is needed for clinicians in relation to the high number of psychosomatic disorders within the CALD community
- GPs need more education around working with CALD communities in relation to their mental health

- Lack of training provided to GPs/allied health professionals in using telephone translation services
- Lack of public/service provider awareness of CALD mental health provision
- Lack of transcultural competency in workforce

A range of communication issues have been identified for CALD populations. The concerns raised in preliminary stakeholder consultation include:

- Lack of easy to access services outside the clinical setting
- Lack of education in relation to stigma and discrimination with regards to mental health in CALD communities
- Lack of awareness on how to navigate the mental health system and what supports are available
- Lack of local mental health related resources in different languages
- Need for education, information and mental health literacy for CALD community organisations on existing mental health services so they can support their communities adequately

Homelessness and Mental Illness

The problems confronting many people with mental illness in relation to housing and accommodation are well known and have been the subject of various government initiated reviews and evaluations. Stakeholders raised the following concerns:

- Lack of stable and long-term quality accommodation that is socially supported and economically sustainable and takes into account the special needs of consumers (e.g. HASI type services)
- Lack of appropriate accommodation for homeless people results in individuals being discharged from hospital to unstable accommodation, which increases the likelihood of re-admission
- Lack of available accommodation for homeless people can result in unnecessary longer hospital stays (social admission)
- Lack of mental health outreach services for homeless people in the region
- Lack of mental health skills among homelessness assertive outreach workers
- Lack of referral pathways between clinical and non-clinical mental health service providers for people who are homeless

Service Needs on Release of Prisoners with Mental Illness

It is noteworthy that four of the 33 NSW correctional centres and three community corrections offices are located in the NBM region. Prisoners transitioning to the community have a higher than average incidence of mental health and alcohol and other drugs problems, and typically have complex needs and require access and strong links to a broad range of services. A 2012 study showed that 29% of NSW prisoners surveyed reported high or very high psychological distress on release from prison. The same study showed that 41% of NSW prisoners reported having been previously told (by a doctor, psychiatrist, psychologist or nurse) that they have a mental health disorder (Australian Institute of Health and Welfare, 2013).

Correctional-service stakeholders from the NBM region have indicated that the mental health needs of former inmates are not currently being met in a substantive or systematic way post-release, and further research is required to identify usual referral pathways, available services and utilisation of services by former inmates in the region.

Regional Variation in the Provision of Mental Health Services

Preliminary consultations with stakeholders revealed the following issues:

- Insufficient skills by private clinicians to treat consumers with moderate to severe mental illness in the Hawkesbury area
- Minimal mental health support in Hawkesbury. Nepean Hospital is the main mental health inpatient unit and often experiences bed block
- Social isolation in outer regional areas, particularly Lithgow and Hawkesbury LGAs
- Limited availability/location of clinical services in Lithgow LGA

Initial regional mental health priorities/options have been identified based on the health and service needs analysis:

- Corroborate issues raised by stakeholder consultations through in-depth research with health data specific to the region
- Determine appropriate format for ongoing stakeholder consultation (including culturally appropriate consultation with the Aboriginal and CALD communities) across the region. This includes consumers and carers
- Research and map current mental health services across the region, including clinical and non-clinical services
- Research and examine best-practice evidence and consider options for person-centered coordinated mental health care (including referral pathways, intake, triage and follow-up) between the acute and primary healthcare sector
- Examine feasibility and barriers to the sharing of information between service providers
- Develop and/or improve referral pathways between clinical and community service providers to improve service responses to homeless people with mental illness and people released from prison

- Research best-practice models and approaches for people with moderate to severe mental illness, and with added complexities such as trauma, who benefit from psychological therapy interventions
- Develop a more culturally competent workforce to address the needs of Aboriginal people and CALD communities with severe mental illness and/or substance-use issues
- Continue targeted mental health education and training across the region for clinical and non-clinical workforce, and the community, including Aboriginal and specific cultural competency training for those from a CALD background
- Research culturally appropriate social and emotional wellbeing programs and services for Aboriginal people, and how these might be best delivered
- Research culturally appropriate and effective delivery of clinical provision for people from a CALD background
- Offer education, training and support programs for Aboriginal workers in mental health, and investigate mechanisms for appropriate recognition of skills
- Examine evidence-based options for increasing mental health services for those aged 18-25
- Provide mental health outreach services for children and youths in the outer areas of the NBM region (e.g. Hawkesbury and Lithgow LGAs)
- Research and implement models of low-cost, low-intensity services to support people with mild mental illness, including self-guided and clinician-moderated digital interventions

Capacity of Services for Aboriginal People

The Sharing and Learning Circles conducted in each LGA identified the importance of building service capacity to meet a broad range of needs for Aboriginal health-service provision. Through this network, a number of issues were identified:

- **Inadequate knowledge of health services:** The primary concern is one of knowledge and lack of access to relevant information to support equitable and necessary access to health services. This prevents Aboriginal people from attempting to access a range of services. Lack of knowledge of entitlements was also identified as part of this issue.
- **Lack of trust in mainstream service providers:** This was identified as a barrier to access by each of the community groups. Examples given were Close the Gap benefits not provided by certain pharmacies.
- **Cultural safety:** This was identified by all community groups, directly and indirectly. There is limited and potentially no access to Aboriginal medical-service providers in the region due to the uncertain future of the Mount Druitt and Penrith services.
- **Engagement with services by Aboriginal people:** Each community group indicated that there are no clear mechanisms for Aboriginal people to become involved in the governance of health services in the NBM region. The broad issues raised were the need for information, forums, engagement with identified providers to facilitate access and links to other services (NBM Primary Health Network, 2015).

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11

System and Sectoral Challenges

System and Sectoral Challenges

Barriers to health services include



Workforce shortages- NBM is categorised as a DWS



Transportation to health services



Poor health literacy



Limited culturally appropriate health services



Timely access to ehealth records



10.4% of NBM residents aged 16yrs+ had difficulty accessing health care in 2010

Various factors can significantly impact the health and wellbeing of a population – lack of transport, lack of available health services, affordability, poor health literacy, physical accessibility, barriers such as lack of culturally appropriate services for CALD and Aboriginal and Torres Strait Islander peoples, lack of after-hour services and poor understanding of available services can all play a part. The key issues prevalent within the NBM region are outlined below.

Access to Healthcare

Physical Access and Transport

The NBM region has a diverse landscape that covers both rural and metropolitan areas. Although the Blue Mountains is accessible by a major highway and train service, certain groups – particularly young people, the elderly and the frail or disabled – may have physical and/or financial difficulties attending GP appointments. The terrain, geographical distance of residents to health services and poor levels of public transport create significant obstacles when it comes to access.

Consumer forums undertaken across the region between 2012 and 2014 consistently reported that transport options were inadequate for their needs, either due to high cost or lack of suitable services. Due to the region's diverse geography and the remoteness of many locations, the main transport flows may run contrary to the location of the nearest specialist health services. Long waiting times are often experienced for public transport, and private transport may be costly due to long distances travelled.

Examples of problems experienced by consumers include:

- Discharge from hospital after hours, when there are no available transport services
- Difficulties accessing dialysis via public transport, requiring patients to undertake multiple modes of transport
- Difficulty and expense associated with hospital parking (Nepean Blue Mountains Medicare Local, 2012)

Feedback from consumers noted that community transport is available but is currently overstretched, with the advice being that there are waiting lists just to get an assessment for transport suitability and the service is not currently meeting the demands of the area.

Severe weather conditions affect the upper Blue Mountains, which experiences a more extreme climate in terms of temperature minimums, foggy days and black ice on the road. This can have a three-fold effect. Firstly, road transport is more dangerous, potentially limiting access by road for those less confident driving in these conditions on steep roads, such as the unwell and the elderly. Secondly, home-heating costs are higher in this area due to the lower temperatures. Thirdly, the greater dispersion of the population means driving longer distances to attend appointments, resulting in significant petrol expenses.

These features combine with the fact that individuals living in the Upper Blue Mountains are often asset-rich and income-poor, and are older on average to the remainder of the Blue Mountains population. A picture therefore emerges of both physical and financial disadvantage in terms of access from multiple causes for Upper Blue Mountains residents.

Inadequate support and lack of services for aged care and carers was also identified by all LGAs. The effects of increasing demand for these services due to the ageing population were believed to be negatively impacting access (Blue Mountains City Council, 2014).

An NBM resident survey reports difficulties accessing services were reduced from 12.2% in 2002 to 10.4% in 2010, however the change has not been significant (Nepean Blue Mountains Medicare Local, 2012). It is likely there have been little or marginal improvements in access to health services for NBM residents in recent years. Consumer forums conducted during 2012 by the NBMML in each of the LGAs indicated the following barriers to access:

- **Transport** – availability, long distances (especially for outlying areas) and costs were dominant issues for all LGAs
- **Workforce shortages** – including access to specialist care. For Blue Mountains and Lithgow LGAs in particular, there were difficulties accessing general practice due to limited supply. Consumers reported that GPs often closed their books to new patients, or there was a two-week or more waiting period. Long waiting lists for services were experienced by residents from all LGAs.

- **Inadequate information about available services and eligibility** – an issue raised by consumers from all LGAs. Residents were not able to access existing services because of lack of awareness of those services. GPs and allied health professionals also experienced similar difficulties obtaining up-to-date knowledge of available services and eligibility requirements.
- **Inadequate support and lack of services for aged care and carers** – this was also identified by all LGAs. The effects of increasing demand for these services due to the ageing population were believed to be negatively impacting on access (Nepean Blue Mountains Medicare Local, 2012).

Health Workforce

Workforce shortages may negatively impact communities, preventing residents from accessing the health services and professional services they need. The primary health workforce faces consistent demands relating to current and predicted shortages due to population growth, workforce attrition, after-hours needs and demographics. Health-workforce retention and development has been identified as a priority for the NBM region over the next two years.

The NBM region has been identified as a district of workforce shortage (DWS) – defined as: ‘A geographical area in which the local population has less access to Medicare-subsidised medical services when compared to the national average’. Such areas are identified using the latest Medicare billing statistics, which are updated on an annual basis to account for changes in the composition and geographic distribution of the Australian medical workforce, and the latest residential-population estimates, as provided by the Australian Bureau of Statistics.

A large proportion of the NBM region was designated as a DWS for 2016. The relevant areas include the whole of Blue Mountains LGA and most of Penrith LGA, with the exception of two suburbs, Colyton and St Marys. The townships of Portland and Wallerawang have also been designated as DWS areas, representing approximately 20% of Lithgow LGA. Hawkesbury LGA has a smaller group of DWS-designated suburbs, representing around 15% of the area (Health, 2013).

A critical issue facing the NBM region and its capacity to provide services is the large proportion of senior staff who may consider retirement in the coming five to 10 years. This is a concern across medical, nursing and allied-health workforces. For example, almost half of all nursing staff in the region are aged 45 and over (46.4%), with 43 being the median age of NBM nurses. The ageing of the workforce potentially signifies challenges relating to the capacity of the NBM 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 18: Select Nursing Staff¹ by Age, Numbers Employed and Separations in the NBM region, 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	1,875	100	117	100

Source: Workforce Design Unit, Nepean Blue Mountains, 2 November 2012.

The median age of the NBM workforce, across all professions, is also 43 years. This is higher than the median age of residents in the region (34.5 years) and in Australia (approximately 37 years) (Nepean Blue Mountains Local Health District, 2013). These ages are consistent with the national median age for the health sector (Australian Government, 2011).

Future retirement intentions of NBM 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 and older currently in the workforce intend to retire between the ages of 65 and 69, and 14% expect to retire at age 70 or older (Statistics, 2011).

It is anticipated that approximately 10% of NBM nurses will retire within five years. However, recent information suggests many may delay retirement for another 15 years. Therefore, although the demographics of the NBM 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.

¹ Enrolled, clinical and registered nurses (includes midwives, clinical nurse consultant and educators) and comprises 90% of all nursing staff

General Practitioners

Consultations with general practitioners and regular retirements indicated the NBM GP workforce is ageing and may not be replaced at the same rate as retirement. This is a particular concern among GPs from Blue Mountains LGA, and may also be indicated by the recent re-designation of the Blue Mountains region as a DWS. The Australian Health Practitioner Registration Authority (AHPRA) does not currently report workforce age profiles at regional levels, however it does have plans to report age profiles according to PHN region in the near future.

Local consultations also indicated that recent changes to the processes involved in registrar placement may further compound high levels of attrition of the GP workforce. Under the new arrangements, it is expected to be more difficult to attract GP registrars to

regional and remote areas. Access to specialist care was also identified through previous consumer forums and surveys undertaken by the former NBMML.

After-hours general practice coverage has been a long-standing concern for NBMPHN. An after-hours GP clinic, staffed by local GPs, has been operating in the Nepean Hospital campus for the past 10 years – originally by the Nepean Division of General Practice, then the NBMML and now the NBM PHN – to support after-hours GP coverage for Penrith LGA, and to reduce the number of presentations to the Nepean Emergency Department.

In 2015, the Nepean Emergency Department clinic was attended by 67,237 patients. For the same period, the Nepean after-hours GP clinic was attended by 5,217 patients. Attendances at the GP clinic potentially represent a reduction of 7.8% of presentations at the Nepean Hospital Emergency Department (Nepean Blue Mountains Medicare Local, 2014).

NBMPHN supports the conduct of another after-hours GP clinic in the Hawkesbury, as part of Hawkesbury Health District Health Service. In 2015, the Hawkesbury Emergency Department clinic was attended by 22,699 patients. For the same period, the Hawkesbury after-hours GP clinic was attended by 7,041 patients. Attendances at the GP clinic potentially represent a reduction of 31.0% of presentations at the Hawkesbury Emergency Department.

The former NBMML supported the establishment of deputising services currently operating across Hawkesbury, Penrith and Blue Mountains LGAs. However, there is no deputising service currently operating in Lithgow LGA.

Table 19: GP representation across the NBM region, 2011

GPs per 100,000 population 2011					
LGA	Number of GPs	Population	GPs per 100,000 population	National Average (GPs per 100,000 population)	NSW Average (GPs per 100,000 population)
Lithgow	33	20,160	143.8	138.9	134.9
Blue Mountains	112	75,942	104		
Hawkesbury	94	62,353	113.9		
Penrith	249	178,467	99.2		
Total	488	336,922	105.7		

Source: Chilli Database, Nepean Blue Mountains PHN

Other challenges faced by GPs and primary care health professionals in areas of socio-economic disadvantage include the pressures of dealing with complex health problems. The high incidence of social problems in socio-economic disadvantaged populations means that GPs often have to attend needs beyond physical health. This 'time pressure' in turn restricts a GPs capacity to provide adequate support for those patients. Further compounding the problem is the difficulty these patients have in accessing non-GP specialist health care, leaving GPs struggling to provide treatment without this support and spending time seeking affordable care options (King M, 2016).

Coordination of Services

Consultations identified substantial concerns regarding the current model of care for older people. Evidence indicates that people aged over 65 often have multi-morbidities, i.e. three different diagnoses or more. This places substantial demand on general practitioners and other care providers, especially with the increased time required for consultations.

Current statistics for Australia indicate that resource use in general practice by those aged over 65 substantially increased between 2001 and 2015:

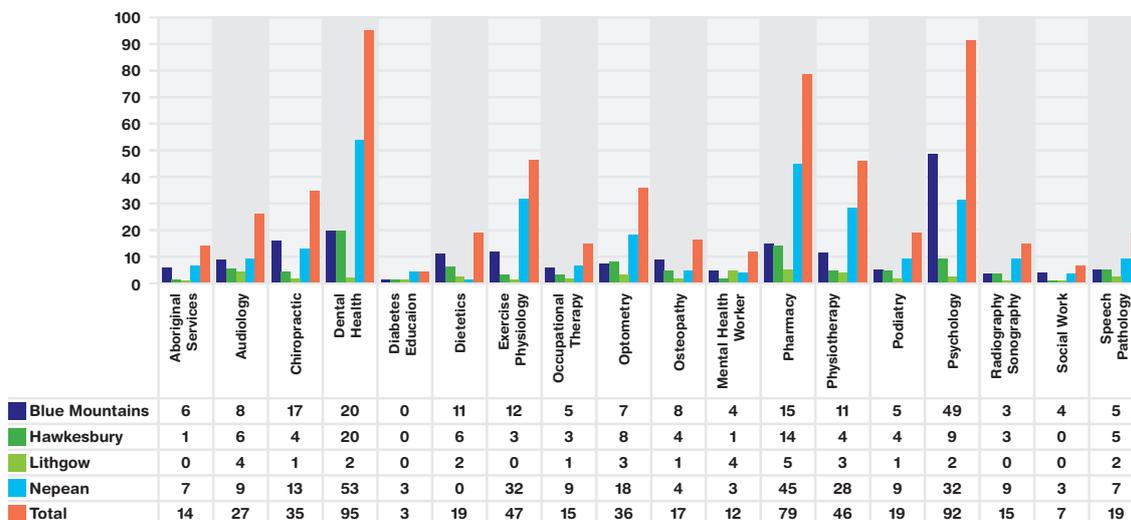
- Encounters increased from 22.8% to 27.8%
- GP clinical time increased from 23.9% to 28.7%
- Problems managed increased from 26.9% to 35%
- Medication prescriptions increased from 28.2% to 35.8%
- Tests ordered increased from 24.9% to 30.8%
- Referrals made increased from 24.2% to 32.3% (Britt H, 2016)

Moreover, for the current model of care it is expected that regional supply of GPs will need to increase to support the increasing healthcare needs of the rapid increase in the proportion of older people.

NBMPHN general-practice workforce consultations indicate that after-hours coverage continues to be inadequate in the region, requiring residents to either delay seeking medical attention or to present to local Emergency Departments. However, it is difficult to interpret MBS data for informing after-hours service planning due to the wide variety in the type of MBS consultations that take place after-hours (Nepean Blue Mountains Primary Health Network, 2016).

Allied-health professionals play a key role at the primary healthcare level, as do professionals such as audiologists, chiropractors, exercise physiologists, occupational therapists, physiotherapists, podiatrists, psychologists, social workers and speech pathologists. The following table shows a wide variation of allied-health professionals across the region's LGAs.

Figure 28: NBMPHN Allied Health Organisations by LGA and Discipline, July 2015



Source: Chilli Database (14/7/15), Nepean Blue Mountains PHN

Digital Health Communication

Effective eHealth technologies enable appropriate and timely access to patient medical records. This not only facilitates timely and effective communication between all stakeholders, but enables sound decision-making and continuity of care.

Secure referrals and direct communication between primary care providers supports communication of confidential correspondence between general practitioners, allied-health professionals and other service providers, such as diagnostic services, aged-care facilities and hospitals.

During 2014, NBMML undertook extensive consultation with general-practice and allied-health professionals. This multiple-phased study assessed the needs of GPs and allied-health professionals, with survey responses providing insights into the business practices and views of both groups. Overall, the survey indicated specific opportunities to improve interaction with both groups via the NBMML website, practice visits and continuing professional development events.

One important aspect of the study was the investigation of information technology infrastructure in primary care practices across the region. Findings indicated that information technology was widely utilised for email between professionals, however the electronic exchange of reports occurred much less due to the need for secure communication.

The survey identified the need for increased multidisciplinary communication and connectivity, and the development and/or strengthening of 'smooth flowing' electronic referral pathways. The enhancement of referral pathways supports communication and referral for the management of chronic conditions and supports prevention of hospitalisation for chronic conditions such as diabetes (Nepean Blue Mountains Medicare Local, 2014).

Health Literacy

Health literacy is the degree to which individuals have the capacity to obtain and understand health information, and access appropriate services. Poor health literacy can contribute to poorer health outcomes and can impact on how and when people access healthcare. Community and stakeholder consultations found poor health literacy to be a barrier to accessing health services. This was particularly relevant to CALD communities and several suburban areas within the LGAs.

Poor health literacy compounds the issues for primary care health professionals in terms of care management, often including additional challenges such as low motivation and poor self-management (King M, 2016).

In 2012, more than half of Australians aged 15-74 were found to have inadequate levels of health literacy (Australian Institute of Health and Welfare, 2012). People living in more disadvantaged areas and areas outside major cities, and people with a poorer self-accessed health status, were more likely to have lower health literacy (Australian Institute of Health and Welfare, 2012).

One key reason for poor health literacy included the difficulty experienced in navigating the healthcare system, or not knowing how to or which services to access. Not only does this inhibit an individual's ability for self-management of their disease or condition, but can and does impact unnecessary Emergency Department presentations, which increases healthcare costs.

Inadequate information about available services and eligibility were issues raised by consumers from all LGAs. Residents were not able to access existing services because of lack of awareness of those services. GPs and allied health professionals also experienced similar difficulties obtaining up-to-date knowledge of available services and eligibility requirements.

Poor health literacy is prevalent among CALD communities and is recognised as a priority in the NBM region. In Australia, in 2011, migrants constitute 27% of the total population, with over 18% of these being from non-English speaking countries (E., 2016). The population of migrants will continue to grow for the region and there are plans for a number of Syrian refugees to be relocated within Penrith LGA. It is therefore essential to acknowledge that poor health literacy among this population group has the potential to inflate healthcare costs and result in poorer health outcomes. As the region's CALD population increases, literacy programs will become more usual.

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12

Priority Areas

Priority Areas

Priority areas for the NBM region cover a number of categories and were identified using the triangulation methodology provided by the Department of Health (refer to Appendix A). Details of proposed activity is outlined below.

Prevention and Management of Chronic Disease

A number of issues around this theme were identified. Statistics showed a high and increasing prevalence of diabetes, high rates of death from cardiovascular disease compared to 8 metro PHNs and high rates of high body mass with 29% of persons in NBM region reported in 2011-12 as obese and 35% as overweight. One in five people were reported as obese and one in three people reported as overweight in 2014. Respiratory disease was the third leading cause of death in the NBM population and COPD is the leading cause of potentially preventable hospitalisations during 2011-12.

Chronic and preventable conditions with the highest prevalence in the NBM region include COPD, diabetes, cardiovascular disease and overweight and obesity. The formation of a 'Chronic and Preventable Conditions Collaborative' will address this by focusing on quality improvement measures that support the implementation of improved care coordination for these conditions. Existing systems and services within general practices and across primary care will be utilised to support sustainability, with a cohort of general practices working closely to form the collaborative and co-design a pilot model that will be tested over a two-year period. The collaborative will be supported by governance and guidelines developed by GPs, specialists and allied health professionals.

Childhood Development

The variation in immunisation rates across the region highlighted the need to address immunisation rates of children in the Blue Mountains aged 0-5 years. Rates in this region have been consistently lower than the NSW State average, which is related to conscientious objection. Further research into this area to identify influencing factors that will support an increased participation rate will be conducted in collaboration with the University of Technology Sydney, University of Sydney and the Local Health District.

Cancer Screening

It was identified that screening rates through primary care for bowel cancer, breast cancer and cervical cancer were lower than NSW state averages – this applied to the majority of screening across nearly all regions.

The three areas of focus are:

- **Increasing cervical screening participation in the Penrith LGA:** This activity will work in partnership with general practices and other key stakeholders to address cervical screening across the LGA and principally in postcode 2760, which has the lowest rates in the whole region for women aged 20-69 years, at 43%. General practices in this area will be invited to co-design an intervention that will support a rise in screening rates. These will be based on best practice and organisation of primary healthcare with a preventive health focus, and with consideration of the new National Cervical Screening Renewal Program (to commence 1 December 2017).
- **Increasing bowel cancer screening participation:** The focus will be on men with low participation rates and this activity will see the PHN working in partnership with general practices, men's health organisations and Western Sydney University to co-design interventions to increase participation. There will be an initial focus in the Penrith and Hawkesbury regions, particularly on interventions to support men aged 50-54 years, whose screening rates are at 22% (well below the NSW average of 32.8%) to participate through their primary care provider.
- **Increase breast cancer screening participation:** The PHN will work with primary care to co-design interventions to increase participation. Breast screening for Aboriginal women in the Lithgow region, although at 17% is well below the state average, affects a small population of 59 women. Interventions will be addressed through community engagement activities and links to general practice in the region, via the regular activities of the Integrated Care Team. The CALD population in the Blue Mountains LGA will be targeted to improve low participation rates.

Older Persons

The Needs Assessment identified a number of factors that lead to older people presenting or being admitted to hospital, which could be avoided through improvements in care delivered by GPs. These improvements include management of poly pharmacy, management of chronic pain (opioid specific), prevention of falls and vaccine-preventable conditions (such as pneumonia and influenza).

Increasing immunisation for pneumonia and influenza to reduce the risk of vaccine preventable hospital presentations and admissions, and the potential use of antimicrobials, will be addressed.

Once an older person presents or is admitted to hospital, their wishes are not always clearly articulated. This can be addressed through the development of advance care directives, accessible through My Health Record for both consumers and treating clinicians. Additionally, the promotion of palliative care through the existing PEACH (Palliative Care Home Support Package) program needs to be sustained to support clinicians.

This activity will build on the governance framework of the Older Person's Consortium (funded by ACI until Feb 2017). Inclusive of key stakeholders across the care continuum involved in older persons care, the consortium will continue to provide a governance structure to co-design sustainable interventions through primary care that will support the care of older persons. Close liaison with Local Health District aged-care services,

ambulance, other government and non government organisations, RACFs and specialists will facilitate the process. Piloting of specific activities targeting GP avoidable presentation/admission factors will occur over the two-year timeframe.

Demographic and Cultural Factors

Capacity and cultural competency building with local providers is a key priority across the region for influencing the health status of specific demographics and cultural groups. The capacity of suitable organisations within the primary care space to support the delivery of health services specific to Aboriginal people is not fully understood. Where it is known, limitations with business models inhibit the capacity of such organisations to become viable contenders in the commissioning arena. A fuller review of the capacity and capability will be undertaken to identify suitable interventions and, where possible, build capacity to support organisations to undertake commissioning activities.

CALD, refugee and victims of domestic violence needs through primary care relate to culturally sensitive and other specific support to patients. These factors will be addressed through further development of primary care cultural capacity and building an understanding of primary healthcare provider needs to support these groups as well as the delivery of continuing professional development opportunities.

Access to Health Services

A viable health workforce is essential to support community access to primary health services. The primary health workforce faces consistent demands relating to current and predicated shortages due to population growth, workforce attrition, after-hours needs and demographic factors. Sustainability and growth of the health workforce requires regular attention in addressing unmet service needs and innovative ideas to attract and retain health clinicians.

Health workforce retention and development has been identified as a priority over the next two years. This activity will continue to build on the current workforce support program provided by NBMPHN, with the employment of a part-time officer to support attraction and retention of primary care clinicians to the area and monitor areas of particular need. It will also seek to commission new health services to meet gaps in service needs, i.e. utilising where appropriate opportunities through the Rural Doctors Network funding and other models.

Activities will be undertaken to explore cultural competencies of healthcare providers and provide support to build cultural competency capacity, particularly in Penrith LGA, which will host refugees arriving from Syria. Improving health literacy and increasing community awareness for appropriate utilisation of after-hours services and Emergency Department will be undertaken and will include developing resources for low-literacy consumers and those from specific cultural backgrounds.

Developing Transport Solutions

Inadequate transport has been consistently identified by consumers as one of the major barriers to accessing healthcare services in the NBM region. The PHN will support the mapping and communication of transport options to health services and work with key stakeholders to identify solutions for improving access. The introduction of HealthPathways a software tool that provides clearly defined pathways for local services and care management including referral processes, that is designed collaboratively with the NBM Local Health District, Specialists and Allied Health providers will support this work.

Health Service Integration

Fragmentation across the health sectors has long been recognised as a barrier in creating a seamless patient journey. Within the NBM region, there is a distinct lack of shared clarity around the type and number of programs and services across sectors that support the patient from hospital presentation to admission and then discharge into the primary care space. These care pathways are not well mapped. If they are identified, then they are often not clearly articulated for both consumer and health care provider to navigate effectively. At times this contributes to unnecessary increased hospital presentations and duplication of services, or a clear lack of services.

Where integration is not evident aspects of patient care can be deficient. Patients can get lost in the system, needed services fail to be delivered or are delayed or duplicated, the quality of the care experience declines, and the potential for cost-effectiveness diminishes (Kodner and Spreeuwenberg, 2002).

It is imperative that a more formalised approach to creating an integration framework be developed. It is also important that this be developed jointly with key stakeholders across health sectors to ensure the variant paradigms of healthcare delivery within this region are incorporated. Currently there are a number of integration initiatives across the sectors that often run disparately and unconnected by an overarching framework of shared vision, governance and guiding principles. A unified approach to the development is needed that considers available resources, effective planning with shared goals and a robust evaluation to enhance the best possible outcomes for patients.

The connectedness of an integrated approach would also align well with the quadruple aim; the compass that provides direction to our healthcare system and include better care, more satisfied patients, lower medical costs and improving the work life of those who deliver the health care (Sikka, Moreth, Leape 2015).

The introduction of the HealthPathways tool is an example of the conceptual framework of integration translating into a practical outcome. HealthPathways will enable linkages and collaboration between local clinicians for the development of consistent, local guidelines for use by local clinicians. GPs will participate as clinical leaders and editors of HealthPathways, working closely with the Local Health District, Specialists and Allied Health Professionals and other key stakeholders across sectors to support the development of HealthPathways.

Mental Health

The prevalence of mental health and suicide rates are a key priority for the PHN. Activities for this theme include research and mapping of current mental-health services across the region, including clinical and non-clinical services and researching best practice. New models of care will be explored, such as person-centred and coordinated mental-health care (including referral pathways, intake, triage and follow-up) between the acute and primary healthcare sector.

The establishment of low-intensity mental-health services is a key priority, and will encompass the uptake of digital, telephone and face-to-face services.

Youth mental-health services are a major priority for the region, with a focus on early intervention for children and young people either with or at risk of developing mental illness. In addition, the PHN will address service gaps in the provision of psychological therapies for people in rural and remote areas and hard-to-reach populations. Community based suicide prevention activities will be promoted to support individuals post a suicide attempt and those at risk of suicide, in conjunction with the development of a comprehensive stepped-care approach across the region.

Target groups for this priority theme encompass all age groups, Aboriginal people and CALD and refugee populations, along with people living in disadvantaged areas. NBMPHN will engage consultants to research culturally appropriate social and emotional wellbeing programs and services, and meet with identified Aboriginal community representatives (including Elders) to explore the preferred ongoing mental-health consultation strategy/structure and to understand needs and gaps in mainstream and Aboriginal specific mental health and suicide prevention services.

Alcohol and Other Drugs

Addressing risky drinking and poly-drug use among youths will be a key activity for the PHN. This work will partner with the NBMLHD in development of approaches and co-design together with NGOs currently providing support and counselling to youth in the region. This activity seeks to develop local initiatives among existing providers primarily via capacity building to improve targeting and coordination of early intervention programs for youth concerning binge drinking and other risky behaviours involving substance use, especially methamphetamine use.

Capacity building of the health and community workforce will involve coordination and integration of services to respond to drug and alcohol problems, especially those related to methamphetamine use. A high-priority need is the increasing complexity involved in working with people using substances, in particular the increased use of methamphetamine and associated behaviour problems. Non-residential rehabilitation programs are a high-priority service needs gap and appropriate models for the region will be explored and developed.

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