



South West Sydney: Our Health

An in-depth study of the health of the population now and into the future



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1. Executive Summary

South West Sydney is growing and changing. As a result, the South Western Sydney Local Health District (SWSLHD) and South Western Sydney Primary Health Network (SWSPHN) have developed an indepth health needs analysis of the population. This needs assessment outlines the health of the population today – but also outlines the health of the population into the future.

This needs assessment will inform future health planning in the South West Sydney and presents a significant opportunity for the LHD and PHN to ensure that the allocation of health resources reflects the key health needs of the people of the South West.

South West Sydney: Our Health in 2018 - in brief is a companion report to this document -
South West Sydney: Our Health in 2018 – an in-depth study of the health of the population now and into the future.

Key learnings from the Needs Assessment on the population of the South West

The South West is large	Over a million people reside in South West Sydney. A region that covers 12.5% of the New South Wales (NSW) population. The Region combines urban, rural and semi-rural areas and significant national park and conservation areas. The majority of the population reside in the Bankstown, Fairfield and Liverpool Local Government Areas (LGAs).
The South West is growing	Substantial population growth is projected over the next 20 years, driven by the urban development in the Priority Growth Areas: South West Sydney Priority Growth Area, Western Sydney Aerotropolis, Greater Macarthur Growth Area, Wilton and North Wilton Growth Area and Sydenham to Bankstown Corridor.
The South West is young but also has a significantly increasing older population	South West Sydney has a relatively young population profile, with 21% of residents under 15 years of age and a further (14%) in the 15-24 year age range. The region is experiencing rapid population growth which extends across all LGAs, particularly Camden and Liverpool. High fertility rates (2.03) compared to (1.78) for NSW and new urban development are the major sources of population growth. The older population (65+ years) which is currently relatively small with 126,720 people or (13%) of the whole population will grow by (74%) by 2031 with additional 94,000 people.
The South West is diverse	South West Sydney is characterised by its diversity. About (43%) of the population were born overseas compared with (34.5%) for NSW. In Fairfield LGA, (75%) of residents speak a language other than English at home, followed by, Bankstown and Liverpool LGAs where (62%) and (59%) of residents speaking a language other than English at home, respectively. The region has been over a number of years, a settlement

	<p>area for humanitarian entrants and refugees. Aboriginal people make up (2.1%) of the South West Sydney's population compared with (3.4%) for NSW. It is estimated that about 22,844 people in South West Sydney are part of the Lesbian, Gay, Bisexual, Transgender and Intersex (LGBTI) community.</p>
<p>The South West has pockets of disadvantage</p>	<p>There are pockets of considerable disadvantage in South West Sydney. Fairfield, Liverpool, Bankstown and Campbelltown LGAs are amongst the most disadvantaged LGAs in metropolitan Sydney. Approximately (9%) of residents live in metropolitan fringe LGAs of Wingecarribee and Wollondilly, many in smaller towns and rural properties. The disadvantage of geographical isolation is accentuated by relatively poor public transport and high dependence on private transport. Transport is also an issue for people throughout the region, particularly in locations of greater socioeconomic disadvantage, such as public housing estates. About 61,100 local residents describe themselves as having a profound disability and over 85,000 people describe themselves as carers of people with a disability. There are an estimated 5,700 people who are homeless or living in insecure housing across South West Sydney. Within South West Sydney, four LGAs Fairfield (25.6%), Campbelltown (34.8%), Canterbury-Bankstown (36.3%) and Liverpool (38.5%) have lower rates of health insurance compared with NSW (51.5%)</p>

Key information highlighted through the needs assessment on the health of the population

The **life expectancy** at birth is (81.1 years) for males and (84.9 years) for females living in South West Sydney, similar to the rest of NSW. About 5,326 South West Sydney residents died in 2016, malignant neoplasms and circulatory diseases accounted for more than a half of all deaths. The rate of premature deaths have decreased in the last 10 years, but remains the highest in metropolitan Sydney

Hospitalisation rates are amongst the highest in NSW, as well as rates for potentially preventable hospitalisations including for **chronic conditions** such as congestive cardiac failure, diabetes complications, chronic kidney disease, asthma, hypertension and dental conditions; and vaccine preventable conditions such as pneumonia and influenza.

A higher proportion of South West Sydney residents aged 16 years and over self-reported high or very high levels of **psychological distress** compared to the rest of NSW (16.1% and 13.4%, respectively). The number of suicide deaths in SWS in 2015 was the second highest reported in metropolitan Sydney after Western Sydney.

Over the five-year period of 2010 to 2014, a higher proportion of new cancer cases in South West Sydney were diagnosed with regional or distant spread than in NSW (39% and 36%, respectively) due to the late presentations and lower cancer screening participation rates.

Indicators in antenatal care for South West Sydney mothers have improved over recent years including presentation at 16 weeks of gestation and decreasing rates of smoking in pregnancy, including smoking rates for pregnant Aboriginal women. A higher proportion of South West Sydney mothers had diabetes in pregnancy either pre-existing or it was diagnosed in pregnancy, compared to the rest of NSW (16.9% and 13.5% respectively).

About (94.7%) of 5 year old children in South West Sydney were fully immunised compared with (93.9%) for NSW. Immunisation rate for 5 year old local Aboriginal children was above the NSW rate.

Refugees settling in South West Sydney are facing a number of health issues including untreated and/or undetected chronic diseases and disability among children and adults; under or lower immunisation; untreated tooth decay; low vitamin D, iron deficiency and under-nutrition.

South West Sydney residents on average have elevated rates of behaviours such as tobacco use, physical inactivity and unhealthy diet that have been linked to poorer health status and chronic disease prevalence such as diabetes, cardiovascular disease and malignant neoplasms. Notification rates of hepatitis B and C are declining. However, hepatitis B notifications for South West Sydney remain between one and a half to two times higher than the NSW average.

In conclusion

The trends and patterns around a number of health indicators for South West Sydney indicate that **demand for health care will continue and will grow** into the future compounded by a rapid population growth and ageing of the population.

2. Introduction

South West Sydney (SWS) covers the south western suburbs of metropolitan Sydney and extends south to the Southern Highlands, an area of 6,243 square kilometres. It includes the seven Local Government Areas (LGAs) of Camden, Campbelltown, Fairfield, Liverpool, Wingecarribee, Wollondilly and of the former Bankstown (now part of Canterbury-Bankstown LGA).

The South Western Sydney Local Health District (SWSLHD) and the South Western Sydney Primary Health Network (SWS PHN) share the same geographic boundaries of South West Sydney. The primary role of local health districts is to deliver high quality, effective services that promote, protect and maintain the health of the community, and provide care and treatment to sick and injured people. South Western Sydney PHN is a not-for-profit health organisation dedicated to supporting general practitioners, practice nurses and other primary health providers to deliver the best possible care for their patients and improve access to quality local health care for the whole community in South West Sydney.

The aims of this document are the following:

1. Describe the health of the South West Sydney population
2. Identify the health challenges of the South West Sydney population now and into the future, noting the significant population and demographic changes
3. Compile knowledge and evidence across South West Sydney to support current and future services planning.

The process of undertaking a needs assessment includes modelling and forecasting activities to inform future morbidity (including prevalence and incidence) and project the future demand for health services. This information is important for future health service planning and resource allocation. It is important to note that projections are not intended to function as exact forecasts, but to give an indication of what might be expected if the stated assumptions were to apply over the projection time frame, projections should therefore be interpreted with this in mind.

In addition, detailed case studies will inform specific topics such as Aboriginal Health, Refugee Health, Ageing and Mothers and Babies.

3. Our Population

3.1 Demographics

3.1.1 Region and Population Characteristics

The south west region of metropolitan Sydney includes seven LGAs: Bankstown ¹, Fairfield, Liverpool, Campbelltown, Camden, Wollondilly and Wingecarribee. It covers a land area of 6,243 square kilometres. The region combines urban, rural and semi-rural areas.

The Region's residential population in 2016 was 966,450 residents, which accounts for approximately 12.5% of the New South Wales population.[1] The population has since grown to over a million people in 2018 however for the purposes of this document, the 2016 ABS information will be used.

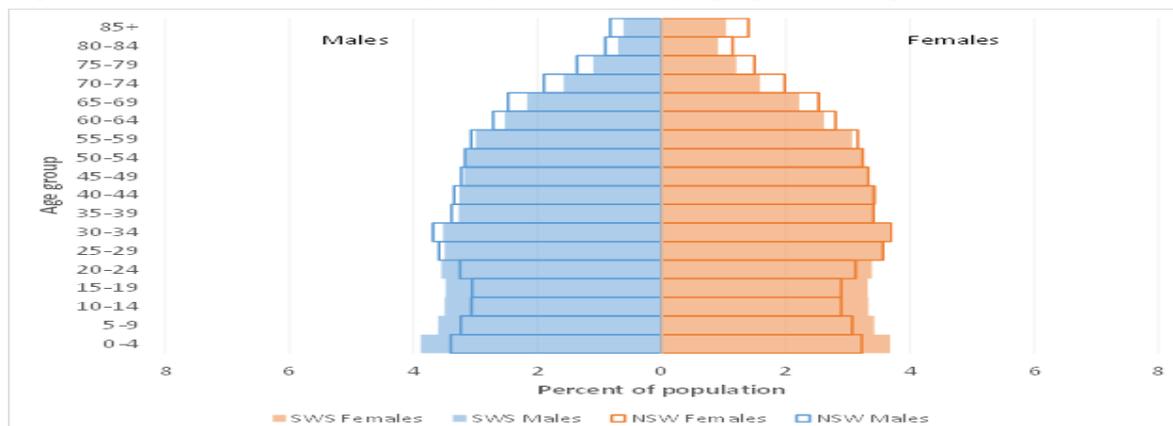
Figure 1: Proportion of SWS Region population by gender, 2016



Source: ABS 2016, Population by age and sex

The proportion of women is slightly higher than that of men. The difference of 1.6% between genders is higher for the South West Sydney than the 0.3% for NSW. The age structure of South West Sydney reflects a combination of LGAs with more younger population (0-14) such as Camden, Liverpool and Wollondilly and other LGAs with more older population (70+) such as Wingecarribee.

Figure 2: NSW and South West Sydney population by age group and gender, 2016



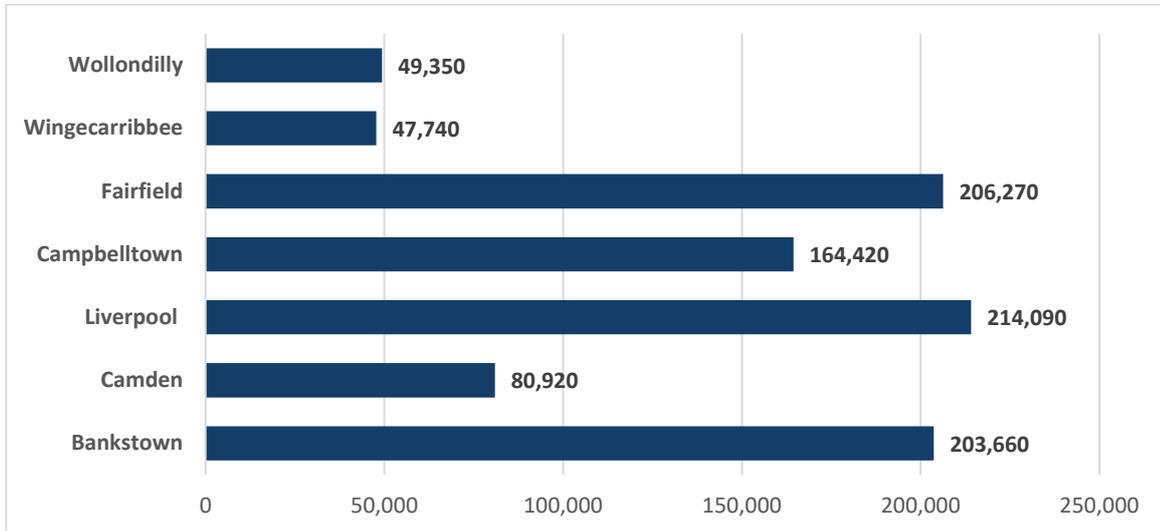
Source: ABS 2016 Census of Population and Housing

South West Sydney has a relatively younger population profile compared to NSW as a whole, with a median age of 35 years compared to 41 years for NSW. It has a greater proportion of people under 15 years of age compared to NSW. Adults 25-64 years of age account for 51.7% of the

¹ It should be noted that recent local government amalgamations have resulted in the creation of Canterbury-Bankstown Council (formerly Bankstown and Canterbury). Depending on the data source used, references contained in this document in relation to Bankstown LGA may vary. Any references to Bankstown LGA are related to Bankstown LGA prior to the amalgamation.

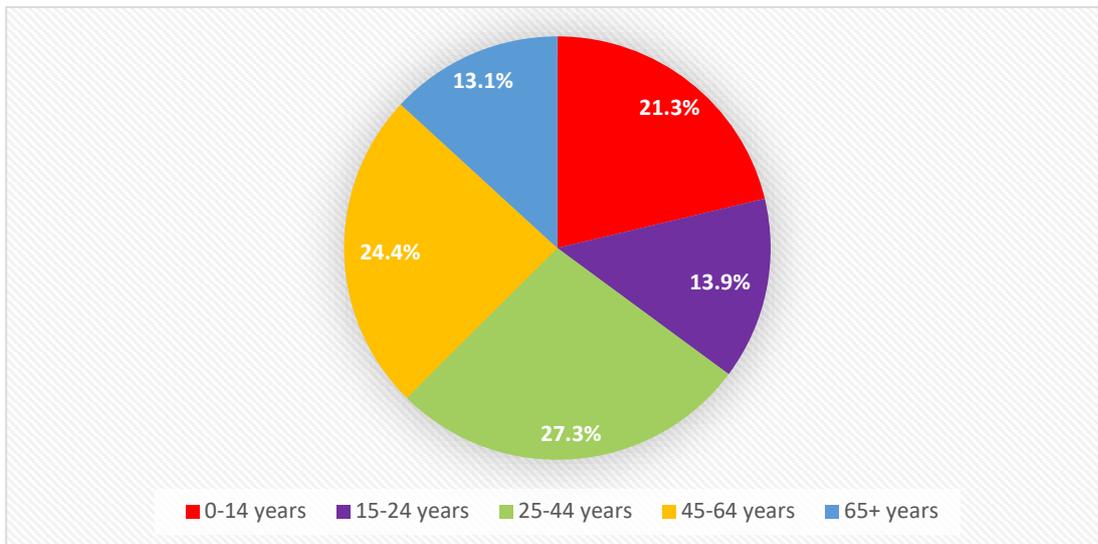
SWS's population, children 0-14 years of age account for 21.3% and people over 65 years of age account for 13.1% of the population.

Figure 3: South West Sydney Population by LGA, 2016



Source: ABS 2016 Census of Population and Housing

Figure 4: Proportion of age groups in South West Sydney, 2016



Source: ABS 2016 Census of Population and Housing

3.1.2 Population growth

Demographic changes such as births, deaths and migration determine the size of the population. Housing development influences where that changing population will be accommodated and represents a key driver of local population growth.

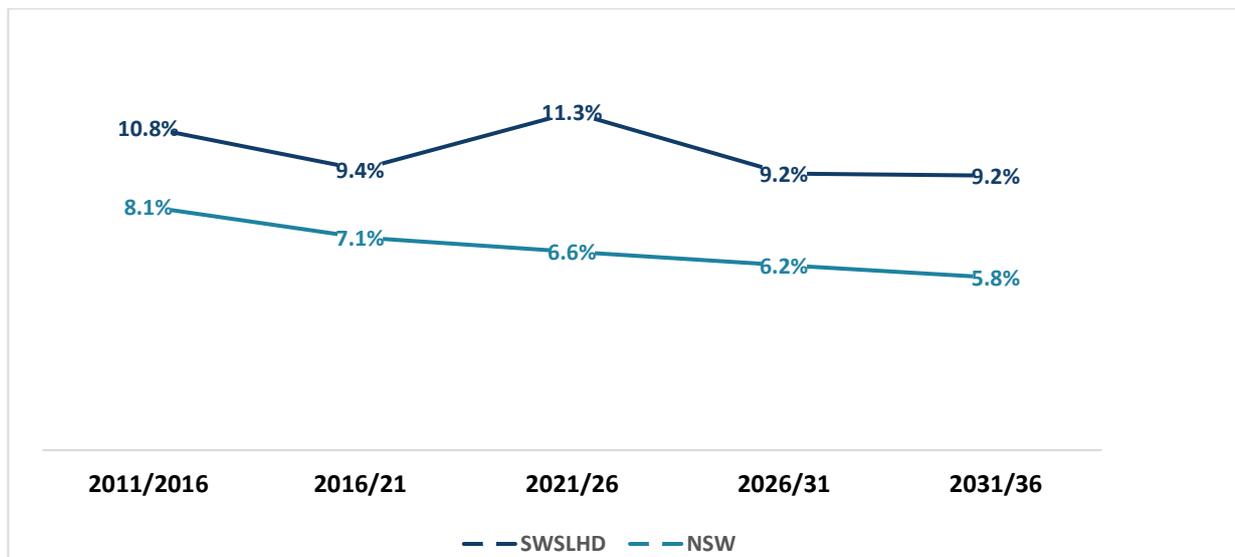
There are three types of housing development that drive change:

1. Greenfield development – where land is repurposed, usually from agricultural uses, and is given over to housing;

2. Brownfield development – where areas of a city are converted from other uses to residential, such as an old industrial site, or a golf-course; and
3. Urban intensification – where medium- and high-density units and apartments start to replace detached low-density housing.

South West Sydney is one of the fastest growing regions in the state, driven mostly by greenfield developments and urban intensification,

Figure 5: Projected population growth in South West Sydney and NSW, 2016-2036i



Source: Department of Planning and Environment 2016 New South Wales State and Local Health District Population

The population growth in South West Sydney between 2016 and 2036 is consistently much higher when compared to NSW. Between 2021 and 2026, the SWS population is projected to grow by 11.3% as a result of the increase in housing development and release of land in the South West Growth Area. South West Sydney is forecast to have an increase in almost 42,000 new housing units in the five years up to 2021-22ⁱⁱ, of which 12,350 will be in Camden LGA.

NSW Department of Planning and Environment Population Projections 2016 indicate that the population of South West Sydney will increase from 875,763 persons in 2011 to 1,402,810 in 2036. This is an increase of 60% compared to 37% for NSW, with the highest population growth in Camden LGA which will grow almost four times by 2036 from its population size in 2011.

Significant Population Growth in South West Sydney

The Western Sydney District Plan is a 20-year plan developed by the Greater Sydney Commission which outlines the future growth of the region in the context of economic, social and environmental matters to achieve the 40-year vision for Greater Sydney. The Western City District covers the Blue Mountains, Camden, Campbelltown, Fairfield, Hawkesbury, Liverpool, Penrith and Wollondilly local government areas. The NSW Department of Planning and Environment's projections of population and household growth in the Western City District translate to a need for an additional 184,500 homes between 2016 and 2036. Over the past ten years the District has had an annual average dwelling completions rate of 4,527. Forecast

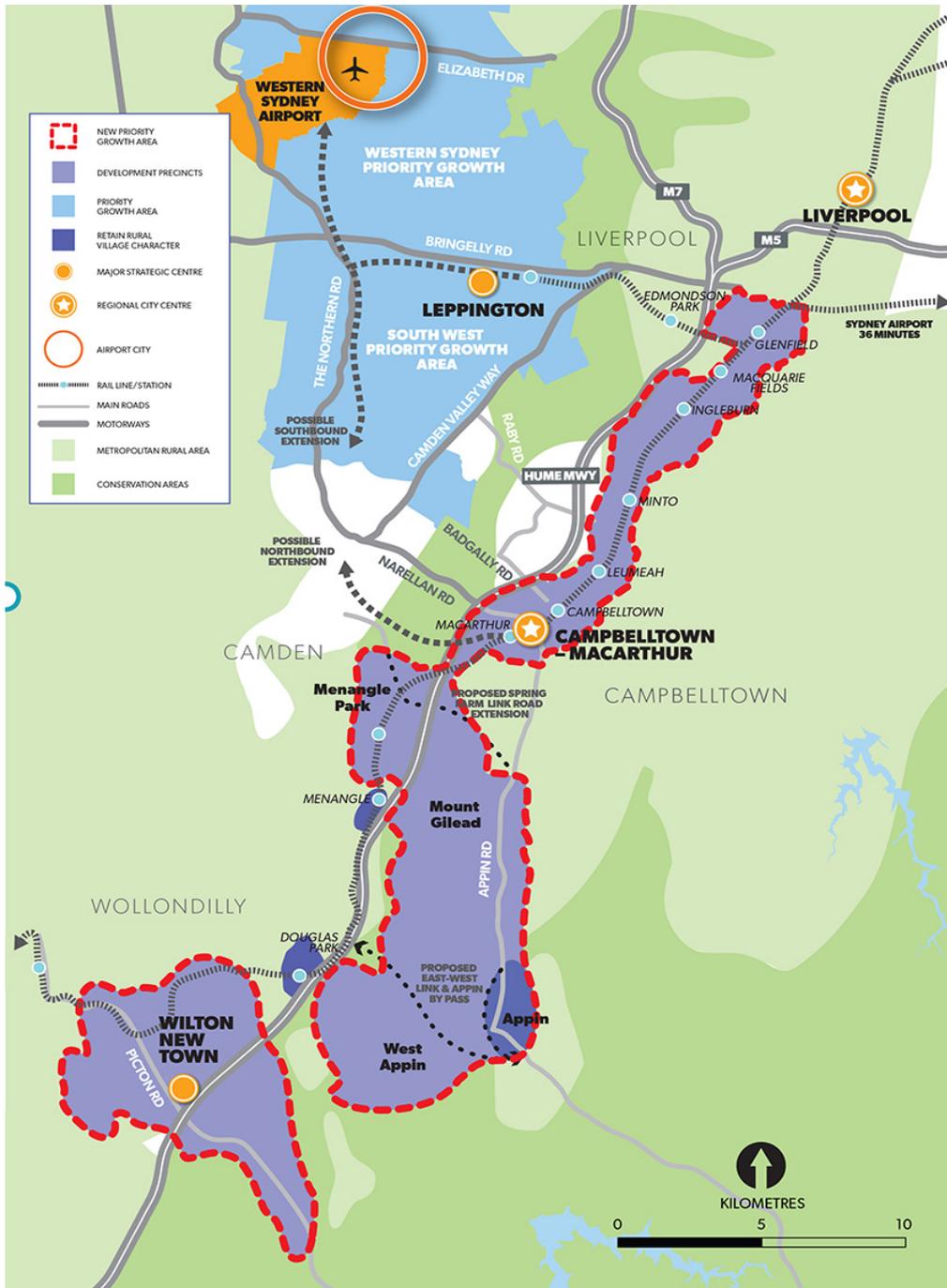
supply of housing growth in the District has identified the potential for dwelling completions above this annual average in the next 5 years.

Bankstown and Wingecaribee sit outside of the Western Sydney District with Bankstown part of the South District and Wingecaribee outside of the Sydney metropolitan region.

Additional capacity for housing supply is well progressed across much of the South West Sydney, including the State-led projects through the Priority Growth Areas:

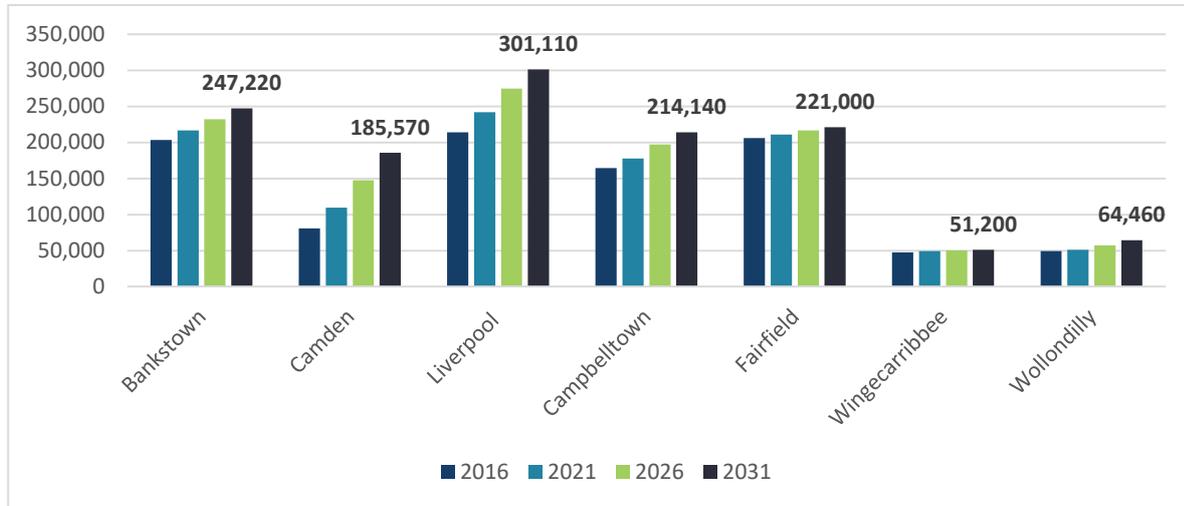
- **South West Priority Growth Area** - New communities in precincts like Oran Park, Turner Road, East Leppington, Austral and Leppington North, Edmondson Park and Catherine Fields will be built and there is also planning for new communities in Lowes Creek and Marylands. This area includes the planned second Sydney airport at Badgerys Creek and the Broader Western Sydney Employment Area. Significant government investment in major infrastructure in this region includes the Camden Valley Way, Bringelly Road, Northern Road upgrades and the South West Rail Link.
 - **Western Sydney Aerotropolis** is the site for the proposed Western Sydney Airport is located within the Liverpool LGA and South West Sydney, with Liverpool Hospital being the closest tertiary level hospital. The Badgerys Creek airport is predicted to cater for 10 million passengers per year by 2030, increasing to 82 million by 2063. There will be an estimated 8,730 direct jobs generated at the proposed airport in 2031 and over 30,000 additional jobs by 2060. Indirect employment around the airport site could contribute an additional 30,000 jobs by 2060. The area will also include extensive new housing
 - **Greater Macarthur Growth Area** comprising of Glenfield to Macarthur Corridor – including Precincts at Glenfield, Macquarie Fields, Ingleburn, Minto, Leumeah, Campbelltown and Macarthur, as well as Menangle Park, Gilead and Appin. The Greater Macarthur Growth Area supporting the regional city of Campbelltown-Macarthur will include urban precincts centred on the rail corridor. It will also include new land release areas to provide homes and jobs over time.
 - **Wilton and North Wilton Growth Area** will include 16,000 new homes which will be built over the next 30 years. The Growth Area will be focused on a new town centre which will provide shops and services for the growing community as well as employment opportunities for people living in the area.
 - **Sydenham to Bankstown Corridor**- The South District Plan includes LGAs of Canterbury-Bankstown, Georges River and Sutherland and development of a health and education precinct in the Bankstown strategic centre, which both co-locates health and education facilities, and integrates these facilities with enhanced future transport connections.
- The Sydenham to Bankstown Urban Renewal Corridor Strategy** plans for 35,400 new homes and 8,700 jobs over the next 20 years and infrastructure to support the future community's needs.

Map 1: The South West Growth Corridor



Source: Western City District Plan 2018, Greater Sydney Commission

Figure 6: Projected population growth in South West Sydney by LGA, 2016-2031



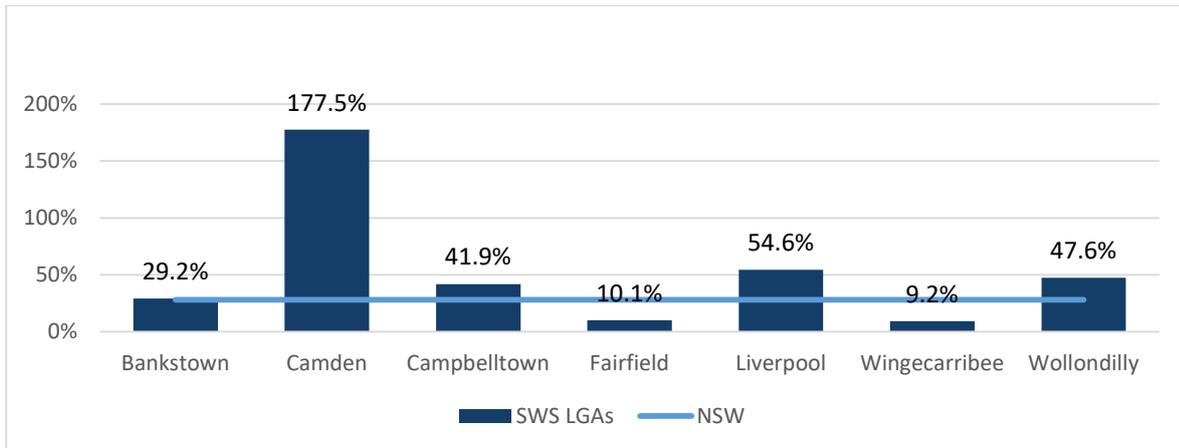
Source: Department of Planning and Environment 2016 New South Wales State and Local Health District Population

All LGAs across South West Sydney will experience population growth over the next fifteen years from 7.2 % in Fairfield LGA to more than double growth in Camden LGA. The Macarthur region which includes Camden, Campbelltown and Wollondilly LGAs will experience the most rapid population growth of 58% by 2031 due mainly to the growth in greenfield areas. The population growth across LGAs to 2031 will include:

- Camden LGA - additional 104,650 people or an increase of 129.3%
- Liverpool LGA - additional 87,020 people or an increase of 40.7%
- Wollondilly LGA - additional 15,110 people or an increase of 30.6%
- Campbelltown LGA - additional 49,720 people or an increase of 30.3%
- Bankstown LGA - additional 43,560 people or an increase of 21.4%
- Wingecarribee LGA - additional 3,280 people or an increase of 6.9%
- Fairfield LGA - additional 14,280 people or an increase of 7.2%.

It is expected that between 2016 and 2036, all SWS LGAs except Wingecarribee and Fairfield will experience higher population growth than the rest of the state.

Figure 7: Projected population growth (%) in South West Sydney by LGA and NSW, 2016-2036

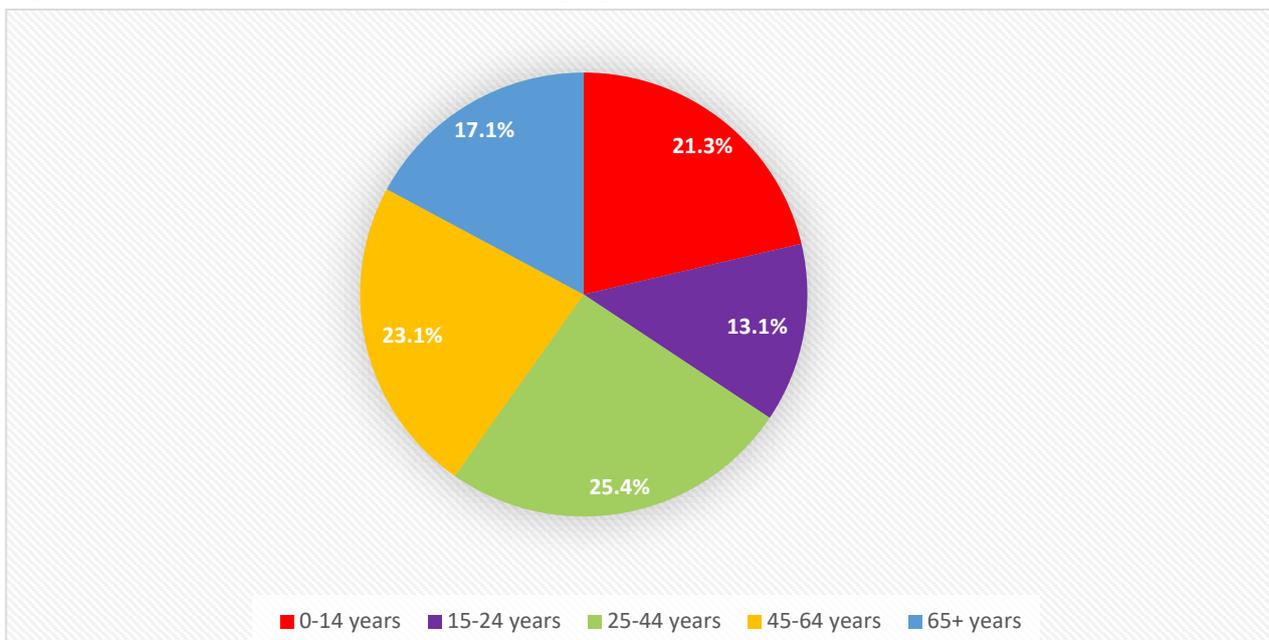


Source: 2016 New South Wales State and Local Health District Population Projections

South West Sydney population growth from 2016 – 2036 is expected to be 45%, which is almost double the growth rate for NSW (28%). Population growth will increase demand on health services in the Region putting additional pressures on the existing infrastructure and workforce limitations of SWS.

It is estimated that by 2031, the working age population (15 to 64 years) will make up the majority of the population (61.6%) followed by children aged 0-14 years (21.3%) and people over 65 years of age (17.1%). The biggest change from 2016 in terms of the proportion of age cohorts within SWS will be for people over 65 years of age and for those 25-44 years of age.

Figure 8: Proportion of the population by age group in South West Sydney, 2031



Source: 2016 New South Wales State and Local Health District Population Projections

3.2 Population Groups

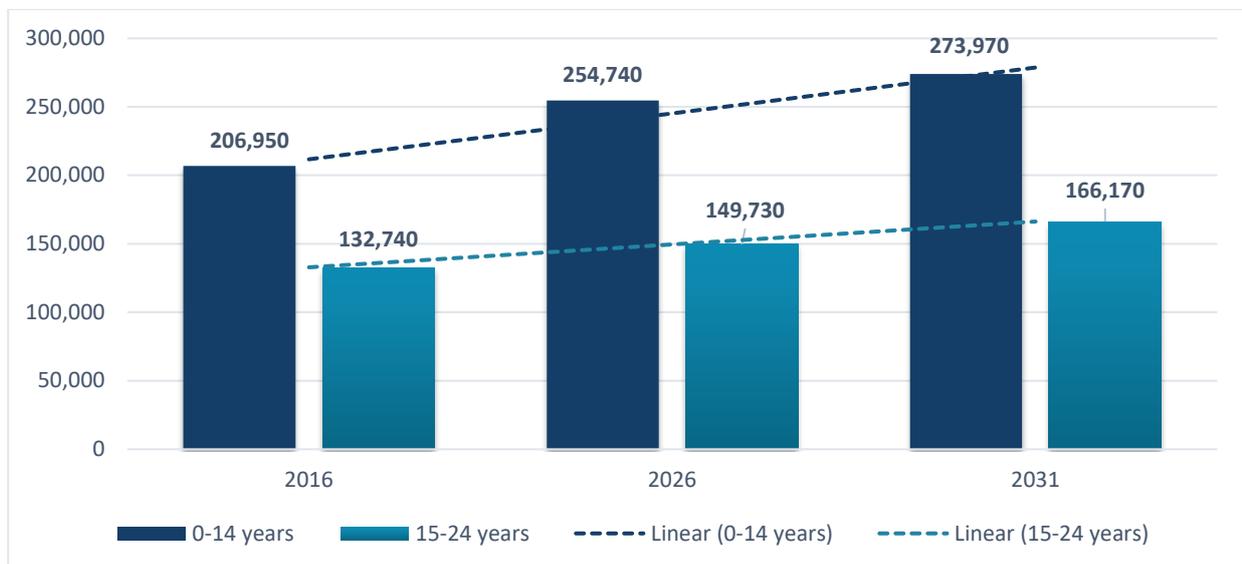
3.2.1 Children and Youth

In 2016, 206,950 children (0-14 years of age) resided in South West Sydney, which represented 21.3% of the population compared with 18.5% for NSW.

It is expected that number of children will increase by 33.4% with an additional 67,020 children by 2031 [1] compared with an increase of 19.3% for the state. SWS has the second highest increase in the proportion of infants and young children in NSW. This growth is due to the high birth rate, new housing developments and settlement of young families in the Region. Within South West Sydney in 2016, Liverpool (47,960), Bankstown (44,290) and Fairfield LGAs (41,050), have proportionally large cohorts of population under 14 years of age, while Wingecarribee and Wollondilly LGAs have a smaller proportion of children (4% or 8,406 and 5% or 11,090 children, respectively). The highest increase of 128% in a number of children by 2031 is expected in Camden LGA, from 18,320 children in 2016 to 41,850 children in 2031.

It is estimated that 132,740 young people 15 -24 years resided in SWS in 2016 which made up 13.9% of the Region's population compared with 12.5% for the state. It is expected that this age cohort will increase by 33,430 additional young people (24.8%) by 2031[1].

Figure 9: Children and young people projected population growth in South West Sydney, 2016-2031



Source: 2016 New South Wales State and Local Health District Population Projections

Childhood, adolescence and young adulthood are important stages in an individual's life and set the foundations of health in later life.

The majority of young people report having good health and they utilise health services at a much lower rate than other age cohorts. Consistent with general health equity issues, some groups of young people have poorer health than their peers, usually those from Aboriginal, low socioeconomic and refugee backgrounds and other disadvantaged groups in the community.

The main health issues, including health behaviours, of children and young people will be described later in the document.

3.2.2 Adults

Adults are people between 25 and 64 years of age. It is estimated that in 2016 in South West Sydney, 482,604 (51.7%) of the residents are adults 25-64 years of age, similar to NSW (49.2%). It is expected that this age cohort will increase to 601,784 people by 2031, an increase of 24.7%, which is much higher than the predicted increase of 14% at the state level. It is projected that in 2031, adults will make up 48.5% of the total SWS population. The proportion of women of reproductive age (15-44 years) currently accounts for 20.9% of the total SWS population, similar to 20.1% for the state. The number of women of reproductive age in SWS is projected to increase by 27.6% by 2031, double the state growth for this group.

Illness and poor health during adulthood can significantly reduce earning capacity, resulting in social and economic consequences. Adulthood is a time when chronic health conditions begin to emerge and where past lifestyle choices and behaviours start to impact on an individual's future health.

The most common health conditions among adults 25-44 years are vision problems, allergies (hay fever), back pain and mental health issues such anxiety, depression, suicide and intentional self-harm.

People 44-64 years of age are more likely to experience chronic diseases than younger adults, including coronary heart disease, osteoarthritis and other musculoskeletal conditions; mental health conditions and common cancers such as lung and breast cancer.[2] Some of these health conditions will be described in more detail in the section on chronic conditions in the document.

3.2.3 Older Adults

Older adults are those aged 65 years and over for non-Aboriginal and 50 years and over for Aboriginal population. This reflects the life expectancy gap between Aboriginal and non-Aboriginal adults. The proportion of the Aboriginal population aged 65 years and over (4.8%) is lower than that of the non-Aboriginal (13.2%). It is estimated that in 2016, in South West Sydney, about 126,720 people were older adults. The largest distribution of older adults across South West Sydney is in Bankstown and Fairfield LGAs, followed by Liverpool LGA, while proportionally about 24.7% of Wingecarribee LGA population are people over 65 years of age. In the Region, 1 in 3 older people were born in a non-English speaking country.

It is expected that number of people over 65 years of age will reach up to 220,620 by 2031, an increase of 74%. The growth over the next fifteen years is expected to be particularly significant amongst those over 85 years of age, with an increase of 92% with additional 14,660 people.

Table 1: Older population distribution in South West Sydney and by LGA, 2016

LGA	No of older population	% of LGA population	% of SWS older population
Bankstown	29,250	14.4%	23.1%
Camden	8,700	10.8%	6.9%
Campbelltown	19,400	11.8%	15.3%
Fairfield	28,460	13.8%	22.4%
Liverpool	22,720	10.6%	17.9%
Wingecarribee	11,800	24.7%	9.3%
Wollondilly	6,390	12.9%	5.0%
Total	126,720	100%	100%

Source: NSW Department Planning and Environment 2016 State and Local Government Area Population and Household Projections and Implied Dwelling Requirements.

Geographically, the most significant increase in older population over the next fifteen years will be in the Macarthur region: Camden (181.5%), Campbelltown (83.1%) and Wollondilly (81.9%) LGAs; followed by Liverpool LGA (94.9%). Chronic diseases are likely to become more prevalent as the population ages, along with the number of people with multiple long-term conditions. The leading causes of burden of disease among older people are coronary heart disease, stroke, chronic obstructive pulmonary disease (COPD), musculoskeletal conditions and dementia. More information on health issues among older population will be described later in the document in the Section on *Older People*.

3.2.4 Aboriginal People

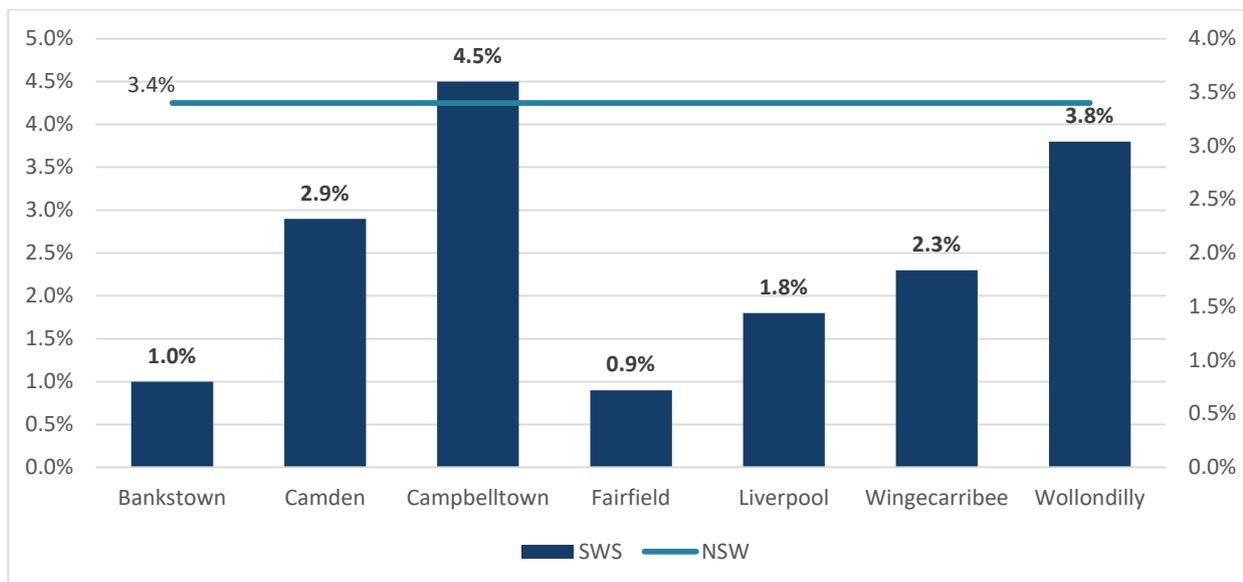
Table 2: Proportion of Aboriginal population, NSW and SWS, 2016

NSW	SWS
<ul style="list-style-type: none"> 3.4% of population 	<ul style="list-style-type: none"> 2.1% of population Campbelltown 4.5% of the LGA population Wollondilly 3.8% of the LGA population

Source: ABS 2016 Census of Population and Housing.

In 2016, about 20,181 of the SWS population identified as Aboriginal people representing 7.7% of the NSW Aboriginal population and 2.1% of the total South West Sydney's population compared with 3.4% for NSW. This is an increase of 7,000 Aboriginal people from the Census 2011.

Figure 10: Proportion of Aboriginal population in South West Sydney by LGA, 2016



Source: ABS Census 2016 of Population and Housing

There are considerable variations between LGAs in the proportion of the population identifying as Aboriginal. In SWS more than a half of the Aboriginal population live in the Macarthur Region, mainly in Campbelltown 36.3%, and further 18.7% in Liverpool LGA (Table 3).

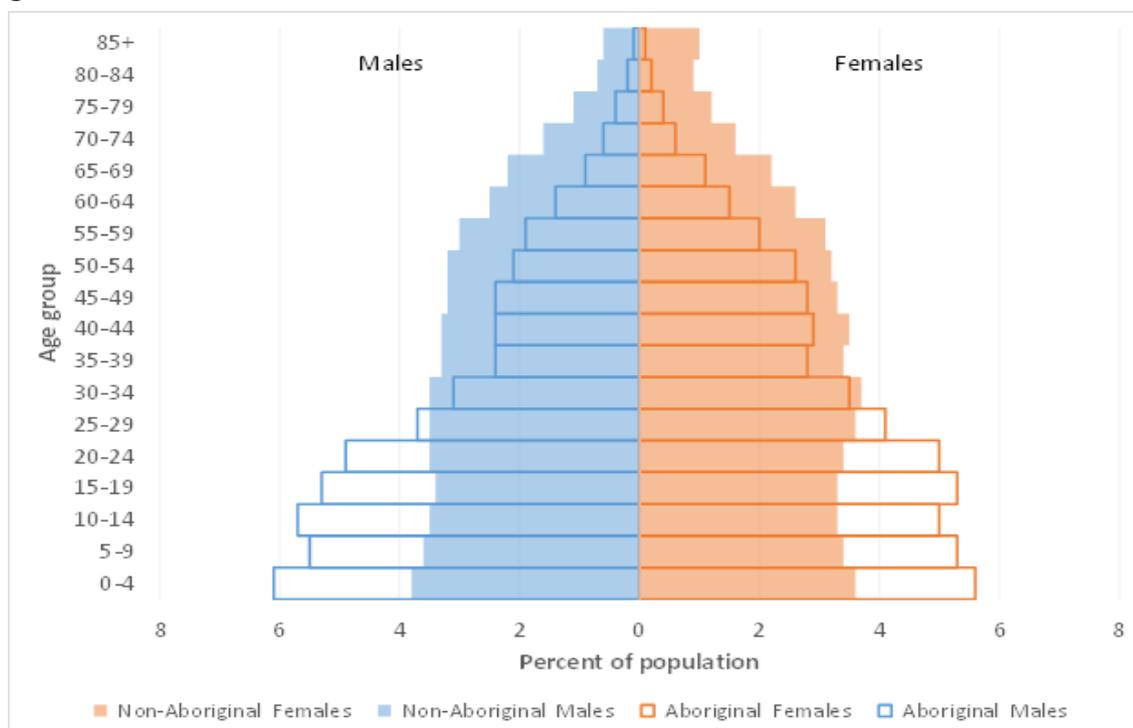
Table 3: Aboriginal population distribution in South West Sydney and by LGA, 2016

LGA	Aboriginal population	% of Aboriginal people as a % of LGA population	% of SWS Aboriginal population
Bankstown	1,962	1%	9.7%
Camden	2,299	2.9%	11.4%
Campbelltown	7,344	4.5%	36.3%
Fairfield	1,782	0.9%	8.8%
Liverpool	3,771	1.8%	18.7%
Wingecarribee	1,148	2.3%	5.7%
Wollondilly	1,875	3.8%	9.3%
Total	20,181	2.1%	100.0%

Source: ABS Census 2016 of Population and Housing

The age profile of the Aboriginal community in SWS reflects the same pattern as for Australia and NSW. The Aboriginal population in NSW and SWS is characterised by large proportion of children and a small proportion of older people compared to the non-Aboriginal population, which implies a higher fertility rate, higher death rate, and shorter life expectancy compared to the non-Aboriginal population (Figure 11).

Figure 11: Aboriginal and non-Aboriginal population in South West Sydney by age group and gender, 2016



Further in-depth description of demographic and health indicators for Aboriginal population in SWS will be presented later in the document in the *Areas of Focus*.

3.2.5 People from Culturally and Linguistically Diverse Backgrounds

Table 4: Cultural diversity, NSW and SWS, 2016

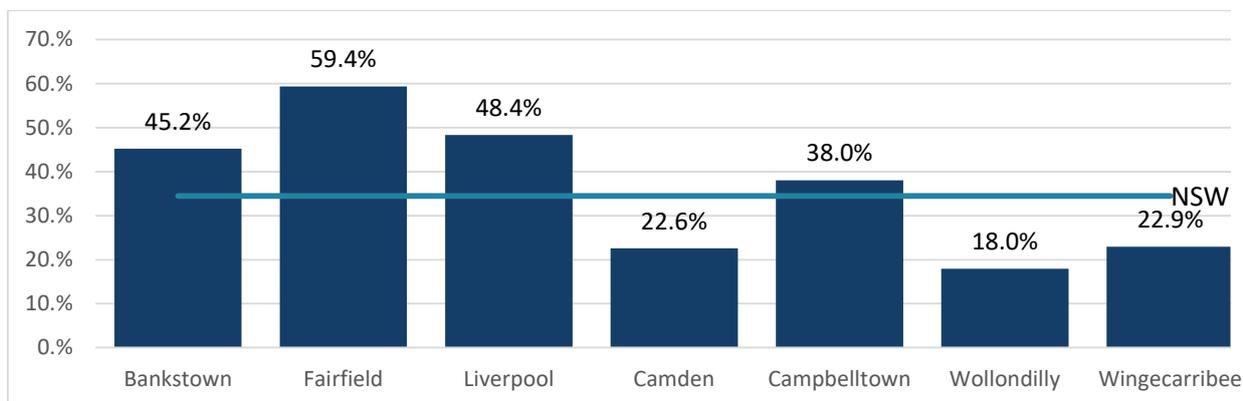
NSW	SWS
<ul style="list-style-type: none"> • 34.5% population born overseas • 25.2% speaks a language other than English at home • 4.5% speaks English 'not well or not at all' 	<ul style="list-style-type: none"> • 43.3% population born overseas • 45.3% speaks a language other than English at home • 9.9% speaks English 'not well or not at all'

Source: ABS 2016 Census of Population and Housing.

South West Sydney communities are culturally and linguistically diverse (CALD), with 43.3% of residents born overseas compared with 34.5% for NSW.

Four (Fairfield, Liverpool, Bankstown and Campbelltown LGAs) out of the seven SWS LGAs had a higher proportion of their residents born overseas compared with NSW. While more than 59% of people in Fairfield were born in another country, 22.6% in Camden, 23% in Wingecarribee and 18% in Wollondilly were born overseas (Figure 12).

Figure 12: Proportion of overseas born South West Sydney residents by LGA, 2016



Source: ABS 2016 Census of Population and Housing.

The highest growth in the overseas born population between 2011 and 2016 was recorded in:

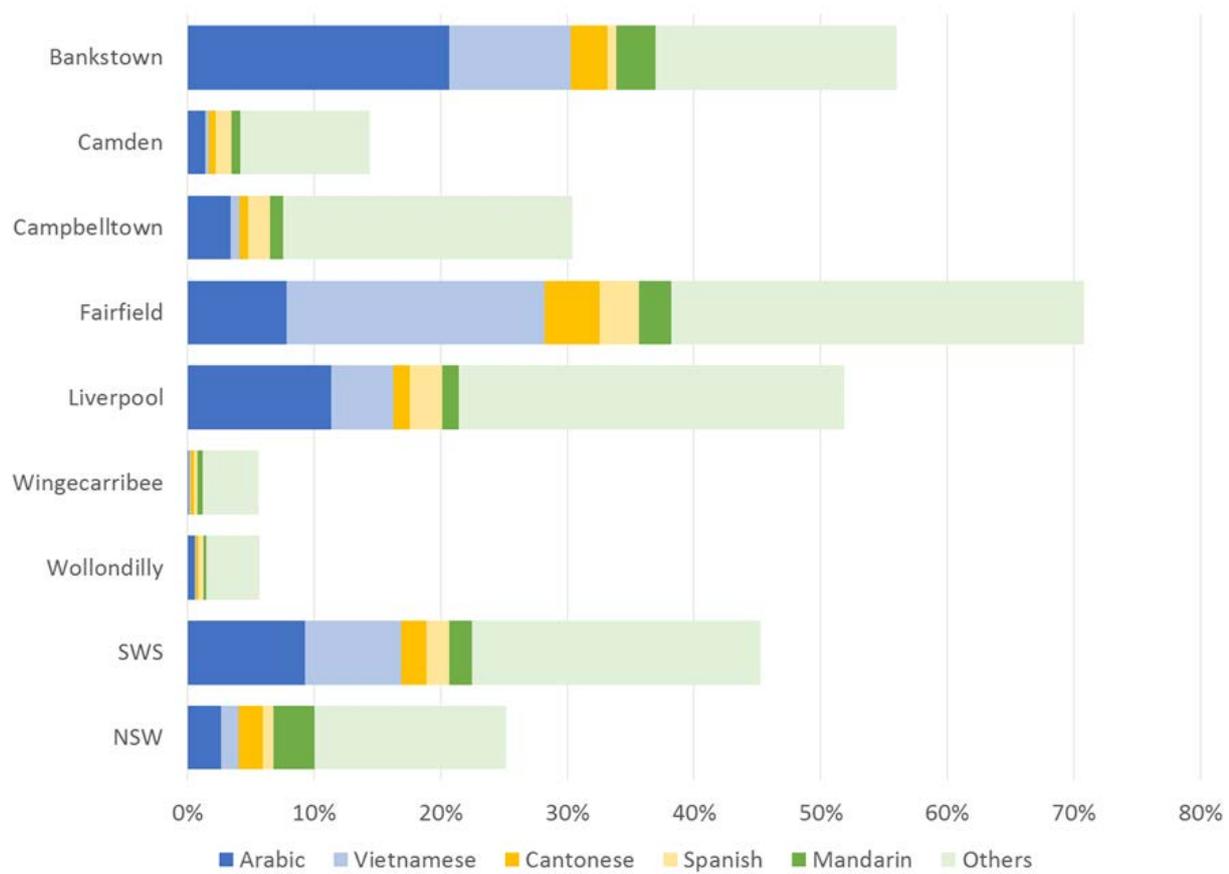
- Camden LGA with an increase of 6,476 more people born overseas (57.8%), and the number of people from a non-English speaking background increased by 5,243 (72%); and
- Wingecarribee LGA with an increase of 2,158 overseas born people (24.5 %), and the number of people from a non-English speaking background increased by 1,729 (37%).

Key aspects of cultural diversity in SWS (derived from the 2016 ABS Census) include:

- Over 43% of Arabic speaking population and over 68% of Vietnamese speaking population in NSW reside in SWS.
- About 77% of Iraqi born population in NSW resides in South West Sydney. Majority of Iraqi born population came as refugees to Australia.
- Arabic is the most commonly spoken language other than English (LOTE); spoken by over 86,751 people from 25 different countries, followed by Vietnamese (spoken by 71,000 people) and Mandarin/ Cantonese (spoken by 39,500 people).
- About 70.8% of population in Fairfield LGA (140,720 people) speak a language other than English at home, whereas in Wollondilly and Wingecarribee the figure is less than 6%.
- Fairfield and Canterbury-Bankstown LGAs are among the top five LGAs in NSW for a number of people born overseas.
- Pacific Island communities are a large and growing group in SWS. There is a large Samoan community in Campbelltown LGA (2.2 % of the population compared with 0.2% for NSW).

The largest proportion of Arabic speakers live in Bankstown (20.7%) and Liverpool (11.4%) and the largest proportion of Vietnamese speakers live in Fairfield (20.4%) and Bankstown (9.6%). There is a considerable proportion of other languages spoken by SWS residents and distributed across LGAs (Figure 13). Other languages spoken in SWS include Hindu, Italian, Greek, Samoan and Serbian and other languages spoken by a smaller proportion less than 1% of the population.

Figure 13: Main languages other than English spoken by South West Sydney residents, by LGA, 2016



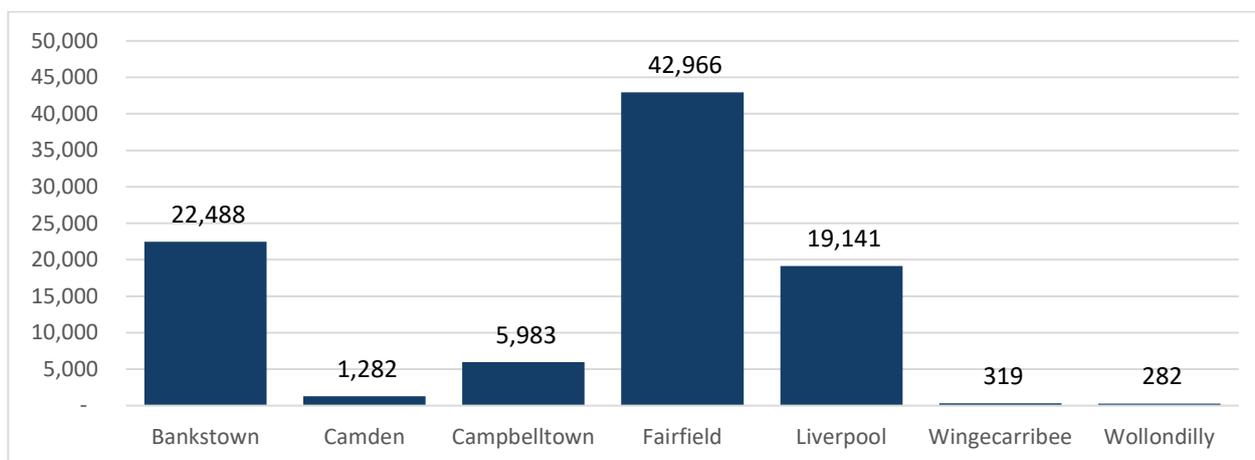
Source: ABS 2016 Census of Population and Housing

Proficiency in English measures the self-assessed proficiency in spoken English of people who speak a language other than English at home. Of SWS residents with a primary language other than English, 9.5% or 92,461 people have limited English proficiency (self-reported of speaking English ‘not well or not at all’).

English language proficiency varies across SWS with one fifth of Fairfield LGA residents and around 10% of Bankstown and Liverpool LGA residents reporting they “speak English not well or not at all” compared with 4.5% for NSW (Figure 14).

Previous studies have reported that individuals with limited English language proficiency have more difficulty in gaining access to health care compared to English proficient individuals.[3]

Figure 14: Number of South West Sydney residents who speak English 'not well or not at all' by LGA, 2016



Source: ABS 2016 Census of Population and Housing

As a population group, immigrants often have lower mortality rates and self-reported chronic conditions than Australian-born residents. This 'healthy migrant effect' could be partly due to health screenings people must pass before migration. However, culturally and linguistically diverse populations are a heterogeneous group with different health experiences. For example, in 2016, compared with Australian born people, people born in Vietnam and China had significantly lower rates of potentially preventable hospitalisation (14.4 and 6.8 and 5.2 per 1,000 population age standardised) while people born in Italy had higher rates (12.4 per 1,000 population age standardised).[2]

3.2.6 Refugees and Humanitarian Arrivals

Table 5: Refugee settlement, NSW and SWS, 2012-2016

NSW	SWS
<ul style="list-style-type: none"> About 27,960 refugees 	<ul style="list-style-type: none"> 15,658 (56%) of NSW intake 10,390 settled in Fairfield 3,899 settled in Liverpool

Source: Settlement Report: <http://www.immi.gov.au>

Refugees and humanitarian entrants represent a subsection of the CALD population. The annual number of refugees and humanitarian entrants entering Australia under the Australian Refugee and Humanitarian Program has fluctuated over time. The current base level intake of 13,750 refugees will increase to 18,750 by 2018-19 which doesn't include the planned special intake of 12,000 refugees from Syria. It is anticipated that an additional 6,000 refugees from Syria will settle in NSW over next two years. The majority of humanitarian entrants who arrive in NSW tend to settle in the South West Sydney and Western Sydney.

The majority are refugees selected from overseas, although some visas are also given to people who have been recognised as refugees after arrival in Australia as asylum seekers. About 15,658 humanitarian entrants (56%) of the state intake have settled in SWS between 2012 and 2016, predominantly in Fairfield, Liverpool and Bankstown LGAs.

Fairfield LGA was the single largest area of residence for refugees, with one in five humanitarian entrants settling in the area over the past five years, mainly from Iraq (+ 4,201 people) and Syria (+1,535 people). Other refugee source countries include Afghanistan, Burma, Lebanon and Iran.

About 6,541 refugee entrants settled in NSW under the Humanitarian Resettlement Program in 2017, which represents 39% of refugees settled nationally. Out of 6,541 refugees who settled in NSW, 63% settled in South West Sydney, predominantly in Fairfield and Liverpool LGAs (59.3%).

Historically, Wingecarribee and Wollondilly LGAs have not been places for refugee settlement (Table 6).

Table 6: Place of residence for humanitarian entrants and refugees in South West Sydney by LGA, 2017

LGA	Number of humanitarian entrants	% of SWS humanitarian entrants
Bankstown	190	2.9%
Camden	7	0.2%
Campbelltown	47	0.7%
Fairfield	2,798	42.8%
Liverpool	1,076	16.5%
Total SWS	4,118	63% of NSW intake

No refugees have settled in Wingecarribee and Wollondilly LGAs for the given period.

Source: Settlement.data.request@dss.gov.au accessed on 16 March 2018.

Further description of health issues and refugee population will be presented later in the document.

3.2.7 Lesbian, Gay, Bisexual, Transgender and Intersex Communities

Collectively, Lesbian, Gay, Bisexual, Transgender and Intersex (LGBTI) people are recognised as a specific minority population group. Individually, they come from all walks of life and are part of all other population groups. How LGBTI people identify themselves is influenced by many factors, including their age, ethnicity, socioeconomic position and their lived experiences and relationships with others. Data on LGBTI communities are not generally collected. The 2016 Census has provided data on the same-sex couples for the Greater Sydney. According to the Australian Population Survey on Sexual Identity (2003), 2.6% of its male participants identified as other than heterosexual, as did 2.3% of female participants. [4]

Due to the lack of data to indicate LGBTI persons, per head population count is applied for each LGA in the South West Sydney and for NSW for the current period and projected forward. In 2016, the estimated number of LGBTI persons in SWS was 22,844 (comprising of 11,947 males and 10,897 females), and 183,103 persons in NSW.

Research on LGBTI health has noted that LGBTI populations have reported higher rates of psychosocial distress (28% compared with 11% by heterosexuals), higher incidence of substance abuse (42% compared with 14% by heterosexuals), higher rates of sexually transmitted infections (40% reported condom use compared with 48% by heterosexual men) and self-harm and suicide (the highest rates of suicidality compared with any population in Australia).[5] Health and access

to health care services are adversely affected by social marginalisation, with up to 30% of LGBTI adults not seeking health care services or lacking a regular health service provider, compared with 10% of the non-LGBTI population.[6]

It is currently not possible to accurately describe the health of LGBTI people in Australia due to the lack of national population-based data collections that include relevant data items.

3.2.8 People Living in Rural Areas

Rurality and remoteness is assessed formally using classification systems such as the Accessibility and Remoteness Index of Australia (ARIA +2011) which measures road distance to service centres to demonstrate how access may vary. Most parts of SWS are described as metropolitan i.e. highly accessible to a wide range of goods and services. Wingecarribee LGA in NSW Southern Highlands is considered an Inner Regional Centre comprising small rural centres however compared to other rural areas, it has high accessibility. Of the small towns and villages within the Wingecarribee and Wollondilly LGAs, only Paddy’s River is considered to be an Outer Regional Area.

Compared to the rest of SWS population, Wingecarribee residents tend to be older with 17% over the age of 70 years compared with 8.7%. Wingecarribee LGA has the highest proportion of lone person households in SWS (26.1%) which is higher than the rest of NSW (23.8%). As people age, their use of health services increases and the “rurality” of these residents will become increasingly important, particularly as by 2031, the number of older people in Wingecarribee will increase by 58%.

Car ownership (at least one car) in Wingecarribee (88.5%), Wollondilly (90.4%) and Camden (91.9%) is above the state level (82.6%) and Regional NSW (84.7%).

The Index of Relative Socioeconomic Disadvantage (IRSD) ranks geographic areas across Australia according to their socio-economic characteristics, such as low income, high unemployment and low levels of education. Although the Index indicates that both Wingecarribee and Wollondilly LGAs are comparatively advantaged, as IRSD of both LGAs (1022 and 1030 respectively) are higher than the Australian average of 1000. However, within the Wingecarribee and Wollondilly LGAs, there are areas which experience greater disadvantage, in part associated with their rurality. Towns which fall below the 1000 reference point include Welby (933), New Berrima (943), Tahmoor (968), Menangle Park (986), Hilltop (988) and Moss Vale (998).

3.2.9 People Living with a Disability

Table 7: Proportion of people living with a profound or severe disability, NSW and SWS, 2016

NSW	SWS
<ul style="list-style-type: none"> 5.4% 	<ul style="list-style-type: none"> 6.5% Fairfield 8.5% and Bankstown 7.0%

Source: ABS Census 2016 Population and Housing

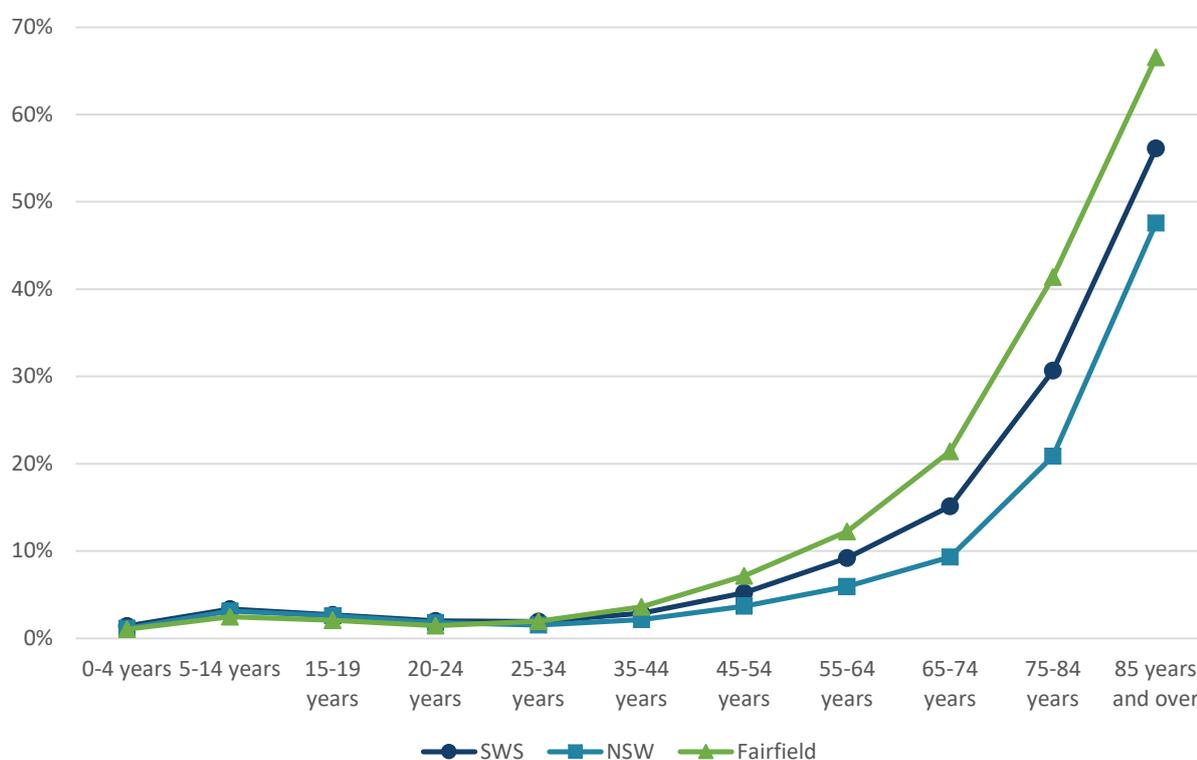
Disability is caused by a range of conditions, including intellectual, physical, cognitive, sensory, neurological impairments or mental illness. The 2016 ABS Census of Population and Housing

identified about 61,069 people living in SWS with a profound or severe disability, an increase of 11,000 people with disability since last Census 2011.

Profound or severe disability is defined as “needing help or assistance in one or more of the three core activity areas of self-care, mobility and communication because of a disability, long term health condition (lasting six months or more) or old age”.

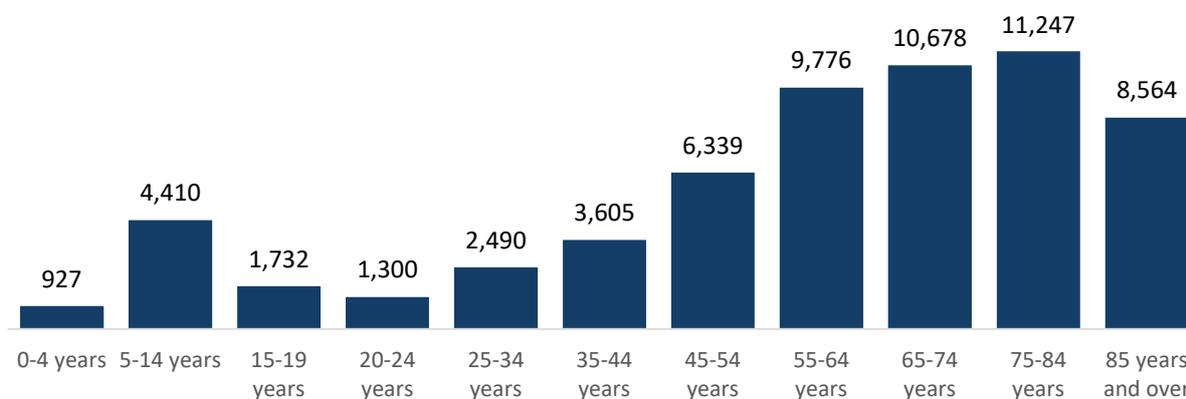
The proportion of the SWS population with such a disability (6.5%) was 22% higher than in NSW (5.4%) and 13% higher than in Australia (5.8%). In Fairfield LGA, the proportion with a profound or severe disability was 8.5% (30% higher than SWS, and 58% higher than NSW), while in Camden LGA the proportion was 4.3% (35% lower than SWS and 21% lower than NSW).

Figure 15: Proportion of population reporting a profound or severe disability by age group: South West Sydney, NSW and Fairfield LGA, 2016



About half of people living with profound or severe disability in SWS were aged 65 years and older and a further 38.5% were aged 20-64 years. SWS has a larger proportion of people aged 20-64 years living with disability compared to the rest of the state (38.5% and 33.7%, respectively). Persons aged 19 years and under represented 11.6% of people living with disability. Children 5-14 years of age represented 7.2% of population living with disability (Figure 16).

Figure 16: Number of South West Sydney residents with profound disability by age group, 2016



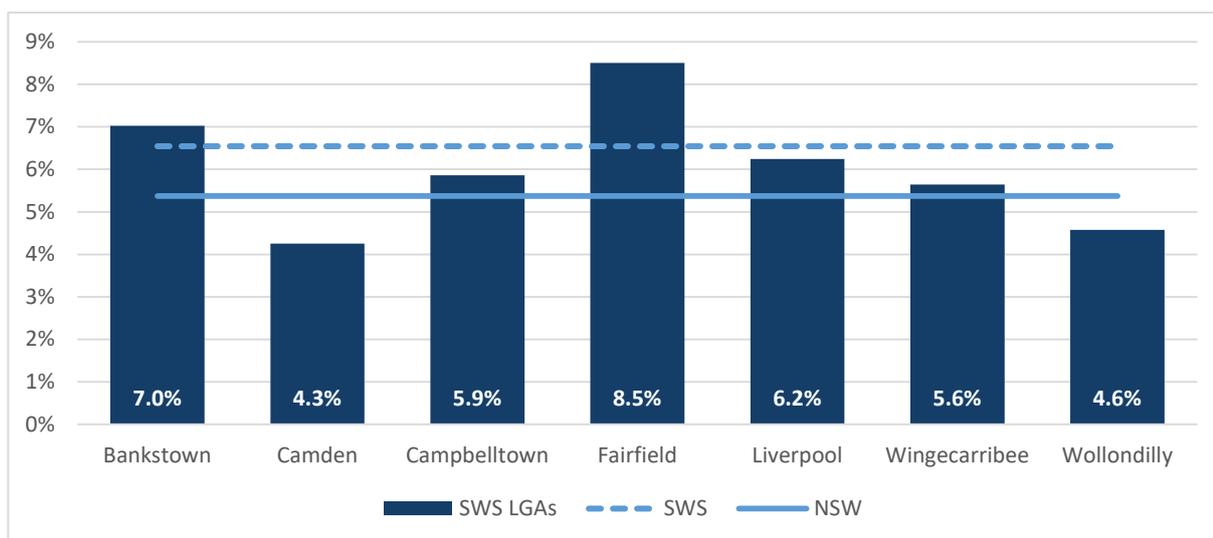
Source: ABS Census 2016 Population and Housing

In general, disability increases as people age, with approximately 40% of people in Australia having some form of disability by the time they are 70 years old. [7]

There was variation across SWS in the proportion of people living with disability. The proportion was highest in Fairfield and Bankstown LGAs (8.5% and 7.0%, respectively) and lowest in Camden and Wollondilly LGAs (4.3% and 4.6%, respectively) (Figure 17).

Fairfield LGA has significantly higher proportion of people with disability over 55 years of age compared to other LGAs in SWS. People living with disability tend to be younger in the Macarthur region, with 21% under 19 years of age, compared to 6.2% in Fairfield LGA.

Figure 17: Proportion of South West Sydney residents who need assistance by LGA and NSW, 2016



Source: ABS Census 2016 Population and Housing

The number and age of residents living with disability in Wingecarribee tends to be larger and older than in Wollondilly, even though the overall populations are similar in size. It is estimated that about 1,559 Aboriginal people or 9.4% of Aboriginal population in SWS are living with disability.

For people with disability, lower educational attainment, fewer housing options, unemployment, transport barriers and discrimination amplify their physical, mental, intellectual and health problems and may result in social isolation.

People with severe or profound disability generally rate their health as poorer than other Australians and other people with disability. They also report higher levels of psychological distress compared with people with other forms of disability. [8]

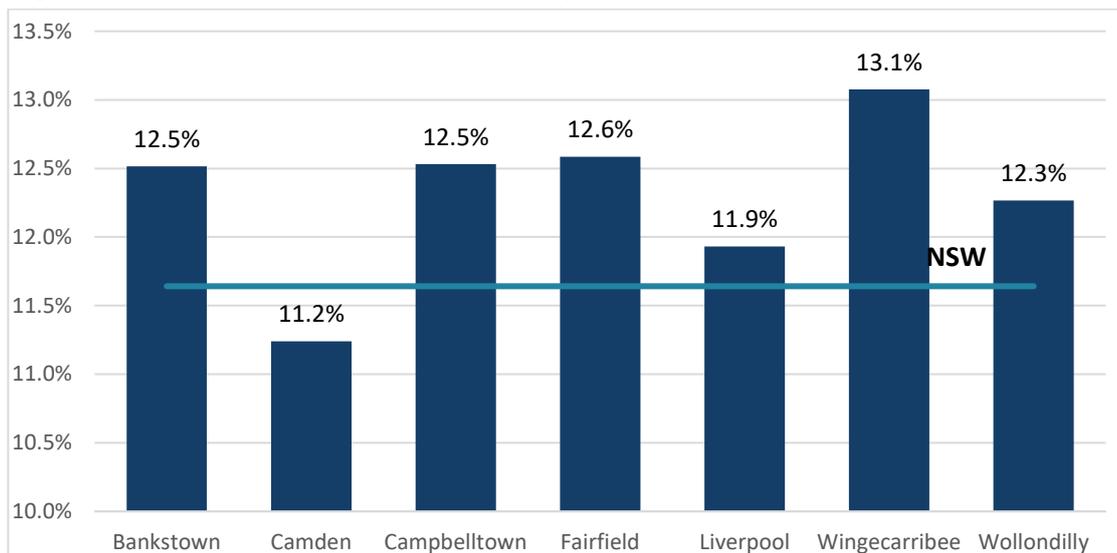
People with disability generally use health services such as general practitioners (GPs), medical specialists and hospital emergency departments more than people without disability.

3.2.10 Carers

According to the Australian Bureau of Statistics Census 2016, in SWS, approximately 85,394 people (12.3% of the population), aged over 15 years indicated that they provided unpaid care, help or assistance to family members or others because of a disability, a long term illness or problems relating to old age. The proportion of carers in SWS is similar to NSW (11.6%). Fairfield and Bankstown LGAs had the largest number of carers (20,248 and 19,529 respectively), representing over 46% of all carers in SWS. Carers were more likely to be female (75%), reflecting national and NSW trends.

As a proportion of the LGAs' population, Wingecarribee and Fairfield had the largest proportion of carers while Camden LGA has the smallest proportion of carers (Figure 18). The highest proportion of carers in Wingecarribee LGA reflects the older age profile of the Wingecarribee community. All other LGAs recorded a decrease in a number of carers since 2011.

Figure 18: Proportion of South West Sydney residents who provide unpaid care by LGA, 2016



Source: ABS Census 2016 Population and Housing.

About 1.5% of South West Sydney carers identified as Aboriginal people and/or Torres Strait Islanders. This is slightly below their representation in the broader community and may reflect family and cultural values and understanding of the term “carers” where the person may not

identify as a “carer” even though they may be caring for one or more people. Similar values can be found in other cultures.

Approximately 10.5% of South West Sydney carers indicated that they have poor English skills. Carers in Fairfield, Bankstown and Liverpool LGAs were most likely to report poor English skills. This reflects the multicultural diversity of South West Sydney. A report on carers from culturally and linguistically diverse backgrounds in 2013 identified factors which acted as barriers to access to carer support services included terminology, cultural and religious rules and obligations, lack of health literacy, cultural appropriateness of the service and lack of awareness about services available.

3.2.11 Domestic Violence

The [*National Plan to Reduce Violence against Women and their Children 2010-2022*](#) (Council of Australian Governments, 2011) identifies domestic and family violence and sexual assault as gendered crimes that have an unequal impact on women and are the most pervasive forms of violence experienced by women in Australia. While national and international evidence and data acknowledge a small proportion of men are victims of domestic and family violence and sexual assault, the majority of people who experience this kind of violence are women in their homes, at the hands of men they know.

The ABS Personal Safety Survey [9] found that in Australia:

- Three-quarters (17.3%) or 1,625,000 of victim-survivors of intimate partner violence in Australia are women, whereas one-quarter (6.1%) or 547,600 of victim-survivors of this violence are men.
- Since the age of 15 years:
 - 1 in 4 women (23%) or 2.2 million and 1 in 13 men (7.8%) or 703,000 experienced violence by an intimate partner.
 - 1 in 5 women (19%) or 1.8 million and 1 in 14 men (7.1%) or 654,200 experienced physical violence by an intimate partner.
 - 1 in 11 women (9.2%) or 864,000 and 1 in 83 men (1.2%) or 104,800 experienced sexual violence by an intimate partner.
 - 1 in 4 women (23%) or 2.2 million and 1 in 6 men (16%) or 1.4 million reported experiencing emotional abuse by a current and/or previous partner since the age of 15.
- 55% or 60,300 of Australian women who were caring for children while experiencing violence from a current partner, reported that their children either heard or saw the violence.
- Nearly half (48%) or 325,900 of women who have experienced violence by a previous partner and who were pregnant during that relationship, experienced violence from their partner while pregnant. This type of violence is seen as “double-intentioned”, where perpetrators may aim physical violence at their partner’s abdomen, genitals or breasts, so that abuse is both of the mother and child.

Other research also highlights, that in Australia:

-
- For 8 in 20 hospitalisations for female assault victims and for 1 in 20 hospitalisations for male assault victims, a spouse or domestic partner was the perpetrator (where the perpetrator was identified).[10]
 - 4 in 5 victims of intimate partner homicide were female and 1 in 5 victims of intimate partner homicide victims were male in the 2 years from mid-2012 to mid-2014.[11]
 - Intimate partner violence contributes more to the burden of disease (the impact of illness, disability and premature death) of adult women in their reproductive age (18-44 years) than any other risk factor. It contributes an estimated 5.1 % of the burden for women aged 18-44 years. [12]
 - Domestic violence is also identified as a significant reason for homelessness for 15-17 year olds across Australia and is identified as being important risk factors in fatal abuse cases. [13]

In NSW in 2017, there were 28,356 domestic violence related assaults or 366.4 per 100,000 population according to the NSW Bureau of Crime Statistics and Research (BOCSAR).

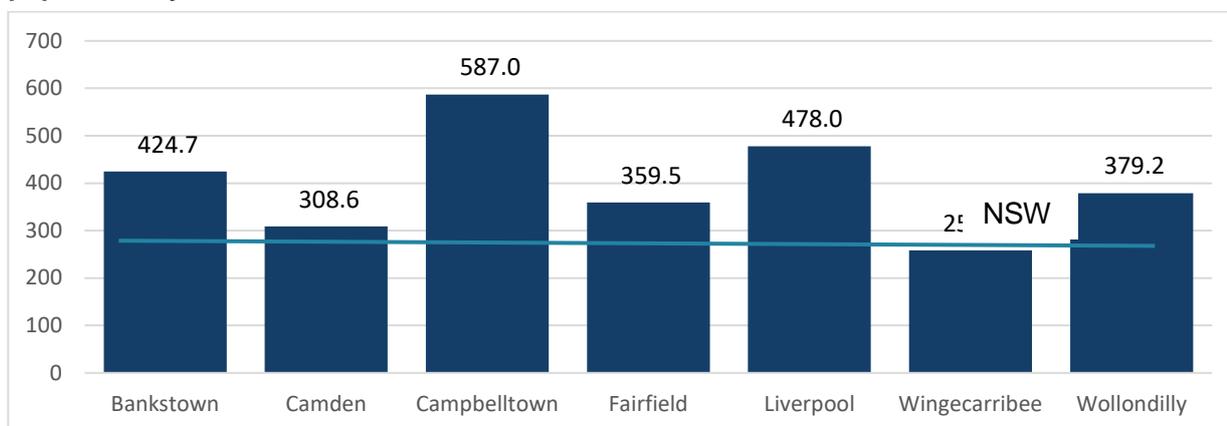
Since January 2012, the rates of domestic violence related assault have been stable in the state, while for the same time rates for non-domestic related assault have declined by 3%. According to the BOCSAR 2017 data for domestic violence related assaults are characterised by:

- The alleged offenders for the domestic violence related assaults were spouse/partner or boy/girlfriend for 44% of the incidents followed by another 12% where alleged offenders were ex-spouses or ex-partners.
- The alleged offenders in 4 out of 5 incidences were males predominantly between 20 to 49 years of age. Female alleged offenders were more likely to be between 20 to 39 years of age.
- 1 out of 5 alleged offenders were of Aboriginal backgrounds.
- 68% of victims were female and about three quarters were aged between 20 to 49 years with the highest proportion in the 20 to 29 age group. 9% of the victims identified as being Indigenous.
- Residential premises were the location for the assaults for 86% of incidents followed by outdoor/public space for 8% of incidents.
- 31% of incidents were recorded as being alcohol related.

Prevalence of domestic violence is difficult to gauge as in many cases they are not reported to the police. ABS Safety Surveys suggest that only one third of interpersonal violence is reported to police. [14] While male to female partner violence is by far the largest category of domestic and family violence, other patterns of violence can occur. Violence can occur in same sex relationships, to other family members such as the elderly or extended family and to people who are marginalised due to sexuality, race or disability. These types of violence may be harder to identify and victims may find it more difficult to access services.[15]

Campbelltown and Liverpool LGAs are ranked 35th and 49th in NSW as per number of domestic violence incidents per 100,000 population (587 and 478, respectively) (Figure 19).

Figure 19: Domestic violence reported incidents in South West Sydney- rates per 100,000 population by LGA, 2017



Source: BOCSAR 2017

Camden, Wingecarribee and Wollondilly LGAs had lower rates of domestic violence incidents compared with the rest of NSW.

The impact of violence on the health of individuals is significant:

- Domestic and family violence cause more poor health, disability and death to women under 45 years of age than any other single risk factor including obesity or smoking. Health issues included premature death, mental health issues (including attempted suicide, self-harm, anxiety, depression and eating disorders), physical injury (including injuries to the head and neck, sexually transmitted infections and reproductive health concerns including cervical cancer) and issues including sleep problems, gastrointestinal disorders and behaviours such as tobacco, alcohol and drug use. [16]
- The NSW Auditor General noted that 58% of domestic violence assault victims nationally reported they were 'hurt' by the last assault and one third of these were admitted to hospital or saw a doctor.
- NSW Health estimated that 5.5% of women screened by antenatal, early childhood, drug and alcohol and mental health services annually disclose experience with intimate partner violence in the past 12 months. Women using drugs and alcohol (23.6%) and mental health (17.8%) services had the highest disclosure rates.[17] Women who disclosed were provided generally with support and options, and in some cases reports were made to the Department of Family and Community Services (FACS) and NSW Police.[17]
- Children who witness and/or experience violence will likely have ongoing physical and mental health issues as a result of their experiences. Domestic violence is one of three main risk factors for child abuse and neglect, and can impair the capacity of the victim (most often the mother) to provide appropriate care. This is usually in the context of the mother's fearfulness for her children and own safety, needing to placate and manage the partners violence.[18]

3.2.12 Children in Out of Home Care or with Child Protection Issues

Child abuse and neglect refers to any non-accidental behavior by parents, caregivers, other adults or older adolescents that is outside the norms of conduct and entails a substantial risk of

causing physical or emotional harm to a child or young person. Such behaviors may be intentional or unintentional and can include acts of omission (i.e. neglect) and commission (i.e. abuse).

Despite the difficulties involved in measuring the extent of child maltreatment in the wider population, it is very clear that it occurs at significant levels in the Australian context.[19]

The best available evidence in Australia suggests that the prevalence rate for child abuse in the following categories:

- neglect 12%
- emotional abuse 11%
- witnessing domestic and family violence 12-23%
- penetrative sexual abuse for females 7–12% and for males 4–8%
- non-penetrative sexual abuse for females 23–36% and for males is 12–16%.[19]

Approximately 1 in 6 women (16% or 1.5 million) and 1 in 9 men (11% or 992,000) experienced physical and/or sexual abuse before the age of 15.[9]

The research shows that unmet health concerns early in a child's life especially when those concerns are attributed to child maltreatment have enormous physical and psychological health; and social consequences with a considerable cost to the individual affected and to health and social systems.

The top four primary risk of type of harm to children reported by SWSLHD staff in 2016 were:

- domestic violence (n= 237)
- parent/ carer mental illness (n=183)
- substance use (n=178)
- neglect (n=160)

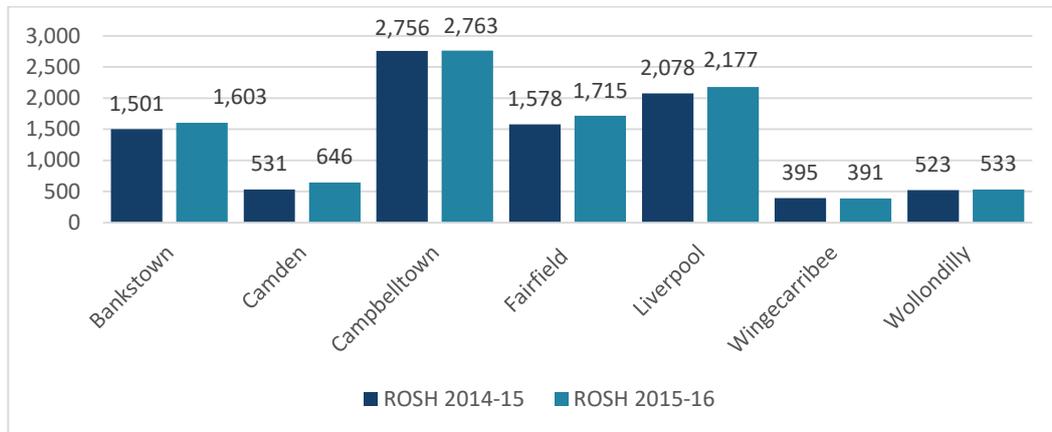
Domestic violence has remained consistent as the top risk of harm in SWS throughout 2014, 2015 and 2016. Exposure to domestic and family violence poses a risk to a child's physical, emotional and psychological safety. The harmful effects on the developmental and emotional wellbeing of exposure to domestic and family violence are clear and there is increasing attention on children as victim-survivors of family violence in their own right, with their own unique risks and service needs.

The most recent statistics show that SWSLHD has the second highest number of children and young people (CYP) reported for 'risk of significant harm' (ROSH) in NSW. There were 15,816 CYP ROSH reports with 9,828 CYP reported for SWS in 2015-16, an increase of 5% from 2014/15.

Campbelltown LGA had the highest number of CYP reported for ROSH (2,763 or 28% of the total) compared to other LGAs in SWS and it has been ranked as the third highest in the state.

Wingecarribee LGA with the large proportion of older population had the lowest number of CYP reported for ROSH in SWS. Camden LGA although had a small number of CYP reported, it had the highest increase of 21.6% over a year (Figure 20).

Figure 20: Number of CYP involved in ROSH reports in South West Sydney by LGA, 2014-15 and 2015-16



Source: Draft SWSLHD Child Protection Strategy Unit Annual Report 2017

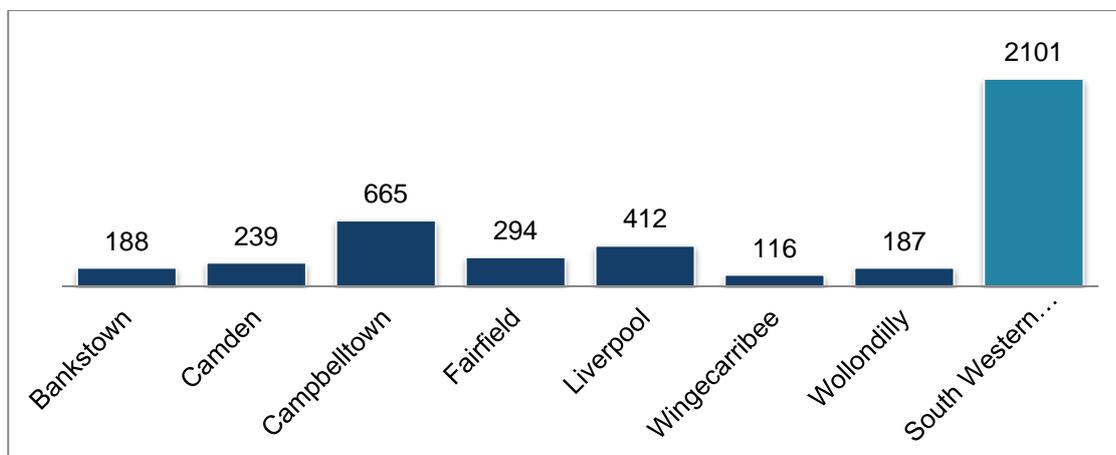
Aboriginal CYP continue to be over represented in the number of children involved at ROSH, making up 11% of the total number of CYP involved in ROSH in South West Sydney, and 20% of the total number of CYP involved at ROSH in Campbelltown LGA.

The majority of children reported to be at risk of significant harm were children in the age groups 0-4 (39%) and 5-11 (32%).

The ROSH group was the highest recorded group to be impacted by family violence, parental substance use and or mental health issues.

There were 2,101 reported cases of children and young people in Out-of-Home Care (OOHC) in SWS as at 30 June 2015, representing 12% of the total number of children and young people living in Out-of-Home Care across the state. Campbelltown LGA has the highest number of children and young people living in Out-of-Home Care (665 or 17 cases per 1,000) compared to other LGAs in South West Sydney (Figure 21).

Figure 21: Number of CYP in OOHC in South West Sydney by LGA, 2014-15



Source: Draft SWSLHD Child Protection Strategy Unit Annual Report 2017

3.3 Social and Environmental Determinants of Health

Social determinants of health (SDH) are the economic and social conditions under which people live. Environmental determinants of Health (EDH) are the physical environments such as urban heat, safe water and clean air, healthy workplaces, safe houses, built communities and roads that contribute to health. The links between SDH and EDH and the development of disease such as chronic conditions and mental illness are complex and usually associated with lack of access and opportunity. Resources such as quality education, adequate and meaningful employment and income, safe and affordable housing, accessible transport, nutritious food, safe and connected local environments and accessible health services are all determinants that shape people's health.

The people of South West Sydney are socio-economically diverse with pockets of significant disadvantage. Relative socioeconomic disadvantage is broadly defined in terms of people's access to material and social resources, and their ability to participate in society. Socio-Economic Indexes for Areas (SEIFA) is a suite of five summary measures that have been created from Census information. Each index summarises a different aspect of the socio-economic conditions in an area, and therefore summarises a different set of social and economic information.

The Index of Relative Socioeconomic Disadvantage (IRSD) ranks small geographic areas across Australia according to their socio-economic characteristics, such as income, unemployment and low levels of education, with disadvantage indicated by a low number. An IRSD score of 1,000 is the adjusted mean score, 50% of geographic areas will be higher and 50% will be lower.

About 537,000 people or (55.6%) of SWS population live in geographic areas with an IRSD score under 1000 compared with (41.8%) for NSW. Those areas with low scores represent the most socio-economically disadvantaged communities in SWS. About 92.5% of Fairfield population lives in areas with an IRSD score of less than 1000 (between 575 and < 1000) compared with only 12.2% for Camden. Camden, Wollondilly and Southern Highlands had the largest proportion of population living in the areas with an IRSD score over 1000 (87.8%, 82.2% and 75.1% respectively).

Four out of seven LGAs have an IRSD score that is lower than the average of 1000. The scores for those four LGAs are the following: Fairfield (896), Campbelltown (948), Canterbury-Bankstown (961) and Liverpool (972). It is at a suburb level that the degree of disadvantage becomes most apparent. 83 out of 138 suburbs in South West Sydney scored below 1000. Six SWS suburbs were ranked among the most disadvantaged in NSW : Claymore (1) Airs (2), Miller (7), Cartwright (14), Sadleir (15) and Villawood (17). [20]

SWS has a large proportion of disadvantaged families including:

- Large proportion of single parent families with children under 15 years of age: Campbelltown (26.3%) and Fairfield LGAs (25.8%) compared with (20%) for NSW
- Large proportion of unemployed families with children under 15 years of age in Fairfield LGA (28%) and Campbelltown LGA (18%) compared with (12%) for NSW

- Large proportion of children living in families where the mother has low educational attainment (year 10 or below/ or did not attend school): Fairfield LGA (31%), Wollondilly LGA (28%) and Campbelltown LGA (25%) compared with (20%) for NSW. Rates in other LGAs are similar to the NSW rate.
- Higher number of children per family
- Much higher rates of parents who were born overseas
- Greater rates of parental unemployment, contributing significantly to financial instability and mental wellbeing; and a lower median family income for most suburbs than the NSW average [21]
- Poorer participation in early childhood education i.e. (92.4%) of local children compared to NSW (94.9%), with significantly lower rates for Campbelltown, Liverpool and Fairfield. [22]

This needs assessment has considered seven major social and environmental determinants of health relevant to SWS:

- Income and education
- Housing
- Private health insurance cover
- Health literacy
- Urban heat
- Active travel
- Food environments

3.3.1 Income and Education

About 53% of the population in SWS has an individual weekly income under \$600 and only 3% over \$2,000. Median household incomes in Fairfield (\$1,222), Bankstown (\$1,332), Wingecarribee (\$1,335) and Campbelltown LGAs (\$1,459) are below that for NSW (\$1,486). Camden (\$2,047), Liverpool (\$1,550), and Wollondilly LGAs (\$1,871) have median individual incomes higher than the state (Table 8).

Table 8: Median weekly income for SWS residents by LGA, 2016

Local Government Area	Median total individual income (\$/weekly)	Median total household income (\$/weekly)
Bankstown	509	1,332
Camden	821	2,047
Campbelltown	632	1,459
Fairfield	439	1,222
Liverpool	584	1,550
Wingecarribee	645	1,335
Wollondilly	738	1,871
NSW	664	1,486

Source: ABS Census 2016

Low income is linked to low educational attainment. About 40.8% of the region's population, aged 15 years and over who are no longer attending school, have a lower level of formal education.

Four LGAs in SWS were below the state average (52.1%) for completing Year 12 or equivalent: Wollondilly (40.3%), Wingecarribee (48%), Camden (49.2%) and Fairfield LGAs (50%). The proportion of people who didn't go to school was also higher in SWS (2.9%) compared with NSW (1.1%), with Fairfield LGA having the highest school non-attendance rate in SWS (6.5%).

The unemployment rate in SWS was higher (7.5%) compared to NSW (6.3%). All four LGAs Fairfield, Bankstown, Campbelltown and Liverpool had higher unemployment rates than NSW (10.5%, 8%, 7.9% and 7.5%, respectively) in 2016. [23] SWS has a high proportion of people aged 65 years and over receiving the age pension (72%) compared with NSW (67.6%). Fairfield and Campbelltown LGAs had the highest proportion of older people on the aged pensioners (80% and 76% respectively).[24]

Low income is a barrier to accessing health services due to the cost for direct services and transport to services. Cost is also a barrier to other commodities which improve health, such as nutritious food and other support services.

3.3.2 Housing

3.3.2.1 Housing Affordability

As a rule of thumb, housing is usually considered affordable if it costs less than 30% of gross household income. In Fairfield LGA, there were about 33.6% of households with rent payments greater than 30% of household income, compared with 7.4% of NSW households.

The median rent per week in SWS ranges from \$350 per week (in Wingecarribee, Fairfield, and Campbelltown LGAs) to \$460 per week in (Camden LGA) compared with the state average of \$380 per week.[25]

Lack of affordable housing is the major cause of homelessness. People who are homeless include those sleeping rough, living in caravan parks and boarding houses, staying with family and friends as their only housing option, and those accessing the Specialist Homelessness Services (SHS) program.

As a proportion of the total population, homeless people made up 0.6% of the population in the region, slightly higher than the state rate of 0.5%. However, for Fairfield LGA, the percentage of homeless persons is double the state and region at 1.1%.

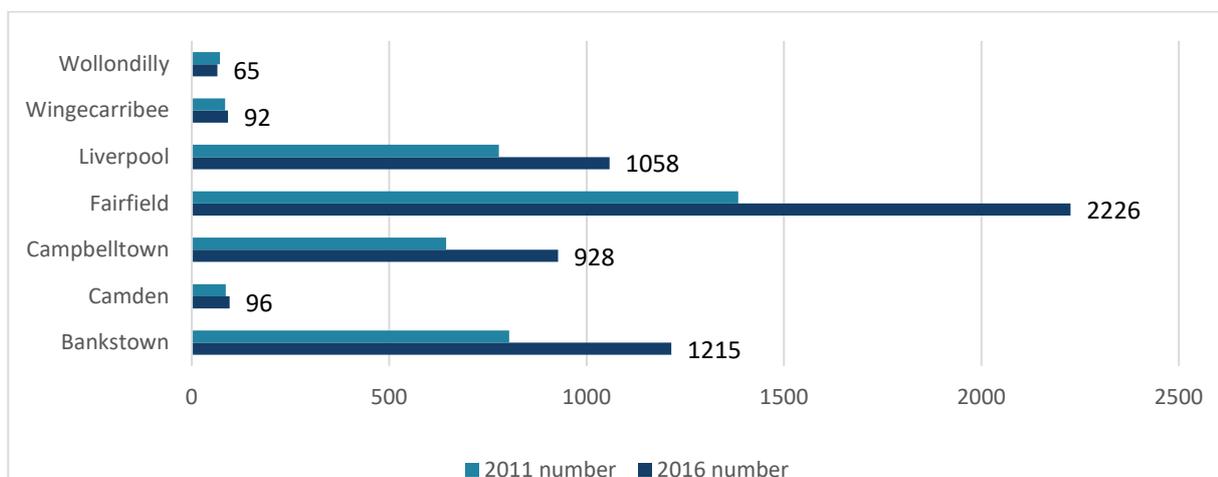
Table 9: Table: Proportion of homeless people in NSW and SWS, 2016

NSW	SWS
<ul style="list-style-type: none"> 0.5% 	<ul style="list-style-type: none"> 0.6% Fairfield 1.1% (2,226 people)

Source: ABS Census 2016

According to the 2016 Census, there were 5,680 people in SWS counted as being homeless on the Census night, an increase of 47% since the last Census. Fairfield LGA had the most significant increase of 61% from 1,384 to 2,226 persons (Figure 22).

Figure 22: Number of homeless persons in South West Sydney by LGA, Census night 2011 and 2016



Source: ABS Census 2016 Population and Housing

At the state level, 45% of homeless people were living in ‘severely’ crowded dwellings and 16% in supported accommodation for the homeless. In SWS about 67% of homeless people were living in ‘severely’ crowded dwelling and another 20% in supported accommodation for the homeless. The notable difference between SWS and the state is the proportion of people in boarding houses: 182 people or 4% in South West Sydney compared with 6,869 persons or 18% in NSW.

Homeless people in supported accommodation are over-represented by children under 12 years of age (19%), youth (14%) and by Aboriginal population (14%). Of people living in ‘severely’ crowded dwellings, over (51%) are between 19 and 34 years of age, most are men (57%) and there is low representation of the Aboriginal population (3%).

3.3.2.2 People Living in Social Housing

In Australia, disadvantaged neighbourhoods often include concentrations of poor quality public housing. The relationship between poor housing and poor health is well known, with previous research demonstrating increased rates of infectious diseases, chronic illness, injury, mental health disorders, delayed childhood development, inadequate nutrition and poor oral health when compared to the general population. [26]

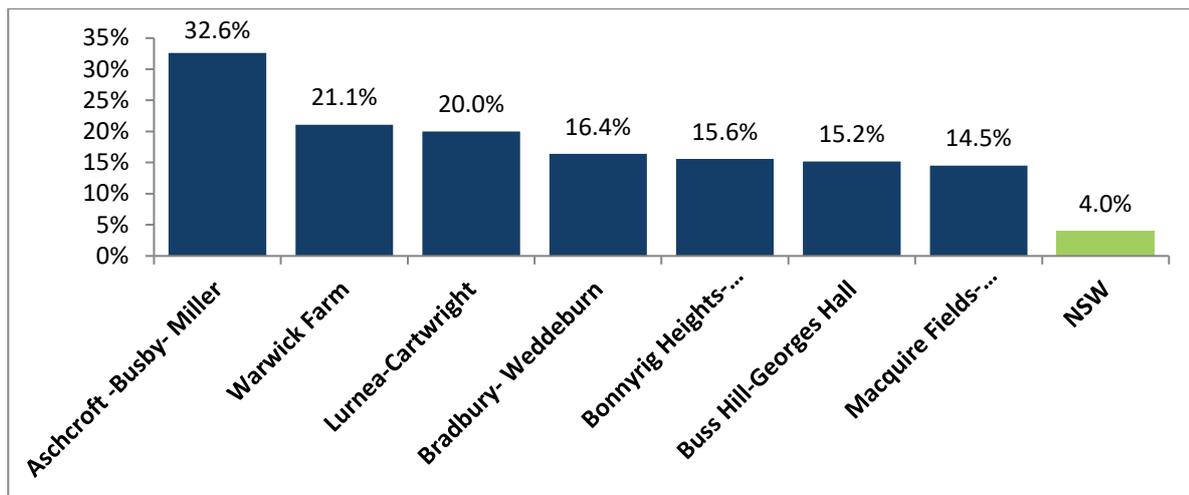
South West Sydney contains pockets of significant socioeconomic disadvantage, with some of the most disadvantaged LGAs in Sydney. There is a high concentration of social housing dwellings within Fairfield, Bankstown, Campbelltown and Liverpool LGAs, especially in the suburbs of Ashcroft, Busby and Miller which are also among the most disadvantaged in NSW (ranked 27th, 41st and 7th in NSW). These three suburbs have the highest proportion (32.6%) of dwellings rented from the Government Housing Authority in the state (Figure 23).

For general applicants on the housing register, expected waiting times for social housing in South West Sydney are between 5 to 10 years and greater than 10 years for any kind of property in Liverpool, Fairfield and Wingecarribee as at 30 June 2016.

Many housing authorities have implemented large-scale urban renewal programs to address the physical and social disadvantage evident in areas of concentrated social housing through relocation of social housing tenants in order to demolish existing dwellings and make land available for redevelopment.

The NSW Land and Housing Corporation (LAHC), an agency of the NSW Department of Family and Community Services (FACS) is currently undertaking a number of urban renewal programs in South West Sydney. These renewal programs aim to transform previous public housing estates into sustainable mixed-income communities, where 30% of dwellings will be retained as public housing, while 70% will be sold to private owners. They also aim to make these suburbs more liveable by improving homes and public spaces and supporting local communities to build on their strengths, skills and overall capacity. Renewal projects in South West Sydney include the Bonnyrigg Living Communities Project, the Minto Renewal Project and the Airs Bradbury Renewal Project. The focus is on creating greater diversity of tenure, ultimately providing a mixture of home ownership, private rental and social housing accommodation within targeted neighbourhoods.

Figure 23: Dwellings rented from the Government Housing Authority in South West Sydney, by suburbs, 2016



Source: Census 2016 Public Health Information Development Unit (PHIDU) by SA2

3.3.2.3 Housing Density

Communities across South West Sydney are undergoing change, both in terms of population growth and the types of residential dwellings. Housing types in the 2016 Census are categorised as either separate house (free standing), medium density (up to 1-2 storey) or high density (3 or more storeys). [27]

In Canterbury-Bankstown, Fairfield, Liverpool and Campbelltown LGAs, there has been a marked increase in the proportion of the population living in 'high density' dwellings and an overall decrease in the number of 'separate' houses. The change for medium density living is less prominent, with increases in Canterbury-Bankstown, Campbelltown and Wollondilly LGAs (Table 10). In Camden, there has been an increase in the proportion of residents living in separate houses, indicative of the type of urban development predominating in this area. [27]

Table 10: Housing Type by LGA, South West Sydney and Greater Sydney, 2016

Local Government Area	Med Density 2011	Med Density 2016	High Density 2011	High Density 2016	Separate House 2011	Separate House 2016
Canterbury - Bankstown	27.4	28.4	11.1	14.4	60.6	56.1
Fairfield	18.3	18.2	7.7	9.2	73.6	71.2
Liverpool	15.1	13.8	10.8	11.7	73.8	73.7
Campbelltown	18.4	19.8	1.7	2.6	79.6	77.2
Camden	7.8	7.0	0.2	0.1	91.0	92.1
Wollondilly	5.0	5.2	0.0	0.0	94.0	93.5
Wingecarribee	9.1	8.0	0.1	0.0	89.9	90.2
Inner West Council	41.4	46.6	23.2	26.8	34.0	24.0
Greater Sydney	19.7	20.3	20.7	23.5	58.9	55.0

Source: ID Profile 2018 <https://profile.id.com.au/>

When increased housing density is well designed it can contribute to population health benefits. There are strong links between urban form, travel behaviour and environmental and community health outcomes, but higher density housing can also contribute significantly to poor mental wellbeing, particularly in relation to noise from traffic and neighbours.[28]

As increased numbers of people are choosing to live in strata developments, there has been an increase in noise complaints, causing high levels of stress and anxiety for strata residents. [28, 29] Increased densities have also been associated with lower levels of social capital. [30] Increasing densities without simultaneous increase in greenspace or greenness can result in exacerbation of urban heat events, since many densely built areas lack adequate greenspace.

3.3.3 Private Health Insurance Cover

Private health insurance is part of the Australia's health system. Access to the private health insurance has an impact on access to health care including mental health, dental and allied health care and elective surgery waiting times. Those patients who use the public system can wait longer. A report from the Australian Institute of Health and Welfare found that in 2015-16, half of patients in the public system waited more than 188 days for their surgery and 7.5% waited over a year. [31] People living outside major cities, the less economically advantaged and Indigenous Australians have variable access to early and effective treatments that can reduce the severity of symptoms and the level of associated disability and the costs of allied health services.

Within South West Sydney, four LGAs Fairfield (25.6%), Campbelltown, Canterbury-Bankstown (36.3%) and Liverpool (38.5%) have lower rates of health insurance compared with NSW (51.5%). While Camden (62.3%), Wingecarribee (56.6%) and Wollondilly (56.6%) have significantly higher rates of private health insurance compared with the state (Table 11).

Table 11: Estimated number and rate of private health insurance - hospital cover in SWS by LGAs, 2014-15

LGA	Population Number and Rate
Camden	(31,900) 62.3%
Campbelltown	(40,751) 34.8%
Canterbury-Bankstown	(95,206) 36.3%
Fairfield	(39,357) 25.6%
Liverpool	(56,536) 38.5%
Wollondilly	(20,003) 56.0%
Wingecarribee	(20,749) 56.6%
SWS	44.3%
NSW	(2,961,214) 51.5%

Source: www.phidu.torrens.edu.au/social-health-atlases/data-archive. Accessed March 2018.

3.3.4 Health Literacy

Health literacy affects an individual's ability to access health care services, understand health information, make informed decisions and take action to maintain their health. Health literacy affects activities such as reading dosage instructions on a package of medicine, completing healthcare forms, finding a health provider, navigating systems and services, understanding signage and way finding between health services and whether people seek screening or diagnostic tests.[32]

The Australian Commission on Safety and Quality in Health Care identifies two components of health literacy:

- **individual health literacy** - skills, knowledge, motivation and capacity of the person to access, understand, appraise and apply information to make effective decisions about health and health care and take appropriate action to maintain their health
- **health literacy environment** - the infrastructure, policies, processes, materials, people and relationships that make up the health system. This has an impact on the way that people access, understand, appraise and apply health related information and services.

The five health-related activities included in Adult Literacy and Life Skills Survey (ALLS) and defined below:

- **health promotion:** the ability to enhance and maintain health (e.g. plan an exercise regime or purchase healthy foods) by locating and using health-related articles in magazines and brochures, or information contained on charts of food or product-safety labels.
- **health protection:** the ability to safeguard individual or community health (e.g. the ability to select from a range of options) by reading newspaper articles, information about health and safety, or air and water quality reports, or participating in referenda.
- **disease prevention:** the ability to take preventive measures and engage in early detection (e.g. determine risks, seek screening or diagnostic tests and follow up on courses of treatment) by understanding health alerts on TV or in newspapers or understanding letters about test results.
- **health care maintenance:** the ability to seek and form a partnership with health care providers, including providing health history forms or following directions on medicine labels, or being able to understand and discuss the merits of alternative forms of treatment with a health professional.
- **systems navigation:** the ability to understand and to access needed health services by completing application forms, reading maps to locate appropriate facilities or understanding health benefits packages.

All literacy domains, including health literacy, were found to have similar relationships with characteristics such as educational participation and attainment; parental education; employment and income and migrant characteristics. In addition, health literacy also decreases with ageing, which also can be linked to the above mentioned socioeconomic and linguistic factors.

The demographic profile of communities in South West Sydney suggests that local residents are more likely to be at greater risk of poor health literacy. [24] These characteristics include:

- High proportion of lower level of formal education i.e. educated to year 10 or equivalent across SWS.
- Lower rates of English spoken at home in Fairfield, Bankstown, Liverpool and Campbelltown LGAs compared to the NSW average. Literacy in the home language, health systems and health practices in the country of origin could also affect health literacy.
- High proportion of refugees settling in SWS. For resettled refugees, low health literacy can be expected as they navigate a new country, language and culture. Refugee experience has a profound impact on the way people engage with health information, health care services and preventive health activities.
- Proportion of people with higher levels of disability including vision impairment and intellectual disability.

There is no data on health literacy in Aboriginal communities, however disadvantage associated with lower rates in education and employment suggests that their health literacy will also be poorer.

3.3.5 Urban Heat

Temperatures in Western Sydney are typically hotter than those on the coast, experiencing 10-20 hot days (35°C per year), compared to less than 10 hot days in Sydney CBD.[33] Climate projections suggest that very hot days will become increasingly common, for areas in Western Sydney increasing at double the rate of locations close to the coast. [34]

To add to the challenges of hot day-time temperatures, the Urban Heat Island Effect (UHIE) also contributes to higher evening temperatures resulting in a range of health impacts. Urban heat islands are caused by air pollution, thermal properties of building materials, lack of air flow and heat produced by concentrated human activity (e.g. air conditioning, industry, transport). [35]

Extreme heat causes heat exhaustion, heat collapse and heat stroke, and can also exacerbate existing health conditions. Vulnerable populations are more susceptible to the effects of heat. These include disadvantaged people, older people, very young children, Aboriginal people and those with chronic disease and mental health issues. People working outdoors are also at higher risk of heat stress. [36]

Large parts of South West Sydney, including many greenfield sites are currently being developed for housing, which reduces natural surfaces and increases the proportion of hard impervious surfaces (roads, paved areas, and roof tops) that are generally dark and absorb large amounts of solar radiation. As South West Sydney already experiences naturally higher temperatures, which can be exacerbated by the UHIE, it is important that housing developments include adequate levels of greenspaces, trees, open undeveloped areas and waterbodies, which can reduce the effects of extreme heat.[37, 38]

Extreme heat is associated with increased morbidity and mortality in Australian Cities.[39] Studies show an increase in ambulance transports, emergency department presentations and hospitalisations during heat waves.[40]

3.3.6 Active Travel

How the people of South West Sydney travel to work, school or facilities can have a positive or negative impact on their health. Active travel can be defined as walking, cycling, scootering, skateboarding or any similar transport where human energy is spent to travel.

The health benefits of active travel are well recognised, particularly as an alternative to motorised or sedentary forms of transport. Using public transport almost always includes walking to and from destinations, and therefore also can be considered as active travel.[41]

Active travel has well documented health benefits including reducing carbon emissions, pollution, noise and urban heat island effects. It is reliant on urban design that considers factors such as perceived safety from crime and traffic, shorter distances to a variety of destinations, and density of residential dwelling. It is also supported by available and reliable public transport. [42, 43]

In the semi-rural areas of the SWS, the proportion of people using their car to travel to work increases compared to the more urban areas of SWS, reaching a maximum of 70.4% in

Wollondilly LGA, compared to 35.1% and 52.7% for the Inner West Council and Greater Sydney respectively.[27]

Less dense environments, distance between destinations, lack of cycling infrastructure and lower access to public transport all contribute to lower rates of cycling and walking as a mode of transport for work in South Western Sydney, compared to inner city areas and Greater Sydney as a whole (Table 12).

Table 12: Method of Travel to Work by LGA, South West Sydney and Greater Sydney, 2016

Local Government Area	Train	Bus	Bike	Walk (only)	Car (as driver)	Car (as passenger)
Canterbury-Bankstown	19.6	2.3	0.3	2.0	57.3	4.7
Fairfield	12.8	1.9	0.2	1.7	63.9	6.9
Liverpool	12.0	1.9	0.2	2.0	65.0	5.0
Campbelltown	16.2	1.2	0.1	1.2	61.4	5.2
Camden	7.3	0.8	0.2	0.9	70.3	3.9
Wollondilly	4.0	0.3	0.1	1.4	70.4	3.6
Wingecarribee	2.3	0.6	0.3	3.2	65.4	4.6
Inner West Council	24.9	10.9	2.6	5.2	35.4	2.6
Greater Sydney	16.2	6.1	0.7	4.0	52.7	3.9

Source: ID Profile 2018 <https://profile.id.com.au/>

In 2012 a survey of cycling patterns in Sydney revealed that 63% of trips up to 10 km were for social or recreation purposes, followed by education (10%), shopping (10%) and work (10%) Trip distances were on average greatest for cycling to work (8.50 km) and when going to a transport interchange (5.93 km).[44]

Residents living closer to the city, in higher density LGAs were shown to walk more compared to their counterparts in more regional areas. In 2010, residents of Sydney Statistical District made 1.2 walk trips per person, slightly more than those in Illawarra SD (0.9) and twice the number of those in Newcastle SSD (0.6). This is largely due to residents in these areas walking between modes of transport such as bus and train, which are more prevalent in urbanised areas. [45]

3.3.7 Healthy Food Environments & Food Insecurity

Having access to a greater range of healthy food outlets, preferably within 800m of home, school and work can increase the consumption of foods such as fruit and vegetables, which is associated with good health.[46, 47]

In some communities the availability of fast food outlets and convenience stores can result in poorer diet quality such as low fruit and vegetable consumption and increased consumption of sugar sweetened beverages, saturated fat and fast food. [46, 48] Evidence suggests that people living in areas of greater disadvantage also have poorer access to healthy food outlets and experience poorer health outcomes. [46]

The Heart Foundation suggests that more research is required regarding whether proximity of fast food outlets to schools influences children's food purchasing and consumption and the impact on their weight. [49] In Australia, fast food outlets have been shown to be more accessible to

secondary schools, in comparison to primary schools, especially in metropolitan areas. The median distance to outlets in metropolitan areas was 1.5 kilometres, in comparison to 10.6 kilometres in inner regional and 37.5 kilometres in outer regional locations.[50]

As outlined above, having good access to healthier food options can increase intake of foods such as fruit and vegetables. In many parts of South West Sydney food ‘insecurity’ is an ongoing concern. Food insecurity can occur when individuals do not have adequate access to food in sufficient amounts to sustain an active and healthy life. [51]

Some groups are more vulnerable to food insecurity, experiencing it at a higher rate than the general population. These include Indigenous people (24%); unemployed people (23%); single parent households (23%); low-income earners (20%); rental households (20%); and young people (15%).[52, 53] South West Sydney is home to many of the above disadvantaged groups.

The most recent statistics on food insecurity for South West Sydney are included in the table 13. below.

Table 13: Food insecurity, persons aged 16 years and over, South West Sydney and NSW, 2014

Local Health District	Number of Respondents	Actual estimate (Per cent)
Sydney	815	7.2
South Western Sydney	931	8.6
South Eastern Sydney	803	5.2
Illawarra Shoalhaven	811	7.2
Western Sydney	984	7.1
Nepean Blue Mountains	775	5.2
Northern Sydney	952	4
Central Coast	823	6.6
Hunter New England	971	9.2
Northern NSW	791	7
Mid North Coast	821	9.7
Southern NSW	772	5.5
Murrumbidgee*	1,018	6.8
Western NSW	715	9.9
Far West	686	6.6
NSW	12,668	6.9

Source: Centre for Epidemiology and Evidence. Health Statistics New South Wales. Sydney: NSW Ministry of Health. Available at: www.healthstats.nsw.gov.au. Accessed (23/11/18).

A 2004, a survey of 3 low-income suburbs in south west Sydney found that 15.8% of households were food insecure. [54] A more recent survey of residents in the Liverpool LGA found that 13% of respondents were food insecure. [55] Both of these surveys based this finding on the question ‘In the last 12 months, were there any times you ran out of food and could not afford to buy more?’.

In a 2017 survey it was estimated that 3.6 million Australians (15%) have experienced food insecurity in the last 12 months. Of these, 3 in 5 experience food insecurity at least once a

month. The high cost of living was cited as the main cause of food insecurity in Australia. 56% of respondents stated that their experience of food insecurity was due to an unexpected expense or large bill, 48% from not having enough money, while 35% suggested it was due to food being too expensive. [56]

4. Our Health

When asked about our own health, 78% of SWS residents aged 15 and over rated their health as 'excellent', 'very good', or 'good' compared to 85% nationally.

4.1 Life Expectancy

Life expectancy measures how long, on average, a person is expected to live, based on current age and sex-specific death rates. Life expectancy changes over a person's lifetime; as they survive through birth, childhood and adolescence, their chance of reaching older age increases.

Life expectancy at birth is influenced by many factors including socioeconomic status, genetic factors, biomedical risk factors, the quality of the health system, including preventive health, and the ability of people to access health care.

Life expectancy at birth in Australia has risen steadily over time. There is a gradient of decreasing life expectancy with increasing socioeconomic disadvantage and increasing remoteness from service centres across NSW. Aboriginal people in NSW have a much shorter life expectancy (almost 10 years lower) than non-Aboriginal people.

At older ages the difference between the sexes is smaller than the difference in life expectancy at birth due to the fact that males are at greater risk than women of dying before they reach advanced age, primarily from injury, suicide and cardiovascular disease.

In 2016, life expectancy at birth was 81.1 years for males and 84.9 years for females living in SWS. The life expectancy at birth for SWS residents was similar to the rest of the state. In SWS, men aged 65 years in 2016 could expect to live another 20.1 years and women aged 65 years could expect to live another 22.5 years (Table 14).

Table 14: Life expectancy at birth and at 65 years for NSW and SWS residents by gender, 2016

Life expectancy	NSW			SWS		
	Males	Females	Persons	Males	Females	Persons
At birth	80.9	85.0	82.9	81.1	84.9	83
At 65 years	85.0	87.6	86.3	85.1	87.5	86.3

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

There are some variations in life expectancy across SWS LGAs, with the highest life expectancy being in the Fairfield LGA for both both genders at birth and at 65 years of age (Females 86.4 and 88.7 years, respectively and males 82.1 and 85.7 years, respectively). Campbelltown LGA had the lowest life expectancy for both genders at birth and at 65 years of age (Females 84 and 86.6 years, respectively and males 80 and 84 years, respectively) (Table 15).

Table 15: Life expectancy for SWS residents by LGA and gender, 2016

LGAs	At birth			At 65 years		
	Males	Females	Persons	Males	Females	Persons
Camden	81.1	84.5	82.9	84.9	87.0	86.1
Campbelltown	80.0	84.0	81.6	84.0	86.6	85.1
Canterbury-Bankstown	81.8	86.1	83.9	85.4	88.4	86.9
Fairfield	82.1	86.4	84.5	85.7	88.7	87.4
Liverpool	81.4	85.5	83.5	85.1	87.9	86.6
Wingecarribee	80.5	84.2	82.4	84.4	86.8	85.7
Wollondilly	80.6	84.4	82.9	84.5	87.0	86.1

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

4.2 Primary Health Care

The first point of access to health care for individuals is generally through their local general practitioners. Primary health care broadly encompasses health care that is not related to a hospital visit or specialised care. GPs, nurses, nurse practitioners, allied health professionals, midwives, pharmacists, dentists, and Aboriginal health practitioners are all considered primary health care professionals. Requests for a check-up, prescriptions and test results are the most common reasons for patient attendance. GPs are most likely to treat respiratory infections, cardiovascular, skin and unspecified problems.

There are 422 general practices in SWS with 1025 GPs and 329 practice nurses. The majority of practices are solo and small group (2-5 GPs) practices. Fairfield LGA has the largest proportion of solo practices (65.9%), while in Camden LGA only (29.6%) practices are run by solo practitioners. About 80.3% of GP practices in SWS bulk bill and 3.4% private bill, while the rest of 16.2% do both. Campbelltown and Liverpool LGAs have a larger proportion of GP practices with practice nurses (24% and 20.7%, respectively) compared to Wollondilly, Camden and Wingecarribee (5.5%, 9.1% and 9.4%, respectively).

Almost half of GPs in SWS are bilingual and provide consultation in the other language than English: Arabic (181 GPs), Vietnamese (126 GPs), Hindi (112 GPs), Cantonese (75 GPs) and Bengali/Mandarin (69 GPs).

GPs practising in SWS have special interests in the areas such as Aged Care, Aboriginal and Torres Strait Islander Health, dermatology, diabetes and paediatrics.

The GP to population ratio in SWS is reported at 1: 917 people similar to the NSW ratio of 1:911 and below the national ratio of 1:894. There is significant regional variation from 1 GP: 669 people in Camden to 1 GP: 1,846 people in Wollondilly.

In terms of use of GP services, people living in SWS saw a GP 7.7 times per person in 2016-17 compared with the national average of 5.9 times. Females tend to see a GP more often than males (8.6 and 6.8 times, respectively).

A majority (96.3%) of a GP attendances in SWS were bulk billed compared to the national average (85.7%). In SWS, the amount of \$363.10 per person is spent by Medicare on GP attendances compared to \$295.32 spent nationally.

According to the local-level findings from the Australian Bureau of Statistics' Patient Experience Survey 2016–17, in South West Sydney:

- 82% of adult population had seen a GP similar to the national average (82.5%)
- A larger proportion (18.6%) of adults had seen a GP more than 12 times compared to the national average (12.1%)
- A fewer adults (41%) had seen a dentist, hygienist or dental specialist compared to the national average (48.1%)
- 37.7% of adult population had seen a medical specialist similar to the national average (36%)
- A smaller proportion (6.6%) of adult population had seen a GP after hours compared to the national average (8.4%)
- 13.7% of adults presented to any hospital emergency department similar to the national average (13.8%).

Cost can prevent people accessing health services.

In 2016-17, among people aged 15 and over, cost it was stated as a reason why:

- 18.5% (140,500) people did not see or delayed seeing a dental professional at least once when needed similar to the national average (18.4%)
- 8.9% (68,355) people avoided or delayed filling a prescription compared to the national average (7.3%).

4.3 Hospitalisations

Potentially Preventable Hospitalisations (PPH) are those conditions for which hospitalisation is considered potentially avoidable through preventive care and early disease management, usually delivered in an ambulatory setting, such as primary health care.

The term does not mean that a patient admitted for that condition did not need to be hospitalised at the time of admission. Rather, the hospitalisation may have been prevented by timely and appropriate provision of primary or community-based health care. Reducing hospitalisations might involve vaccination, early diagnosis and treatment, and/or appropriate ongoing management of risk factors and conditions in community settings.

The rates for PPH including chronic, vaccine preventable and acute conditions were higher for SWS residents compared to the rest of the state (Table 16) and were the highest in metropolitan Sydney.

Table 16: Potentially preventable hospitalisations, rate per 100, 000 population NSW and SWS, 2016-17

Conditions	NSW	SWS
Chronic conditions	963.4	1046.6
Vaccine preventable conditions	181.7	305.5
Acute conditions	1125.8	1161.1
Total	2248.4	2476.4

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

Cellulitis, chronic obstructive pulmonary disease (COPD), urinary tract infections (including pyelonephritis), ear, nose and throat infections, dental conditions and congestive heart failure account for over half of all PPH for SWS residents and for the rest of NSW.

The rate of PPH for SWS residents for the majority of conditions listed is similar or slightly higher compared with the state. The rates for PPHs for congestive cardiac failure, pneumonia and influenza (vaccine-preventable), other vaccine-preventable conditions, asthma, hypertension, gangrene and pneumonia (not vaccine-preventable) are higher for SWS residents compared to the rest of the state (Table 17).

The rate of PPH increases with geographic remoteness and with increasing disadvantage, a pattern that is consistent over time. Rates are also consistently higher among Aboriginal people in NSW compared with non-Aboriginal people.

Table 17: Potentially preventable hospitalisations for NSW and SWS residents by condition, 2016-17

Condition type	NSW Rate per 100,000 population	SWS Number	SWS Rate per 100,000 population	SWS Total bed days
Cellulitis	280.0	2,796	282.8	10,159
COPD	227.8	2,418	236.4	12,461
Urinary tract infections, including pyelonephritis	224.0	2,397	236.2	8,268
Ear, nose and throat infections	176.1	2,277	218.1	3,504
Dental conditions	234.1	2,094	211.8	2,677
Congestive cardiac failure	160.5	2,030	195.9	12,357
Other vaccine-preventable conditions	88.0	1,688	168.1	9,280
Asthma	133.9	1,562	157.6	3,285
Iron deficiency anaemia	154.9	1,484	150.7	2,216
Convulsions and epilepsy	148.1	1,452	144.9	3,751
Pneumonia and influenza (vaccine-preventable)	94.6	1,439	139.9	10,584
Diabetes complications	128.6	1,371	137.8	6,569
Angina	94.1	990	96.8	2,014
Hypertension	33.7	429	42.9	766
Perforated/bleeding ulcer	17.3	226	22.3	1,543
Gangrene	25.5	184	18.1	2,066

Bronchiectasis	19.4	157	15.7	1,065
Pneumonia (not vaccine-preventable)	8.9	154	14.9	919
Pelvic inflammatory disease	14.7	123	13.1	319
Rheumatic heart diseases	8.5	109	11.1	1,023
Nutritional deficiencies	2.0	19	1.8	230
Total	2248.4	24,983	2476.4	92,392

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

Figures are based on where a person resides, rather than where they are treated.

Age-standardised hospitalisation rates for the malignant and other neoplasms, and for circulatory diseases are lower for SWS residents compared to the rest of the state. However hospitalisation rate for dialysis is significantly higher for SWS residents compared to the rest of NSW. Rates for some other diseases including endocrine, respiratory, genitourinary and maternal, neonatal and congenital have also been higher for SWS residents than for the rest of the state (Table 18).

Age-standardised hospitalisation rates for females are consistently higher than those for males over time and were 3% higher than males in 2016-17, except hospitalisation rate for dialysis, where the rate for males in SWS are almost double the females rate.

Table 18: Hospitalisations number and age standardised rates for NSW and SWS residents by category of cause, 2016-17

Cause of hospitalisation	Number NSW	NSW %	NSW Rate per 100,000 population	Number SWS	SWS %	SWS Rate per 100,000 population
Infectious diseases	55,479	1.8	649.5	7,813	2.2	768.1
Malignant neoplasms	114,462	3.8	1229.8	10,333	2.9	1012.0
Other neoplasms	64,601	2.1	734.9	5,951	1.7	594.7
Blood & immune diseases	41,063	1.4	463.6	4,797	1.3	479.1
Endocrine diseases	45,142	1.5	535.8	6,017	1.7	612.8
Mental disorders	149,566	4.9	1894.4	14,305	4.0	1483.8
Nervous & sense disorders	220,637	7.3	2456.4	22,679	6.3	2247.4
Circulatory diseases	163,234	5.4	1724.6	16,832	4.7	1653.3
Respiratory diseases	149,200	4.9	1750	19,387	5.4	1885.9
Digestive system diseases	301,407	10.0	3618.6	35,143	9.8	3551.3
Skin diseases	50,115	1.7	600.3	6,506	1.8	659.5
Musculoskeletal diseases	152,764	5.1	1754.2	15,670	4.4	1563.8
Genitourinary diseases	147,577	4.9	1767.6	19,597	5.5	1999.7
Maternal, neon. & congenital	198,365	6.6	2644.2	28,006	7.8	2878.4
Symptoms & abnormal findings	250,582	8.3	2911.2	33,235	9.3	3319
Injury & poisoning	215,059	7.1	2571.8	24,381	6.8	2456.9
Dialysis	389,364	12.9	4264.8	56,683	15.8	5607.2
Other factors infl. health	312,362	10.3	3677.5	31,216	8.7	3022.5

Other	3,782	0.1	49.8	62.0	0	6.3
Total	3,024,761	100	35299	358,613	100	35801.6

Source: NSW Combined Admitted Patient Epidemiology Data and ABS population estimates (SAPHaRI). Centre for Epidemiology and Evidence, NSW Ministry of Health. Figures are based on where a person resides, rather than where they are treated.

4.4 Mortality

A death rate is an estimate of the proportion of the population that dies during a specified period and can be expressed as the number of deaths per 100,000 population.

In 2016, there were 5,326 deaths of residents in South West Sydney. The number of deaths has increased by around 25% in the 10 years since 2006. However, the death rate has decreased by around 13% over this period.

In SWS in 2016 the age-adjusted male death rate was around 42% higher than the female death rate (640.6 compared with 451.3 per 100,000, respectively). The age standardised death rate in SWS was similar to the rest of the state (539.8 and 534.6 per 100,000 population, respectively) (Table 19).

Table 19: Deaths from all causes for NSW and SWS residents, number and (rate per 100,000) population, 2016-17

	Gender	Number	Rate per 100,000 population
SWS	Males	2,792	640.6
	Females	2,534	451.3
	Persons	5,326	539.8
NSW	Males	27,377	645.9
	Females	26,182	440.7
	Persons	53,559	534.6

Source: SAPHaRI, Centre for Epidemiology and Evidence, NSW Ministry of Health.

Potentially avoidable deaths

Potentially avoidable deaths are those that occur before age 75 years and are caused by conditions that are potentially preventable through individualised care and/or treatable through existing primary or hospital care. Deaths are defined as avoidable in the context of the present health system.

The potentially avoidable death rate decreased by around 18% in the 10 years between 2007 and 2016. The rate in 2016 was 102.9 per 100,000 population (132.4 per 100,000 males and 74.1 per 100,000 females) with the male rate 1.8 times higher than the female rate (Table 17). The potentially avoidable death rate in SWS for persons was slightly above the rate for the rest of the state (104.0 and 102.1 per 100,000 population, respectively) and was the highest in metropolitan Sydney (Table 20).

Table 20: Potentially avoidable deaths (average number per year), persons under 75 years of age, NSW and SWS, 2015-16

	NSW			SWS		
	Males	Females	Persons	Males	Females	Persons
Average number per year	5364.5	3108.0	8472.5	598	350.5	948.5
Rate per 100,000 population	130.1	74.8	102.1	133.7	75.0	104.0

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

Aboriginal people died from potentially avoidable deaths at a rate around 2.4 times higher than non-Aboriginal people in the combined years 2012 to 2016. Among SWS LGAs, Campbelltown LGA had a higher rate of potentially avoidable deaths compared with NSW (128.3 and 104.0 per 100,000 population, respectively).

4.5 Chronic Conditions and Diseases Prevalence

Chronic diseases are the leading cause of ill health, disability and death, and have a significant impact on the health sector. The term 'chronic disease' refers to a wide group of conditions, illnesses and diseases. Chronic diseases are generally characterised by their long-lasting and persistent effects, which distinguish them from 'acute' conditions—that is, conditions that first manifest over a short period, and often with potentially intense and severe effects.

In 2014–15, more than 11 million Australians had at least one of eight selected chronic diseases. Chronic diseases were associated with:

- more than 7 in 10 deaths
- around 1 in 3 problems managed in general practice
- more than 1 in 3 potentially preventable hospitalisations
- almost 1 in 3 people aged 65 years and over reporting having three or more chronic diseases, compared with 2.4% of people aged under 45 years [2]

Figure 24: Most common selected chronic diseases in Australia, by age and sex, 2014–15

	Age group			Sex		
	0–44	45–64	64+	Males	Females	People
1	Mental health conditions	Cardiovascular disease	Cardiovascular disease	Cardiovascular disease	Mental health conditions	Cardiovascular disease
2	Asthma	Arthritis	Arthritis	Back pain and problems	Cardiovascular disease	Mental health conditions
3	Back pain and problems	Back pain and problems	Back pain and problems	Mental health conditions	Arthritis	Back pain and problems
4	Cardiovascular disease	Mental health conditions	Mental health conditions	Arthritis	Back pain and problems	Arthritis
5	Arthritis	Asthma	Diabetes	Asthma	Asthma	Asthma

Source: ABS 2015

About 1 in 2 (49%) of South West Sydney residents reported having a long term health condition, one of selected common chronic conditions: cancer, cardiovascular disease, mental health conditions, chronic obstructive pulmonary disease, asthma and diabetes.

Data on some of the most common and important chronic diseases in South West Sydney are featured in individual snapshots in this chapter. Although chronic diseases cover a diverse group of conditions, the analyses presented in this feature article focuses on self-reported data from the Australian Bureau of Statistics (ABS) 2014–15 National Health Survey (NHS) (ABS 2015), unless otherwise specified, for the following chronic diseases:

- arthritis
- asthma
- back pain and problems
- cancer (data based on the NSW Cancer Institute)
- cardiovascular disease (such as coronary heart disease and stroke)
- chronic obstructive pulmonary disease (COPD)
- chronic kidney disease
- diabetes
- mental health conditions (data based on the National Mental Health Service Planning Framework – NMHSPF)
- dementia

In addition, oral health and gastrointestinal diseases are described in this section.

These diseases were selected because they are common, pose significant health problems, have been the focus of ongoing national surveillance efforts, and action can be taken to prevent them.

4.5.1 Diabetes

Diabetes mellitus is a group of closely related chronic conditions characterised by high blood sugar (glucose) levels where insulin (a hormone controlling blood glucose levels) is not produced in sufficient amounts, or not at all, by the body. There are three main forms of diabetes mellitus: type 1 diabetes, type 2 diabetes and gestational diabetes.

Type 1 diabetes is estimated to be present in 10-15% of people with diabetes and is caused by a combination of genetic and environmental factors, but there are no known modifiable risk factors for this form of diabetes.

Type 2 diabetes accounts for about 85-90% of all diabetes cases and is preceded by a period of impaired glucose tolerance (IGT) and/or impaired fasting glucose (IFG). Several modifiable risk factors play a role in the onset of type 2 diabetes, including obesity, physical inactivity, poor nutrition and prior gestational diabetes mellitus (GDM), as do other factors such as genetic predisposition, ageing and ethnicity.

Gestational diabetes mellitus is diagnosed during pregnancy in about 13% of females not previously known to have diabetes. It often represents pre-existing dysglycaemia and a significant proportion of women have IGT, IFG or diabetes after birth. Such women may progress to

undiagnosed diabetes by the time of their next pregnancy exposing their baby to the toxic effects of intrauterine hyperglycaemia.[57]

The fourth, minor group, includes monogenic diabetes (e.g. Maturity-Onset diabetes of the Young) and diabetes secondary to other conditions, for example diseases of the pancreas or drug-induced or chemical-induced diabetes.

Diabetes can lead to acute and chronic complications. Acute metabolic disturbances can lead to coma and death. Diabetes in Pregnancy is a significant cause of foetal malformations, stillbirth and other adverse pregnancy outcomes. Chronic complications can include vision loss, amputations, cardiovascular and renal disease. Diabetes is the leading cause of treated end-stage kidney disease (ESKD) in Australia, accounting for one in three new cases in 2011.[58]

Diabetes and its associated complications contribute significantly, both directly and indirectly, to mortality, morbidity, poor quality of life of those with diabetes and their carers and the cost of health care. The number of people with type 2 diabetes is growing as a result of rising overweight and obesity rates, lifestyle and dietary changes and an ageing population.

According to the Bureau of Statistics (ABS) 2014–15 National Health Survey:

- 280 Australians develop diabetes every day-1 person is diagnosed every 5 minutes
- For every 4 adults with diagnosed diabetes there is 1 with undiagnosed diabetes
- Increasing rapidly up to age 75 years, with rates among 65–74 year-olds (17%), 3 times as high as for 45–54 year-olds (5%) and 1.4 times as high as for 55–64 year olds (12%)
- Aboriginal Australian adults were almost 4 times as likely to have diabetes compare to non-Aboriginal Australians
- Around 1 in 8 Aboriginal Australian adults (46,200 people) had diabetes. More common in Aboriginal females than males
- Socioeconomic disadvantage was associated with higher diabetes (prevalence, hospitalisation and death) rates
- 1 in 10 Australian deaths in 2014 had diabetes as an underlying and/or associated cause of death.

Diabetes prevalence

Table 21: Prevalence of diabetes mellitus, persons aged 16 years and over, NSW and SWS, 2017

NSW	SWS
• 10.1%	• 10.8%

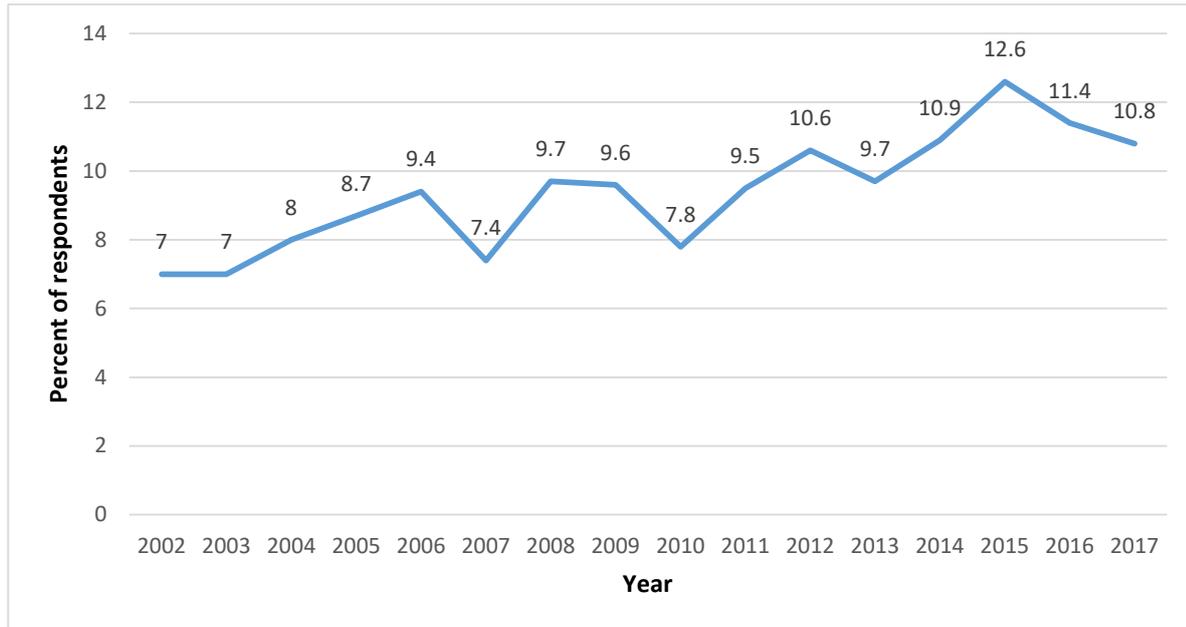
Source: NSW Population Health Survey (SAPHaRI). Centre for Epidemiology and Evidence, NSW Ministry of Health.

In SWS, 10.8% of adults aged 16 years and over self-reported having diabetes or high blood glucose as estimated from the 2017 NSW Adult Population Health Survey. The diabetes prevalence in SWS is very close to the prevalence for NSW.

Over the period 2002 to 2017, there was some fluctuation in diabetes prevalence from year to year, however the underlying trend has been increasing prevalence over time from around 7% in 2002 to around 11% in 2017 (Figure 25).

Prevalence data for diabetes are mostly collected by self-reporting methods, and less often through more accurate biomedical measures. A large proportion of the Australian population who have diabetes remains undiagnosed. It is estimated one in four people with diabetes is unaware of having the condition. This finding limits the value of self-reported data for estimating population prevalence.

Figure 25: Diabetes and high blood glucose prevalence for SWS adults (16 years and over), 2002-2017



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

Diabetes prevalence increases with age and socioeconomic disadvantage, and diabetes is more prevalent among Aboriginal population and people from the CALD background particularly those from non-European descent.

Type 1 Diabetes

Type 1 diabetes is estimated to be present in 10-15% of people with diabetes and is caused by a combination of genetic and environmental factors, but there are no known modifiable risk factors for this form of diabetes. Insulin replacement therapy is essential for all people with type 1 diabetes as the body's immune system destroys the insulin-making cells in the pancreas and the pancreas stops making insulin. Type 1 diabetes is currently the most common form of diabetes in children and young adults.

Type 2 Diabetes

Type 2 diabetes accounts for about 85-90% of all diabetes cases and primarily affects people older than 40 years. Around 20% of people with type 2 diabetes use insulin. Several modifiable risk factors play a role in the onset of type 2 diabetes, including obesity, physical inactivity and poor nutrition, as do genetic predisposition and ageing.

SWS has 64,971 persons registered with the National Diabetes Services Scheme (NDSS) at a higher rate compared with NSW (6.7% and 5.3% respectively). The prevalence of persons registered with the service ranges from 4.4% for females in Wingecarribee to 7.9% for females in Fairfield. Wingecarribee, Wollondilly and Camden have lower rates of registrants compared with the state average (Table 22).

Table 22: Number and prevalence of NDSS registrations for SWS non-Aboriginal population aged ≥ 9 years by LGA and gender, 2011

LGAs	NDSS Registrants (n)			Prevalence (%)		
	Female	Male	Persons	Female	Male	Persons
Non-Indigenous						
Bankstown	6740	6782	13522	6.4	6.5	6.5
Camden	1642	1756	3398	5.0	5.4	5.2
Campbelltown	6163	5928	12091	7.3	7.2	7.2
Fairfield	8577	7979	16556	7.9	7.5	7.7
Liverpool	7317	7058	14375	7.1	6.9	7.0
Wingecarribee	1152	1328	2480	4.4	5.4	4.9
Wollondilly	1190	1359	2549	4.8	5.5	5.2

Source: Diabetes Map www.diabetesmap.com.au. Accessed on July 2018

Note: The data contained in the Australian Diabetes Map is derived from the National Diabetes Services Scheme (NDSS) Registrant database* and the Australian Bureau of Statistics (ABS) 2011 and shows people diagnosed with diabetes that are registered on the Scheme. Those registered include those who access supplies such as glucose monitoring strips and omits a significant proportion of those with type 2 diabetes.

Diabetes Australia estimates that the NDSS covers 80%–90% of people with diagnosed diabetes.

According to the NDSS, about 87.1% of the registrants in SWS are diagnosed with type 2 diabetes, which is equal to the percentage of registrants nationally and higher than the state percentage of 86.2%.

Fairfield and Bankstown have the highest number of registrants with type 2 diabetes in SWS and those two LGAs have a higher proportion of older people over 55 years of age.

The prevalence of type 1 diabetes in SWS is lower than the state and national prevalence. The prevalence of type 1 diabetes is high in the Macarthur region with Camden (11.1%) and Wollondilly (11%) having significantly higher prevalence rates than the state and national rate, followed by Wingecarribee (9.8%) (Table 23).²

² The National Diabetes Services Scheme (NDSS) is an Australian Government initiative and is administered with the assistance of Diabetes Australia. NDSS is open to persons who are diagnosed with diabetes to access NDSS support services and provides access to a range of diabetes products at a subsidised cost. To register, the registration form needs to be certified by medical practitioners, nurse practitioners or diabetes educators.

Table 23: Number and prevalence of NDSS registrations for SWS population by type of diabetes and LGA, 2011

LGAs	Type 2	Type 1	Other
Bankstown	11,785 (87.1%)	1,042 (7.7%)	72 (0.5%)
Camden	2,817 (82.9%)	377 (11.1%)	31 (0.9%)
Campbelltown	10,454 (86.5%)	997 (8.2%)	89 (0.7%)
Fairfield	14,895 (90%)	1,020 (6.2%)	99 (0.6%)
Liverpool	12,405 (86.3%)	1,070 (7.4%)	101 (0.7%)
Wingecarribee	2,114 (85.2%)	244 (9.8%)	26 (1%)
Wollondilly	2,131 (83.6%)	280 (11%)	28 (1.1%)
SWS	56,615 (87.1%)	5,031 (7.7%)	446 (0.7%)
NSW	359,899 (86.2%)	40,907 (9.8%)	2,893 (0.7%)
Australia	87.1%	9%	0.6%

Source: Diabetes Map www.diabetesmap.com.au. Accessed on 16 July 2018.

Note: Gestational diabetes is not included as the denominator should be births not women in the age group.

Gestational diabetes

The prevalence rate of gestational diabetes in SWS is higher than the state and national rate. The high prevalence in SWS is driven by the increasing proportion of the population that is overweight and obese from a young age.[59]

In the case of uncontrolled gestational diabetes, the adverse pregnancy outcomes could include pregnancy loss, premature delivery and stillbirth. Complications to the baby might include excessive birth weight, preterm birth, respiratory distress syndrome, hypoglycemia, jaundice and increased future risk for developing obesity and type 2 diabetes. Gestational diabetes is a major challenge for SWS with its reported incidence progressively increasing from 7.8% in 2010 to 21.2% in 2014.[60]

Diabetes in Aboriginal population

Aboriginal Australians are 3.5 times more likely than non-Aboriginal Australians to have diabetes. In SWS about 2.9% of Aboriginal population have been registered with NDSS, similar to the state rate of 3%. However, the registration rates for Fairfield and Bankstown LGAs are higher than the state average (3.3% and 3.8%) compared to 3% for the state (Table 24).

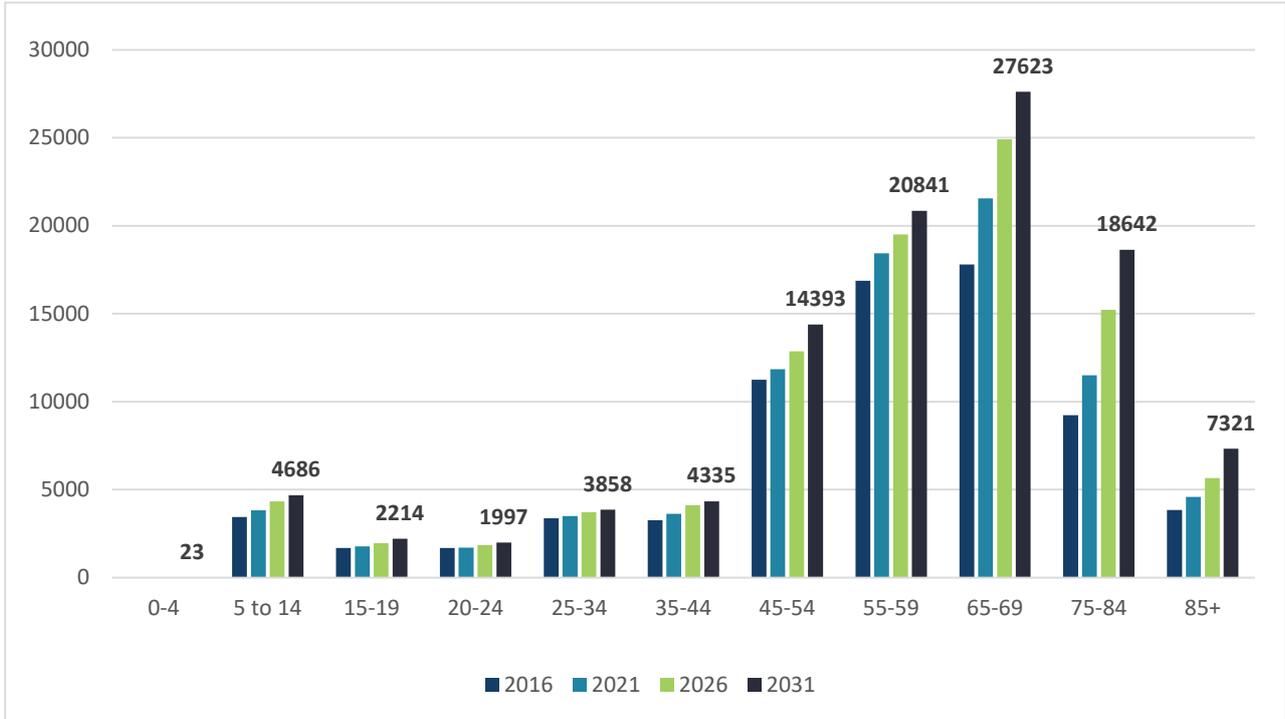
Table 24: Number and prevalence of diabetes for SWS Aboriginal population aged ≥ 9 years by LGA, 2018

LGAs	Aboriginal-NDSS Registrants (n)	Prevalence (%)
Bankstown	75	3.8
Camden	40	2.6
Campbelltown	200	3.0
Fairfield	61	3.3
Liverpool	108	2.9
Wingecarribee	25	2.2
Wollondilly	31	2.1

Source: Diabetes Map www.diabetesmap.com.au. Accessed on July 2018.

Based on the prevalence rates for SWS from the NSW Population Health Survey, it was estimated that 72,462 people had diabetes in 2016, excluding gestational diabetes. This number is expected to increase by 46.2% by 2031 to 105,933 people with diabetes (Figure 26).

Figure 26: Estimated number of persons with diabetes in SWS by age, 2016 to 2031



As the number of people aged 65 years and over increases in the future, and taking into account a higher diabetes prevalence for this age group, over half of all persons with diabetes will be in this age group. According to *the Australian Diabetes, Obesity and Lifestyle Study (AusDiab)*, between 15 and 30 % of people with IGT and/or IFG are likely to develop type 2 diabetes within five years.

Diabetes related hospitalisations

Diabetes can lead to acute and chronic complications which can result in the need for constant and long-term treatment, hence diabetes imposes a large burden on the health system and on the community. [61]

The change in coding in both principal and additional diagnoses had a negative impact on the use of hospital data to monitor the burden of diabetes in the population. In the principal diagnosis the change had a dramatic effect on hospitalisation rates, with an almost 60% drop in rates between 2009-10 and 2010-11. The long term trend of hospitalisations for diabetes in the principal diagnosis no longer reflected the rising prevalence of type 2 diabetes.

In NSW between 2010-11 and 2016-17, the hospitalisation rate for diabetes as a principal diagnosis did not change substantially. While type 2 diabetes accounts for up to 90% of all diabetes cases in the community, it accounted for around 63% of all hospitalisations for diabetes

in 2016-17. Type 1 diabetes accounted for around 31% of hospitalisations and gestational diabetes for around 5%.

In 2016-17, there were 1,523 people were hospitalised in SWS rates for diabetes with a principal diagnosis of diabetes at a rate of 161 per 100,000 people compared to 140 per 100,000 people for NSW. SWS had the highest hospitalisation rate for diabetes as a principal diagnosis in metropolitan Sydney (Table 25).

Table 25: Diabetes, as a principal diagnosis: hospitalisations (number and rate per 100,000 population), SWS and NSW 2016-2017

	Gender	Number	Rate per 100,000 population
SWS	Males	816	172.5
	Females	707	142.5
	Persons	1,523	156.5
NSW	Males	6,758	161.4
	Females	5,204	122.5
	Persons	11,962	140.4

1. Diabetes was the principal reason for hospitalisation when it was coded in the first diagnosis field. Gestational and diabetes in pregnancy are included.

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

Hospitalisation rates for diabetes recorded as a principal diagnosis 2015-16 to 2016-17 were higher in Campbelltown (217 per 100,000 population), Liverpool (167 per 100,000 population) and Canterbury-Bankstown (154 per 100,000 population) LGAs compared with NSW (140 per 100,000 population) (Table 26).

Table 26: Diabetes as a principal diagnosis: hospitalisations (number and rate) for SWS residents by LGA, 2015-16 to 2016-17

LGA	Number of Hospitalisations per Year	Rate per 100,000 population
Camden	98.6	122.6
Campbelltown	350.5	217.0
Canterbury-Bankstown [^]	556.3	153.8
Fairfield	216.4	105.0
Liverpool	354.7	167.1
Wingecarribee	64.9	132.7
Wollondilly	82.1	165.8

[^]The data is available with the new LGA of Canterbury-Bankstown
Centre for Epidemiology and Evidence. Health Statistics New South Wales. Sydney: NSW Ministry of Health.

There were variations across age groups for type 1 diabetes hospitalisations, where rates were higher for the age groups 0-24 years (79.3 vs.74.3 per 100,000 population) and 35-44 years (55.3 vs. 47.7 per 100,000 population) in SWS compared to NSW. The hospitalisation rates for type 2 diabetes were consistently higher than the state rates across all age groups, except for people 65 to 75 years of age where rates were slightly lower than for NSW.

Diabetes complications are amongst the most common chronic conditions for which hospitalisation is considered to be potentially preventable. The term potentially preventable hospitalisation does not mean that a patient admitted for that condition did not need to be hospitalised at the time of admission, rather, the hospitalisation may have been prevented by timely and appropriate provision of primary or community-based health care [61].

The SWSLHD average length of stay (LOS), for all separations (aged 16 years and over) in 2014 was reported as 3.95 days, however this average was much greater for patients with primary diabetes care (5.55 days) and for patients with diabetes as a secondary issue (6.25 days). It is noted that some 24, 987 separations for patients with diabetes aged 16 years and over from facilities in SWSLHD during 2014 had a diagnosis of diabetes of which only 21.5% were admitted primarily for diabetes management. The increase LOS is estimated at 2.3 days per 24, 987 separations or 57 470 bed days in 2014 across the SWSLHD.[60]

In SWS, the age-standardised rate of potentially preventable hospitalisation for diabetes complications was 148 per 100,000 people and was lower than the national rate of 183 per 100,000. Within SWS, rates for Campbelltown, Liverpool and Bankstown are higher than the overall rate for SWS. More than one third of a number of bed days in SWS were for Bankstown residents (2,134 bed days) with an average length of stay of 7.1 days, which was higher than the SWS and national average length of stay (5.2 and 5.3 days, respectively) (Table 27).

Table 27: Potentially preventable hospitalisations for diabetes complications, SWS and Australia, by SA3, 2015-16

SA3 name	PPH per 100,000 people (age-standardised)	PPH per 100,000 people (crude)	Number of PPH	Number of same day PPH	% of same day PPH	Total PPH bed days	Average length of stay (days)
Southern Highlands	110	133	64	10	15.6	236	3.7
Bankstown	162	170	302	89	29.5	2,134	7.1
Camden	86	75	47	10	21.3	200	4.3
Campbelltown	242	225	360	159	44.2	1,557	4.3
Wollondilly	104	104	42	9	21.4	175	4.2
Merrylands - Guildford	126	124	191	44	23	1,132	5.9
Bringelly - Green Valley	138	126	122	25	20.5	563	4.6
Fairfield	108	113	217	45	20.7	1,190	5.5
Liverpool	178	165	194	35	18	1,002	5.2
SWSPHN	148	149	1,403	392	27.9	7,364	5.2
National	183	198	47,113	13,510	28.7	251,221	5.3

Note: Statistical Area (SA) Level 3. All information relates to where a person lived, not where they went to hospital.

Parts of Merrylands-Guildford SA3 are within Fairfield and Bankstown LGAs.

Source: [MyHealthyCommunities](#), accessed 16 July 2018.

Diabetes related deaths

Between 2009 and 2014, death rates fell by 20% for people with type 1 diabetes but rose by 10% for people with type 2 diabetes. As death rates have been declining in the general population, the mortality gap has widened for people with type 2 diabetes but reduced for people with type 1 diabetes, compared with the general population.

Age-adjusted death rates for people with diabetes were almost double those for the general Australian population. The disparity in death rates was highest in people aged under 45 with type 1 diabetes (4.5 times as high), and type 2 diabetes (5.8 times as high).

Age-adjusted death rate for diabetes for SWS residents in 2015 was higher than NSW (39.7 and 29.7 per 100,000 population, respectively) (Table 28). The rate of diabetes related deaths in SWS was the second highest in metropolitan Sydney.

Table 28: Diabetes related deaths (total underlying +selected associated), SWS and NSW, number and rate per 100,000 population, 2015

	Gender	Number	Rate per 100,000 population
SWS	Males	197	46.7
	Females	182	33.7
	Persons	379	39.7
NSW	Males	1,627	38.9
	Females	1,288	22.1
	Persons	2,915	29.7

1. Diabetes-related deaths are those where diabetes is either the underlying cause of death or it is an associated cause of death, where the underlying cause is one of the commonly recognised complications of diabetes.

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

At the LGA level, rates for diabetes related deaths in SWS were higher in Campbelltown (45.2 per 100,000 population), Liverpool (41.9 per 100,000 population), Fairfield (41.2 per 100,000 population) and Canterbury – Bankstown LGAs (36.5 per 100,000 population) compared with NSW (29.7 per 100,000 population).

4.5.2 Cardiovascular Diseases

Cardiovascular (or circulatory) diseases (CVD) comprise all diseases of the heart and blood vessels. [61] 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, and peripheral vascular disease.

Modifiable risk factors such as diabetes, tobacco smoking, physical inactivity, risky alcohol consumption, high blood pressure, elevated blood lipids, and overweight or obesity can have a marked effect on the prevalence of CVD in the community. Other risk factors for CVD, such as age, sex, ethnicity and a family history of the disease are non-modifiable. [62]

According to the National Health Survey (NHS) 2014-15:

- One in six Australians are affected by CVD
- Prevalence increases with age—half (53%) of 65–74 year olds and two-thirds (66%) of those over 75 years of age had CVD
- 120 Australians die from CVD each day, or one every 12 minutes
- CVD accounts for 15 % of the total burden of disease in Australia, second only to cancers at 19 % of the total burden
- People in the lower socioeconomic groups, Aboriginal and Torres Strait Islander people and those living in regional and remote areas generally have higher rates of hospitalisation and death resulting from CVD than other Australians

CVD prevalence

Based on the ABS NHS 2014-15, the estimated CVD prevalence in SWS is lower than the national and state prevalence (17.2% vs. 21.5% and 21.3%, respectively).

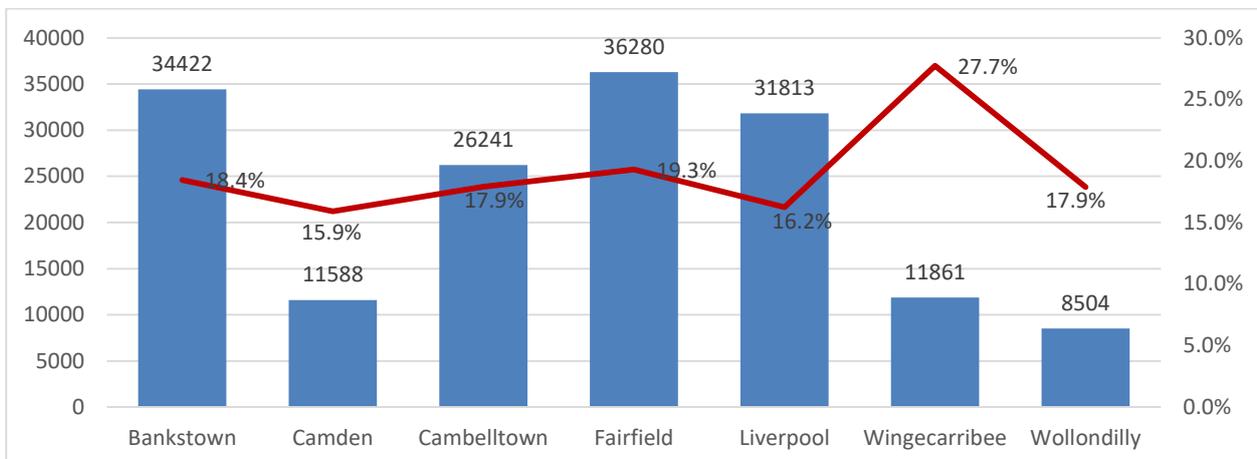
Table 29: Prevalence of CVD, persons aged 18 years and over, Australia, NSW and SWS

Australia	NSW	SWS
• 21.5%	• 21.3%	• 17.2%

1. CVD prevalence includes all persons aged 18+ with diseases of the circulatory system which includes a range of circulatory conditions such as ischaemic heart disease, cerebrovascular disease, oedema, heart failure, and diseases of the arteries, arterioles and capillaries. Note the SWS prevalence is an estimated prevalence based on the Australian rate taken from the 2014/15 National Health Survey and the SWS population.

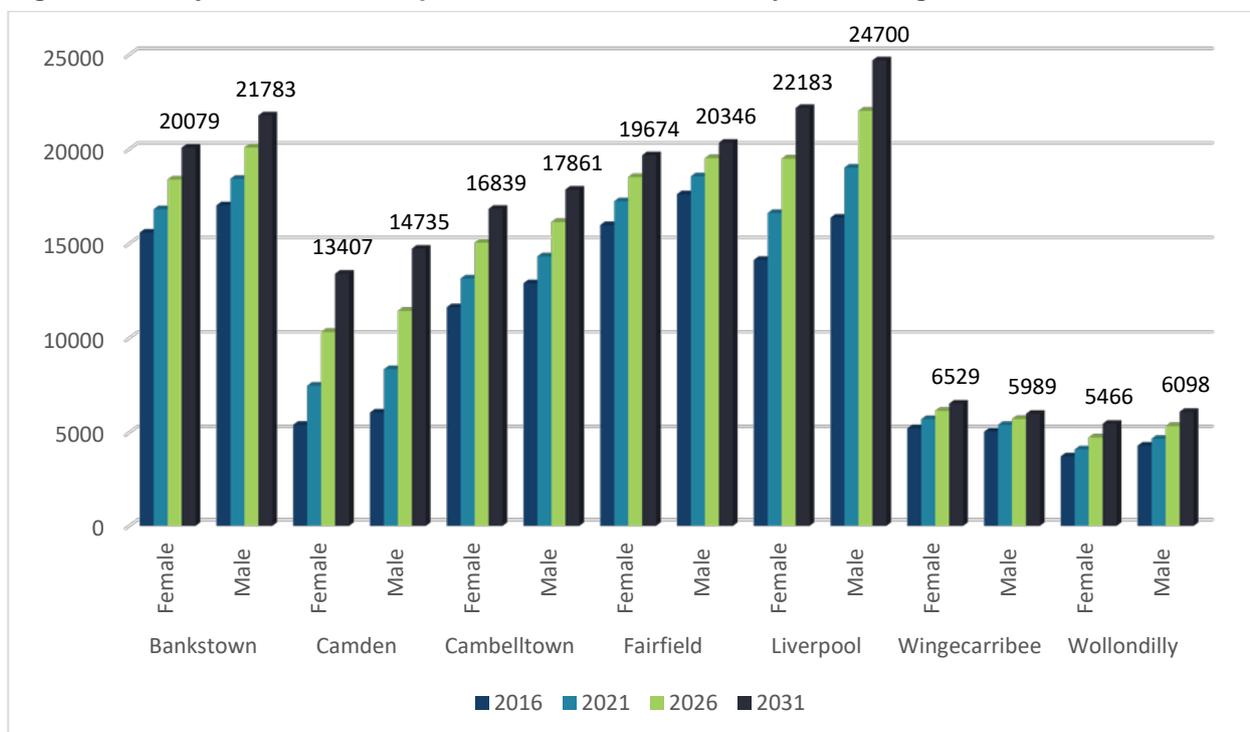
The average prevalence rate of CVD in SWS for females is 19.1% and for males is 16.7%. The estimated prevalence rate of CVD across LGAs ranges from 13.8% for males in Camden to 27.7% for females in Wingecarribee. Fairfield and Bankstown have the highest number of persons with CVD (36,280 and 34,422, respectively) (Figure 27).

Figure 27: Estimated prevalence rate for CVD for SWS residents by LGA, 2016



The number of residents with CVD in SWS is projected to increase by 38% by 2031 rising from 160,710 people in 2016 to 221,197 people in 2031. The highest increase is expected in Camden and Liverpool LGAs (56% and 38.5% respectively) (Figure 28).

Figure 28: Projected number of persons with CVD in SWS by LGA and gender, 2016 to 2031



Coronary heart disease and atrial fibrillation/ flutter contribute the most to circulatory diseases' hospitalisation burden, followed by heart failure and stroke. Coronary heart disease is a major cause of hospital admissions and deaths. Coronary heart disease caused 6,608 deaths in 2015 and was the principal reason for around 49,000 hospitalisations in NSW in 2016-17. [63]

The prevalence rate of coronary heart disease in SWS is 4.9% and ranges from 4.1% for persons in Camden to 8.3% for males in Wingecarribee. The rate of coronary heart disease increases strongly for those aged 45 and over and triples for individuals aged 65 and over. The number of residents with coronary heart disease in SWS is projected to increase by 60% between 2016 and 2031 rising from 45,603 persons to 72,743 persons.

CVD related hospitalisations

Circulatory diseases cause more than 15,000 deaths and about 150,000 hospitalisations of NSW residents in each year.

In 2015-16, hospitalisation rates for circulatory diseases were lower in SWS for both males and females compared with NSW (1984.3 vs. 2172.7 per 100,000 male population and 1263.7 vs.1314.0, per 100,000 female population, respectively). Males tend to be hospitalised more often than females (Table 30).

Table 30: All Circulatory disease* hospitalisations, SWS and NSW, number and rate per 100,000 po, 2015-2016

	Gender	Number	Rate per 100,000 population
SWS	Males	9,185	1984.3
	Females	6,523	1263.7
	Persons	15,708	1606.0
NSW	Males	92,621	2172.7
	Females	64,773	1314.0
	Persons	157,395	1722.8

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

*All circulatory diseases include: coronary heart disease, peripheral vascular disease, stroke, atrial fibrillation/ flutter, varicose veins of lower extremities, paroxysmal tachycardia, haemorrhoids, transient ischaemic attacks and remaining circulatory diseases.

Among SWS LGAs, only Camden and Campbelltown had higher hospitalisation rates compared with the state (1820.8 and 1863.0 vs. 1722.8 per 100,000 population, respectively) while the rest of SWS had lower or similar hospitalisation rates to NSW (Table 31).

Table 31: All circulatory disease* hospitalisations for SWS residents, number of separations and rate (per 100,000 population) by LGA, 2014-15 to 2015-16

LGAs	Separations	Rate (per 100,000 population)
Camden	1,329	1820.8
Campbelltown	2,973	1863.0
Canterbury Bankstown	5,722	1610.6
Fairfield	2,990	1462.3
Liverpool	3,332	1620.9
Wingecarribee	719	1503.0
Wollondilly	827	1719.2

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

There were 2,213 hospitalisations for heart failure in SWS in 2016, making up of 12% of the NSW hospitalisations. SWS had the second highest hospitalisation rate for the heart failure in metropolitan Sydney. Rates were higher for both males and females compared to the state rates (254.7 vs. 232.2 and 175.8 vs. 147.4, respectively) (Table 32).

Table 32: Hospitalisations for heart failure, SWS and NSW, number and rate per 100,000 population, 2016-17

	Gender	Number	Rate per 100,000 population
SWS	Males	1,187	254.7
	Females	1,026	175.8
	Persons	2,213	213.7
NSW	Males	10,098	232.2
	Females	8,586	147.4
	Persons	18,684	186.0

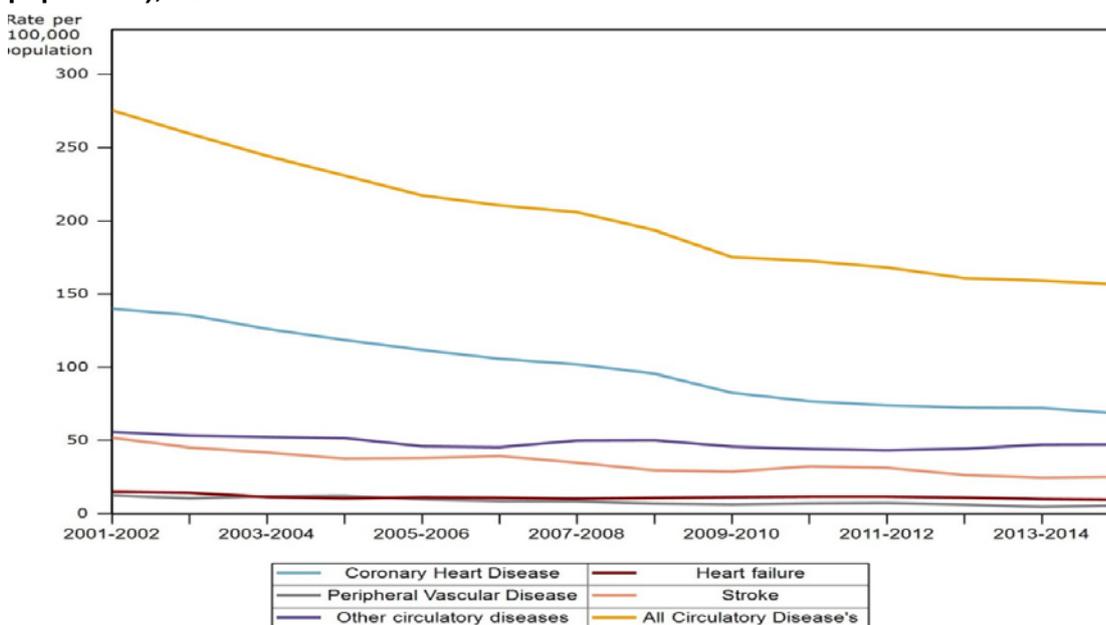
Source: NSW Combined Admitted Patient Epidemiology Data and ABS population estimates (SAPHaRI).
Centre for Epidemiology and Evidence, NSW Ministry of Health.

Hospitalisation rates were significantly higher for residents of Campbelltown, Canterbury-Bankstown, Fairfield and Liverpool LGAs compared to NSW (219.4, 200.5, 228.9 and 226.1 compared with 186.0. per 100,000 population, respectively).

CVD related deaths

Cardiovascular disease is still the leading cause of death in Australia with 43,963 deaths or 28% of all deaths in 2015, but the death rate has been declining. In SWS, there was a decline in the overall number of CVD's deaths between 2001-2002 and 2009-2010. Since then, mortality rates have been in steady decline (Figure 29). However, declining mortality rates could be at risk due to increase in overweight and obesity rates, physical inactivity and excessive alcohol consumption.

Figure 29: Circulatory disease deaths by disease type for SWS residents (rate per 100,000 population), NSW 2001-2002 to 2014-2015



In 2015, there were 1,518 deaths attributed to circulatory diseases in SWS. The death rates in SWS were slightly higher for females and lower for males compared to NSW (Table 33).

Table 33: All circulatory disease* deaths, number and rates per 100,000 population, 2015

Australia	NSW	SWS
<ul style="list-style-type: none">Total deaths 43,963 (28% of all deaths)	<ul style="list-style-type: none">Total deaths 15,821<ul style="list-style-type: none">Males 179.8Females 129.5	<ul style="list-style-type: none">Total deaths 1,518<ul style="list-style-type: none">Males 178.3Females 135.8

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

Heart failure was the underlying cause of 1,138 deaths in NSW in 2016 and was a contributing cause in many more. About 100 people per year (2015-16) die from heart failure in SWS, with death rates per 100,000 population for both males and females similar to the state.

Coronary heart disease caused 6,400 deaths in NSW in 2016, and about 600 in SWS. The death rate was significantly higher for Campbelltown residents compared to NSW. Among people with diabetes, CVD is a major complication and leading cause of death.

5.4.2.2 High Blood Pressure

Hypertension (commonly known as high blood pressure) is a condition in which blood pressure in the arteries is elevated, requiring the heart to work harder than normal to circulate blood throughout the body. High blood pressure is defined when person has systolic or diastolic blood pressure $\geq 140/90$ mmHg or is taking medication. High blood pressure can lead to serious health problems such as heart attack, stroke, heart failure or kidney disease.

According to the NHS 2014-15, close to 5 million Australians (23%) aged 18 years and over had high blood pressure. Men were more likely to have uncontrolled or unmanaged high blood pressure than women (24.4% vs. 21.7%, respectively), the proportion of Australians with uncontrolled or unmanaged high blood pressure increased with age.

About 28.4% of people over 16 years of age in SWS reported having high blood pressure in 2013 compared to 28.4% for NSW (Table 34).

Table 34: Prevalence of high blood pressure, persons aged 16 and over, NSW and SWS, 2013

NSW	SWS
<ul style="list-style-type: none">28.4%	<ul style="list-style-type: none">26.3%

Source: SAPHaRI, Centre for Epidemiology and Evidence, NSW Ministry of Health.

High blood pressure attributed hospitalisations

High blood pressure was the leading risk factor for disease burden, it contributed to over 40% of heart disease and stroke deaths.

In 2016-17, 3,102 people in NSW were admitted to hospital for reasons attributed to hypertension. About 14% of the NSW hospitalisations was for the SWS residents. The rate of potentially preventable hospitalisations for hypertension in SWS was higher than the state rate (42.9 and 33.7 per 100,000 population, respectively) (Table 35).

Table 35: Potentially preventable hospitalisations attributed to hypertension, number and rates per 100,000 population, 2016-2017

	Number	Rate per 100,000 population
SWS	429	42.9
NSW	3,102	33.7

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

5.4.2.3 High Cholesterol

High blood cholesterol is a major risk factor for ischaemic heart disease (IHD), ischaemic stroke and peripheral vascular disease. Total blood cholesterol levels exceeding 5.5 mmol/L greatly increase the risk of IHD, while levels above 6.5 mmol/L represent extremely high risk. At high levels in the bloodstream, cholesterol can cause plaques to form in blood vessels, leading to clogged vessels.

The self-reported prevalence of high blood cholesterol in SWS residents was similar to NSW prevalence (20.9% vs. 22.2%, respectively) (Table 36).

Table 36: Prevalence of high cholesterol, persons aged 16 years and over, NSW and SWS, 2013

NSW	SWS
• 22.2%	• 20.9%

Source: SAPHaRI, Centre for Epidemiology and Evidence, NSW Ministry of Health

4.5.3 Stroke

There are two main types of stroke: a blood clot or other particles blocking a blood vessel causes one type (ischaemic stroke, which is also known as cerebral infarction) and the rupturing and subsequent bleeding of a blood vessel causes the other (haemorrhagic stroke). This may result in part of the brain dying, leading to a sudden impairment that can affect a range of activities such as speaking, thinking, movement and communication.

Stroke is largely preventable because many of its risk factors are modifiable, such as high blood pressure, physical inactivity, overweight and obesity and tobacco smoking.

In Australia:

- 100 stroke events every day
- Prevalence of stroke was higher in males (2%) than females (1%)
- More common in older age groups—almost 3 in 4 people who had a stroke were aged 65 years and over
- Highest prevalence for aged 85 years and over
- 65% of stroke survivors suffer a disability which impedes their ability to carry out daily living activities unassisted
- Around 30% of stroke survivors are of working age (under the age of 65 years)
- Stroke kills more women than breast cancer and more men than prostate cancer.

(Source: AIHW, 2016)

Table 37: Stroke prevalence in Australia and SWS, 2016

Australia	SWS
Persons 2% <ul style="list-style-type: none"> • Males 2% • Females 1% 	Persons 1.35% <ul style="list-style-type: none"> • Males 1.4% • Females 1.3%

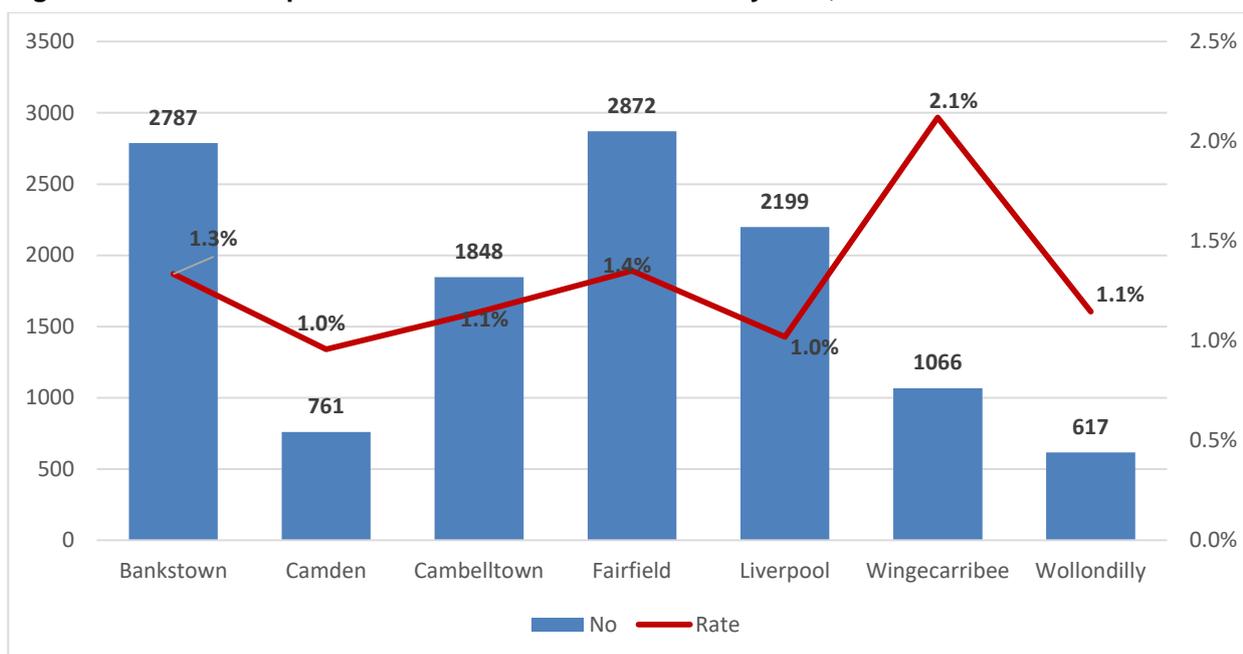
Note: Prevalence based on the assumption that 2% of Australian population had a stroke at some time in their lives, based on self-reported data from the ABS 2012 Survey of Disability, Ageing and Carers.

Data for the prevalence rate of stroke in Australia were obtained from the AIHW analysis of the ABS 2012 Survey of Disability, Ageing and Carers.

It was estimated that 12,151 (1.3%) of SWS residents had had a stroke at some time in their lives based on the data from the ABS 2012 Survey of Disability, Ageing and Carers and applied to the SWS population in 2016 (Figure 30).

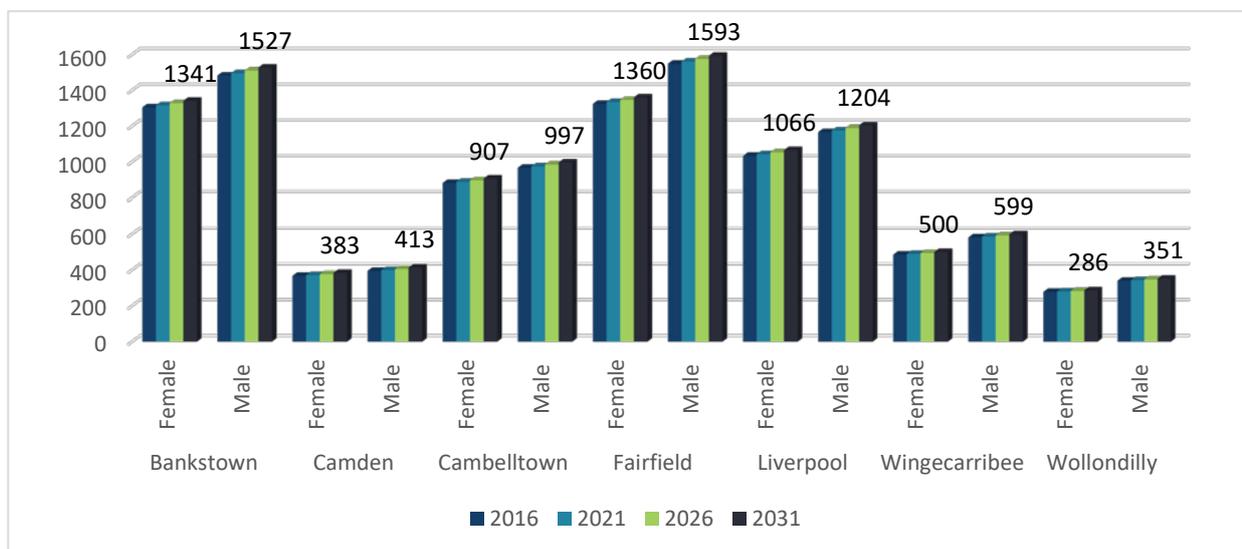
The prevalence rate ranges from 1% for females in Camden to 2.3% for males in Wingecarribee. Prevalence rates are slightly higher in males than in females. Stroke prevalence rate increases with age particularly for males aged 65 years and over.

Figure 30: Estimated prevalence rate for stroke for SWS by LGA, 2016



The estimated number of SWS residents who had a stroke is projected to increase by 3% by 2031, from 12,151 in 2016 people to 12,527 people in 2031. The highest increase is expected in Camden LGA (4.6%) due to the high population growth (Figure 31).

Figure 31: Projected number of residents with stroke events in SWS by LGA and gender, 2016 to 2031



Stroke related hospitalisations

Based on hospital and mortality data from 2014, there were about 35,200 stroke events in Australia, almost 100 every day. Males were more likely to have had a stroke than females (147 and 111 per 100,000 population, respectively).

The rate of stroke events fell by 27% between 2000 and 2014, from 176 to 128 events per 100,000 population [2].

Stroke hospitalisation rate for persons in SWS were similar to NSW (140.8 and 144.4 per 100,000 population, respectively) (Table 38).

Table 38: Stroke event hospitalisations-acute care, all ages, number and rate per 100,000 population, SWS and NSW, 2015-2016 and 2016-2017

	Gender	Number	Rate per 100,000 population
SWS	Males	757	158.6
	Females	685	124.6
	Persons	1,442	140.8
NSW	Males	7269	168.3
	Females	6489	122.4
	Persons	13,758	144.4

1. Rehabilitation episodes are excluded. Figures are based on where a person resides, rather than where they are treated.

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

Among SWS LGAs, only Campbelltown had a higher stroke hospitalisation rate than the state (160.2 compared to 144.4 per 100,000 population, respectively).

The average length of stay in acute hospital care was 8 days and in rehabilitation care 14 days. Dedicated stroke units in hospitals significantly improve the health outcomes of patients.

Stroke related deaths

In 2014-15, stroke killed 10,869 people in Australia, which represents 6.8% of all deaths. In SWS, 244 people died of stroke in 2014-15, comprising of 8% of stroke deaths in NSW. The death rates for stroke for both males and females in SWS were slightly lower than the NSW rates (25.9 vs. 27.8 and 24.2 vs. 27.9 per 100,000 population, respectively) (Table 39).

Table 39: Stroke attributed deaths, number and rate per 100,000 population, SWS and NSW, 2014 - 2015

	Gender	Number	Rate per 100,000 population
SWS	Males	106	25.9
	Females	138	24.2
	Persons	244	25.3
NSW	Males	1,155	27.8
	Females	1,725	27.9
	Persons	2,880	28.2

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

Overall, there is little difference in the death rate for stroke between males and females, but a difference does exist across age groups. For males under the age of 85, the death rate from stroke is higher than that for females, while for those aged 85 and over the female death rate is higher.

However, among the 35–49 year olds, there were more deaths among females than males. Stroke deaths are commonly associated with other diseases, particularly with other cardiovascular diseases such as hypertensive disease and coronary heart disease where stroke is listed as the underlying cause of death.

4.5.4 Kidney Disease

Kidney disease encompasses a broad range of disorders affecting the kidney/renal tract. While there are some minor and acute (resolving) problems related to the kidneys, many kidney diseases cause ongoing damage and permanent loss of kidney function. Most people do not know that they have kidney disease and up to 90% of kidney function can be lost before symptoms appear.

Chronic kidney disease (CKD) occurs when there is evidence of kidney damage or reduced kidney function that has lasted for at least 3 months. CKD is largely preventable as many of its risk factors, such as high blood pressure, insufficient physical activity, overweight and obesity, and smoking, are 'modifiable'. Diabetes and high blood pressure are two of the most common causes of CKD.

According to the measured data from the ABS 2011–12 National Health Survey:

- 1 in 3 adult Australians is at an increased risk of developing CKD
- In Australia: 1,712,500 (10%) of non-Aboriginal Australian population and 59,600 (17.9%) of Aboriginal population have CKD
- In NSW: 586,400 (10.6%) of non-Aboriginal and 15,400 (14.6%) of Aboriginal population have CKD
- Less than 10% of the people with CKD are aware they have this condition. For example, self-reported data for chronic kidney disease substantially underestimate its prevalence compared with biomedical testing: 1% versus 10% respectively
- 1 in 6 (17%) of hospitalisations in Australia are for CKD.

Table 40: Prevalence of kidney disease, persons aged 18 years and over, 2014-15

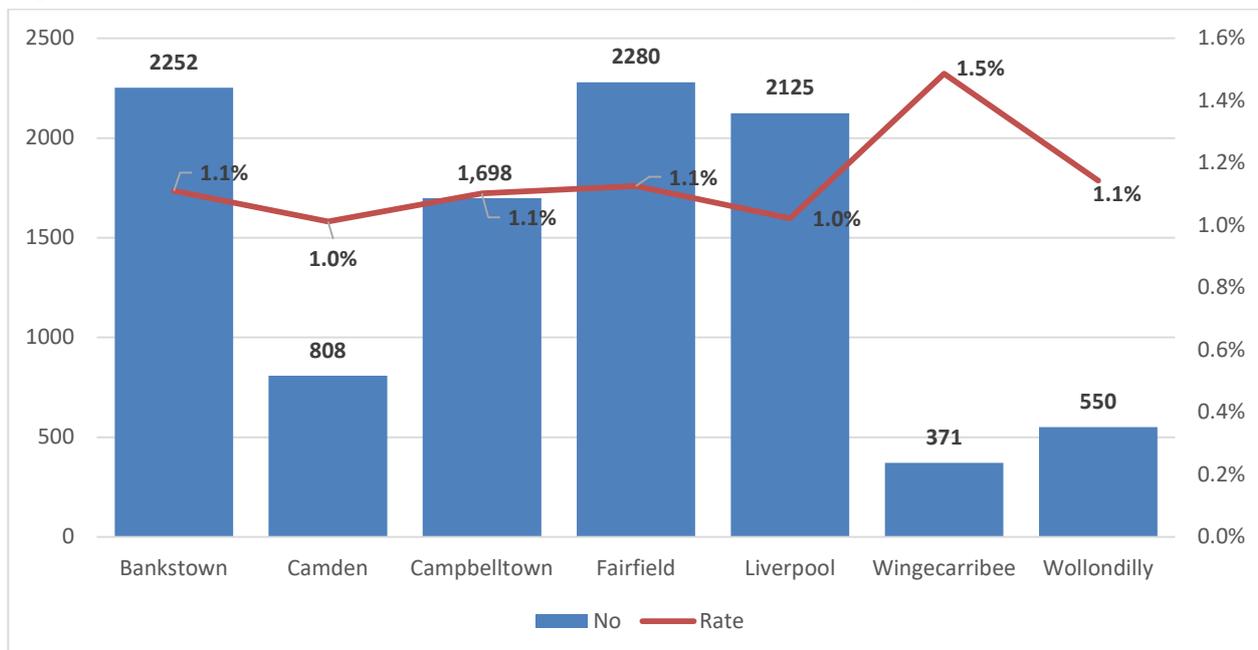
Australia	NSW	SWS
• Persons 203,400 (0.9%)	• Persons 64,800 (0.9%)	• Persons 10,412 (1.1%)

1. Respondents may not have distinguished between kidney disease, kidney stones or kidney infection. Kidney stones and kidney infection may be short-term conditions. Distinction cannot be made from the data between the various kidney ailments and as such there may be respondents incorrectly classified as long-term. However given the prevalence of kidney disease is expected to be an underestimate, it is considered that the impact is minimal.

Sources: 2014–15 Australian Bureau of Statistics (ABS) National Health Survey (NHS).

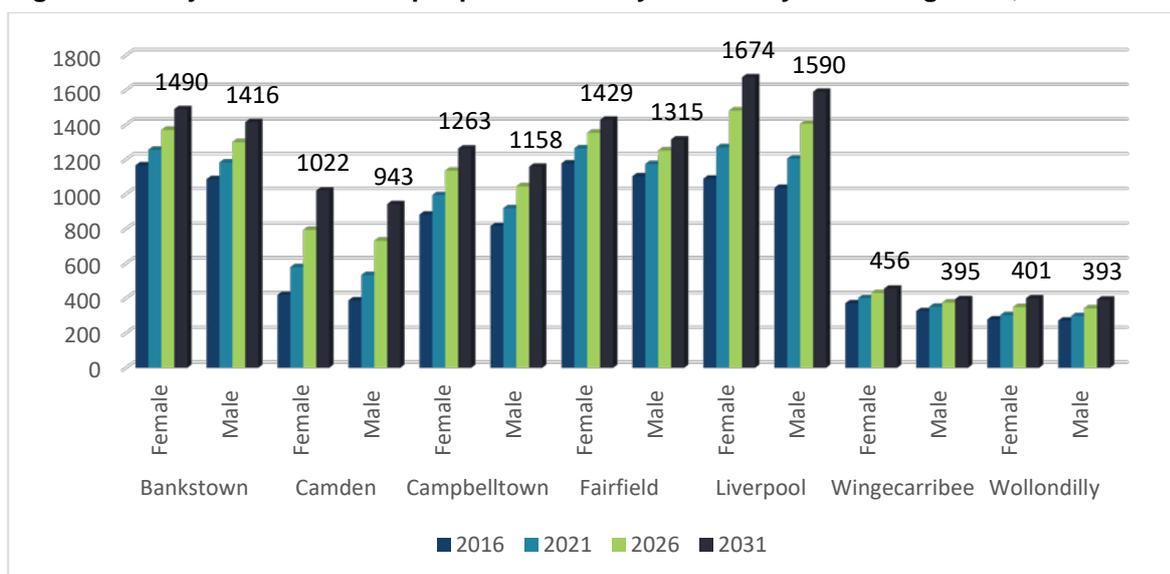
It was estimated that in 2016, 10,412 (1.1%) of SWS residents had kidney disease, representing 16% of the state population with kidney disease (Figure 32).

Figure 32: Estimated number of persons with kidney disease in SWS by LGA, 2016



The number of SWS residents with kidney disease is projected to increase by 43.5% between 2016 and 2031 rising from 10,412 to 14,944 people by 2031 (Figure 33).

Figure 33: Projected number of people with kidney disease by LGA and gender, 2016-2031



Chronic kidney disease hospitalisations

Between 2011 and 2015, there were 11,453 hospitalisations for CKD in SWS excluding dialysis, representing 11.5% of the NSW hospitalisations. Hospitalisation rates for CKD in SWS were higher for both males and females compared with the state rate (Table 41).

Table 41: Chronic Kidney Disease (CKD) hospitalisations (excluding dialysis), number and age standardised rate per 100,000 population, 2011-2015

	Gender	Number	Rate per 100,000 population
SWS	Males	6,315	1,473
	Females	5,138	1,024
	Persons	11,453	1,226
NSW	Males	57,623	1,398
	Females	42,274	867
	Persons	99,897	1,105

Source: AIHW National Hospital Morbidity Database.

End-Stage Kidney Disease (ESKD)

End-stage kidney disease is the most severe form of chronic kidney disease and usually requires kidney replacement therapy (KRT) in the form of dialysis or kidney transplantation for patients to surviveⁱⁱⁱ. Non-KRT medical management of ESKD including diet, medications and other therapies may be used for older patients due to factors of comorbidities, length of lifespan and quality of life^{iv}.

In SWS, in 2014-15, there were 65, 223 same day admissions for dialysis for kidney disease. The highest hospital admission rates for dialysis were for residents of Liverpool, Campbelltown and Fairfield LGAs (Table 42).

Table 42: Same-day admissions for renal dialysis – public hospitals, number and rate per 100,000 population for SWS residents by LGA, 2014-15

Local Government Area	Number	ASR per 100,000
Bankstown-Canterbury*	22,784	7,020.6
Camden	1,596	3,430.1
Campbelltown	10,873	8,803.3
Fairfield	14,105	7,729.0
Liverpool	13,467	9,224.3
Wingecarribee	849	1,390.6
Wollondilly	1,549	3,834.0
Total SWS	65,223	N/A
Total NSW	345,519	4,653.4

Source: Public Health Information Development Unit (PHIDU) (March 2018) Data [64]

*Data is only available with the new LGA following council amalgamation

Prevalence rate for treated-ESKD is expected to continue to increase across all age groups with the largest increase to be for people who start treatment when they are over 75 years of age.

Deaths due to kidney- related diseases

- Kidney-related diseases are major causes of death in Australia, accounting for 1 in 9 deaths every year
- Around 53 people die every day with kidney related disease
- Kidney-related disease kills more people each year than breast cancer, prostate cancer or road traffic accidents [65].

Between 2011 and 2015, 5,428 people died per year with CKD in NSW and 596 in SWS. Rates for CKD related deaths were higher in SWS for both males and females compared with the state (81 vs.73 per 100,000 population and 55 vs. 45 per 100,000 population, respectively) (Table 43).

Table 43: CKD mean deaths per year, number and age standardised rates per 100,000 population, 2011-2015

	Gender	Number	Rate per 100,000 population
SWS	Males	308	81
	Females	288	55
	Persons	596	66
NSW	Males	2,886	73
	Females	2,562	45
	Persons	5,428	57

Source: AIHW National Mortality Database

Deaths and population counts are annual averages for the 5-year period between 2011 and 2015. They were derived by dividing the total count for the period by 5. Rates are based on the combined deaths and populations over the 5-year period.

4.5.5 Cancer

Cancer has been identified as one of the National Health Priority Areas by the Australian government in recognition of the burden it places on individuals, families, the community and the health system. Cancer is a major cause of mortality in Australia and contributes greatly to morbidity and disability. It accounts for 19% of the total burden of disease in Australia [66]. Most cancers have a unique set of causal factors, but many share risk factors. These include: smoking (responsible for the majority of preventable cancers); dietary influences; infectious agents; radiation (including ultraviolet radiation); and genetic factors. The most significant risk factor for developing cancer is old age.

Between 2010 and 2014, SWS had 5% lower cancer incidence rate compared to Australia and NSW (Table 44).

Table 44: Cancer incidence, all cancers, Australia, NSW and SWS, age-standardised, 2010-2014

Australia	NSW	SWS
489 new cases per 100,000 people*	498 new cases per 100,000 people	474 new cases per 100,000 people

* Average of rates for years 2010 to 2014

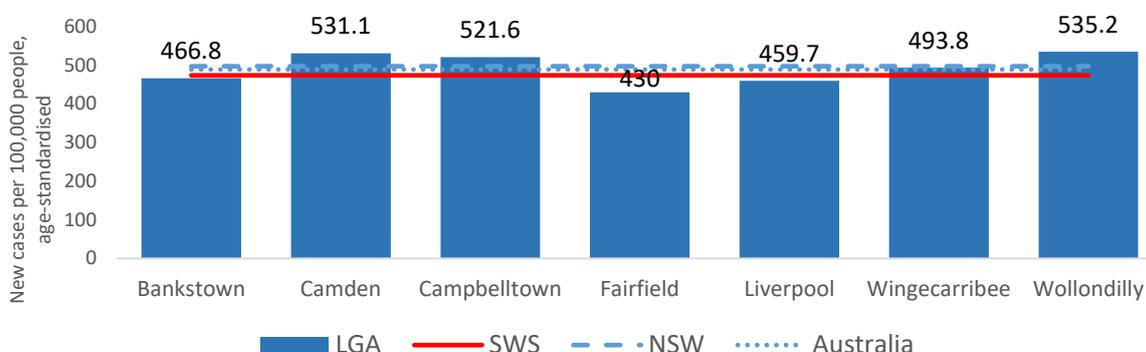
Sources: Cancer Statistics NSW, Cancer in Australia 2017.

It is expected that by 2031, South West Sydney will have around 7,900 new cases of cancer diagnosed per year (excluding non-melanoma skin cancers) and that around 2,400 residents will die of cancer [67].

In recent years (2010-2014) SWS had a slightly lower rate of new cancer cases than NSW as a whole (5% lower), but had a slightly higher death rate for cancers (4% higher) [68]. In cases for SWS residents, a higher proportion of cancers have spread to other parts of the body by the time they are diagnosed (regional and distant extent of disease) than for NSW as a whole.

Within SWS, the lowest incidence of new cancers was in Fairfield LGA (430 new cases per 100,000 people) and the highest incidence was in Wollondilly LGA (535 new cases per 100,000 people) (Figure 34).

Figure 34: Cancer incidence: new cases per 100,000 people, all cancers, age-standardised, SWS by LGA, 2010-2014

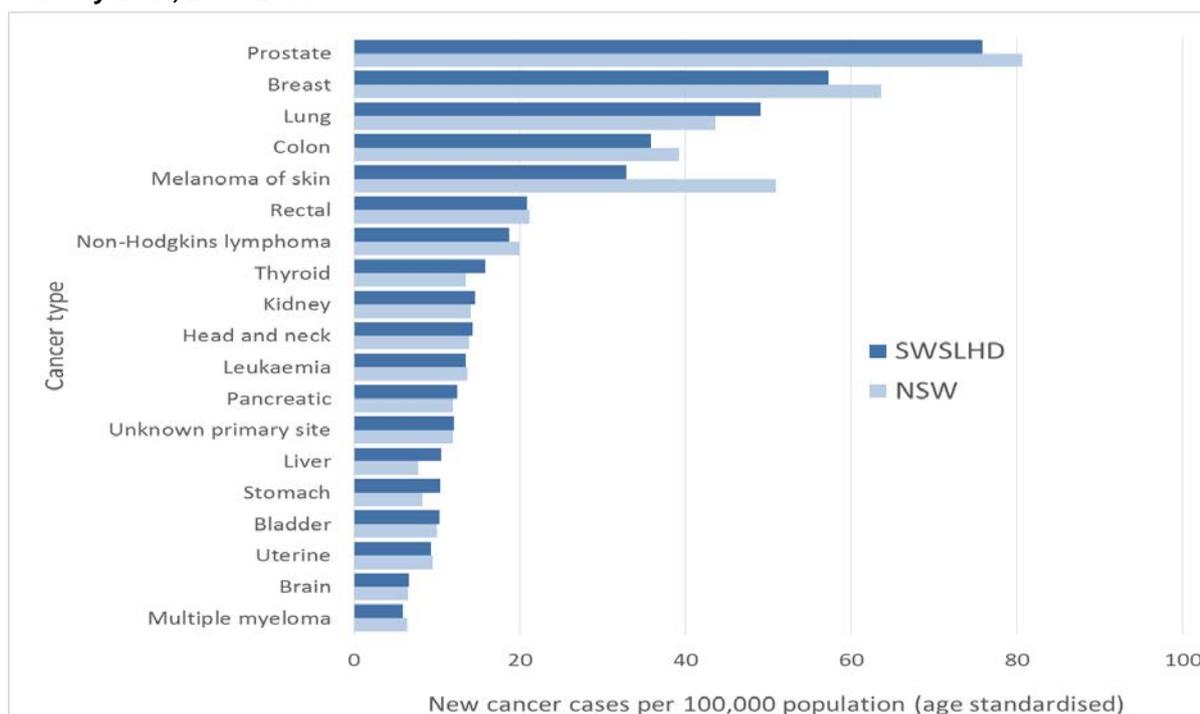


Sources: Cancer Statistics NSW, Cancer in Australia 2017

Incidence for selected cancers

Between 2010 and 2014, cancer incidence was lower in SWS for four of the five most common cancers (prostate, breast, colon and melanoma) than in NSW as a whole. Incidence was higher for cancers of the lung, thyroid, liver and stomach and was similar to NSW for all other cancers (Figure 35).

Figure 35: Cancer incidence: new cases per 100,000 people, selected cancers, age-standardised, SWS by LGA, 2010-2014



Sources: Cancer Statistics NSW, Cancer in Australia 2017

Cancer and Aboriginal Population

- Aboriginal Australians are 3 times as likely to develop liver cancer and are 3.3 times as likely to die from liver cancer as other Australians.
- Aboriginal Australians are 1.9 times as likely to develop and die from lung cancer as other Australians.
- Aboriginal females are 2.8 times as likely to develop, and 3.9 times as likely to die from, cervical cancer. They also have a lower chance of surviving another 5 years (51% compared with 67%) than other Australian females.
- Aboriginal females diagnosed with breast cancer in 2003–to 2007 had a 100% higher risk of dying by 2010 than other Australian females.[69]

Cancer and Multicultural Communities

Many priority cancers have a significant impact on multicultural communities for the following reasons:

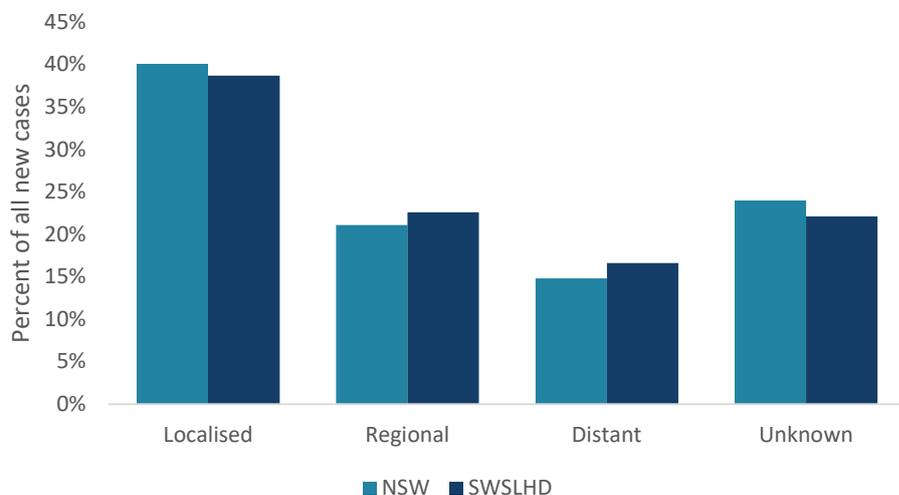
- Lung cancer numbers are expected to increase based on high smoking rates among some CALD communities. Men born in China (20.3%), Vietnam (32.0%) and Lebanon (39.3%) have higher smoking rates compared to total NSW (14.7%)
- Primary liver cancer numbers are high due to the high rates of hepatitis B and/or C among CALD communities, which is one cause of this cancer.
- Bowel, breast and cervical cancer outcomes are often poor due to low participation of CALD communities in the national screening programs. [69]

Extent of disease at diagnosis

Extent of disease at diagnosis is a way of describing how far a cancer has spread. ‘Localised’ means that the cancer is contained to the primary site (e.g. the lungs), ‘regional’ describes a cancer that has spread to surrounding tissue (e.g. lymph nodes), and ‘distant’ means that the cancer has spread to other organs (e.g. the brain). Extent of disease can influence treatment options: generally, more extensive disease is more difficult to treat and treatment is less likely to be curative.

Over the five-year period of 2010 to 2014 a higher proportion of new cancer cases in SWS were diagnosed with regional or distant spread than in NSW as a whole (39% and 36%, respectively) (Figure 36).

Figure 36: Percent of new cancer cases by extent of disease at diagnosis, NSW and SWS, 2010-2014



Sources: Cancer Statistics NSW, Cancer in Australia 2017.

Note: Extent of disease data are not available for Australia as a whole.

Table 44 shows the anticipated growth in cancer incidence between 2016 and 2031 for SWS is 61%, from 5,616 new cases in 2016 to 9,036 new cases in 2031 and with an annual growth of 4%.

The projected growth in cancer incidence by LGA of residence between 2016 and 2031 is showing the greatest projected increase in Camden (173.7%) and Liverpool (77%), and the lowest in Wingecarribee and Fairfield (32.6% and 37.8%, respectively).

Table 45: Projected number of new cases of cancer in SWS (and percent of NSW total new cases) by LGA, 2016, 2021, 2026 and 2031

LGA (2016)	New cases diagnosed				New cases as a percent of NSW total			
	2016	2021	2026	2031	2016	2021	2026	2031
Camden	392	559	796	1,073	0.8%	1.0%	1.3%	1.6%
Campbelltown	861	1,028	1,212	1,392	1.8%	1.9%	2.0%	2.1%
Canterbury-Bankstown	1,804	2,039	2,318	2,635	3.8%	3.8%	3.8%	3.9%
Fairfield	960	1,086	1,210	1,323	2.0%	2.0%	2.0%	2.0%
Liverpool	918	1,133	1,381	1,627	2.0%	2.1%	2.3%	2.4%
Wingecarribee	392	439	482	520	0.8%	0.8%	0.8%	0.8%
Wollondilly	289	332	396	466	0.6%	0.6%	0.7%	0.7%
NSW	46,947	53,453	60,213	67,174	100%	100%	100%	100%

Source: Cancer Institute NSW, 2017. Note Canterbury-Bankstown: two LGAs amalgamated

In terms of the cancer site, the greatest increase between 2016 and 2031 is projected for lung cancer, myelodysplasia, upper gastrointestinal cancer and melanoma (Table 46)

Table 46: Projected number of new cases of cancer in SWS by cancer site, 2016, 2021, 2026 and 2031

Cancer type	2016	2021	2026	2031	% Increase	Annual Increase
Head and neck cancer	143	166	194	222	55.8%	3.7%
Upper gastrointestinal	438	529	640	758	73.1%	4.9%
Bowel cancer	582	678	792	917	57.5%	3.8%
Lung cancer	496	600	730	873	76.2%	5.1%
Melanoma	329	392	472	560	70.5%	4.7%
Breast cancer	541	610	693	775	43.0%	2.9%
Cervical cancer	31	35	40	45	44.8%	3.0%
Ovarian cancer	44	51	58	66	48.8%	3.3%
Prostate cancer	887	1,083	1,294	1,497	68.8%	4.6%
Eye cancer	10	12	15	17	59.2%	3.9%
Brain cancer	69	79	90	102	47.3%	3.2%
Non-Hodgkins lymphoma	171	201	237	273	59.3%	4.0%
Leukaemia	126	144	167	190	50.6%	3.4%
Cancer unknown primary	117	121	130	145	24.1%	1.6%
Myelodysplasia	51	61	74	88	73.7%	4.9%
Other cancers	799	951	1,132	1,322	65.6%	4.4%
TOTAL	4,833	5,712	6,758	7,851	62.44%	4.16%

Source: Cancer Institute NSW, 2017

In the five-year period (2010 to 2014), the cancer mortality rate in SWS was higher than the NSW rate (168 and 162 per 100,000 population, respectively) and was similar to the Australian rate (169 per 100,000 people, respectively) (Table 47).

Table 47: Cancer mortality, all cancers, age-standardised rate per 100,000 population, 2010-2014

Australia	NSW	SWS
169 deaths per 100,000 people*	162 deaths per 100,000 people	168 deaths per 100,000 people

* Average of rates for years 2010 to 2014

Sources: Cancer Statistics NSW, Cancer in Australia 2017

It should be noted that late stage diagnosis may be the cause of higher mortality rates in SWS. Late stage diagnosis may be due to low levels of health literacy, fear of health service providers and actual or perceived costs of treatment [69]. Within SWS, the lowest death rate was in Wingecarribee LGA (152 deaths per 100,000 people) and the highest death rate was in Campbelltown LGA (194 deaths per 100,000 people) (Figure 37).

Figure 37: Cancer mortality: deaths per 100,000 people, all cancers, age-standardised, SWS by LGA, 2010-14



Sources: Cancer Statistics NSW, Cancer in Australia 2017

The Cancer Institute NSW projected that cancer deaths in SWS would overall increase by 42.3% between 2016 and 2031 from 1,923 cancer deaths in 2016 to 2,736 cancer deaths in 2031. The highest increase in death rates is expected in Camden (148%) and Liverpool (56%) (Table 48).

Table 48: Projected number of deaths from cancer in SWS (and percent of NSW total cancer deaths) by LGA, 2016, 2021, 2026 and 2031

LGA (2016)	Cancer deaths				Cancer deaths as a percent of NSW total			
	2016	2021	2026	2031	2016	2021	2026	2031
Camden	110	150	207	273	0.7%	0.9%	1.1%	1.4%
Campbelltown	278	320	371	422	1.8%	1.9%	2.0%	2.1%
Canterbury-Bankstown	646	683	733	802	4.2%	4.1%	4.0%	4.0%
Fairfield	360	390	421	456	2.3%	2.3%	2.3%	2.3%
Liverpool	304	356	415	473	2.0%	2.1%	2.3%	2.4%
Wingecarribee	136	148	162	175	0.9%	0.9%	0.9%	0.9%
Wollondilly	89	100	117	135	0.6%	0.6%	0.6%	0.7%
NSW	15,371	16,620	18,089	19,800	100%	100%	100%	100%

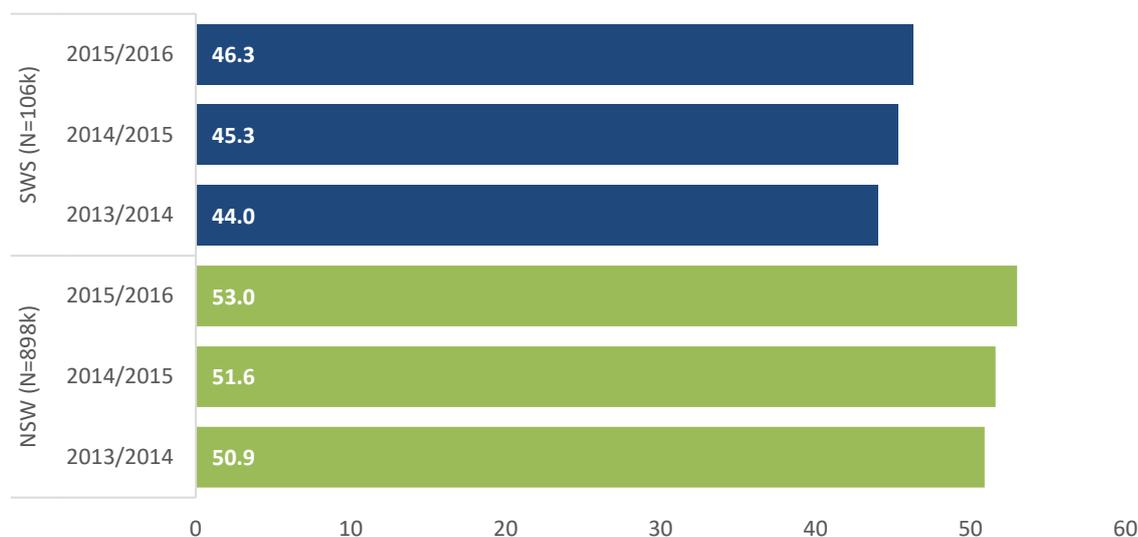
Source: Cancer Institute NSW, 2017

4.5.5.1 Cancer Screening

4.5.5.1.1 Breast Screening

Breast Screen NSW is responsible for the provision of biennial breast cancer screening to women who are asymptomatic and are aged between 50 and 74 years. Breast cancer screening participation rate for women aged 50-69, in 2015-16 was lower in SWS (46.3%) compared with NSW (53%) (Figure 38). SWS had the lowest breast screening participation rate in NSW between 2014 and 2016. Biennial breast screening rates were highest in Wingecarribee and Wollondilly (55.3% and 50.6% respectively) and lowest in Camden and Liverpool (42.2% and 43.0% respectively).[70]

Figure 38: Biennial breast screening participation rate trends for NSW and SWS women aged 50-69 years of age, 2013-2016



Source: Breast Screen NSW. N: number of women in population 2015-16

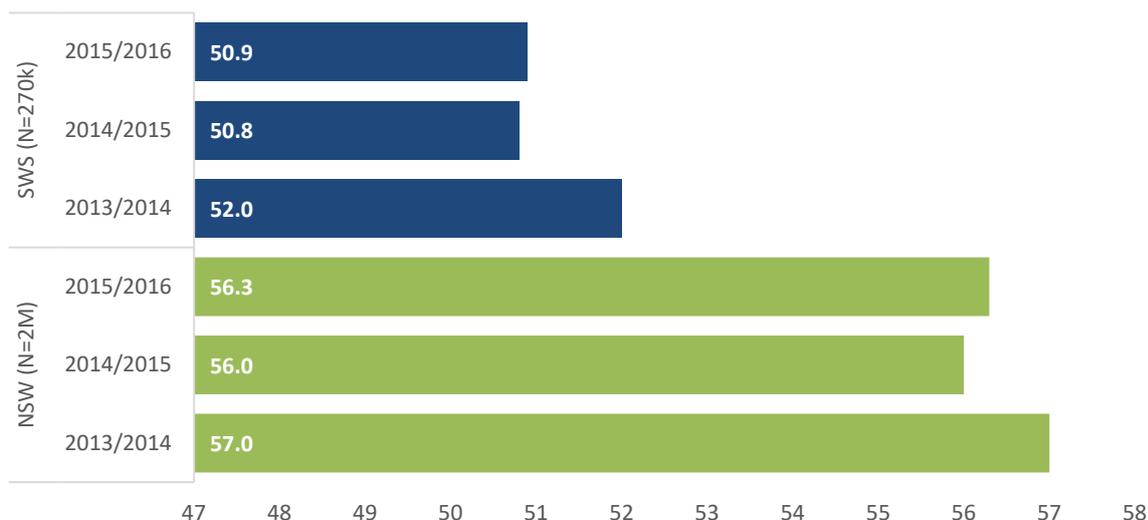
The participation rate for SWS women from the CALD background has increased to 48%, while participation rate for Aboriginal women stayed low (22.2%). Screening rates for CALD women were highest in Bankstown and Fairfield (50.2% and 49.6% respectively) and lowest in Camden (40.4%).

The breast is the second highest cancer incidence site and the third highest mortality site in SWS.[68]

4.5.5.1.2 Cervical Cancer

The biennial cervical screening participation rate for women 20-69 years of age in SWS for the 2015-16 decline in comparison to the rate in 2014-15. In SWS, cervical screening participation rate was (50.9%) compared with (56.3%) for NSW (Figure 39). SWS had the second lowest cervical screening participation rate in NSW. The screening participation rates were lowest in Campbelltown (44.9%) and Liverpool (48.8%); and highest in Wingecarribee and Wollondilly LGAs (59.6% and 58.2%, respectively).[70] (Figure 39).

Figure 39: Biennial cervical screening participation rate trends for NSW and SWS women aged 20-69 years of age, 2013-2016



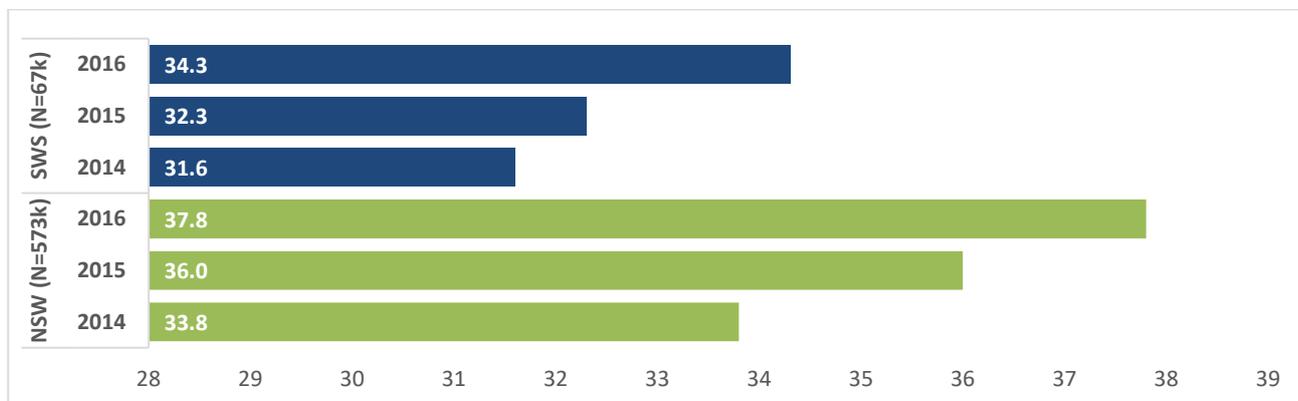
Source: NSW Pap Test Register. N: Number of women in the population who have not had a hysterectomy, 2015-16.

4.5.5.1.3 Bowel Cancer

In 2016, NSW participation in the National Bowel Cancer Screening Program (NBCSP) has increased to 37.8%. This remains the second lowest rate in Australia. The SWS annual bowel screening participation rate was (34.3%) compared with (37.8%) for NSW (Figure 43). SWS had one of the lowest annual bowel screening participation rates in NSW. The screening participation rates were lowest in Campbelltown (31.4%) and Liverpool (31.5%); and highest in Wingecarribee and Wollondilly LGAs (40.4% and 38.5%, respectively). [70] (Figure 40).

Data suggests that women are more likely to participate than men, with greater participation in almost all age groups.[12]

Figure 40: Annual Bowel screening participation rate trends for NSW and SWS people aged 50-74 years of age, 2014-2016



Source: National Bowel Cancer Screening Program (NBCSP). N: Number of eligible population 2015-16.

4.5.6 Respiratory conditions

Respiratory diseases include acute diseases such as influenza and pneumonia, and chronic respiratory diseases (specifically asthma, chronic obstructive pulmonary disease, asbestosis, and respiratory tuberculosis), where preventive measures and better management of conditions can reduce the burden of disease and reduce associated healthcare costs.

Chronic respiratory diseases were responsible for 8.3% of the total burden of disease and injury in Australia in 2011, with chronic obstructive pulmonary disease and asthma accounting for 43% and 29% of this burden [65] .

4.5.6.1 Chronic Obstructive Pulmonary Disease

Chronic obstructive pulmonary disease (COPD) refers to chronic bronchitis or emphysema, a pair of commonly co-existing diseases of the lungs in which airways become narrowed. It is a serious long-term disease that mainly affects middle aged and older people.

The prevalence of COPD increases with age, mostly occurring in people aged 45 and over. COPD ranked in the top three causes of total burden for those aged 65–74 and 75–84, and was the second highest ranked cause of total burden for men aged 75–84.

The prevalence did not differ significantly between males and females. Advancing age is the major, non-modifiable risk factor which contributes to the development of COPD. In addition to tobacco use, other factors affecting the development of COPD include long term exposure to lung irritants such as fumes, dust and other air pollutants.[65]

COPD may be associated with other chronic conditions such as asthma, respiratory cancers, diabetes and diseases of the heart and blood vessels due to shared risk factors and the effect of COPD on other parts of the body. [65]

COPD affects an estimated 8.8% of Aboriginal Australians aged 45 and over—approximately 10,300 people, based on self-reported data, although this is likely to be an underestimate. The

prevalence of COPD (across all age groups) among Aboriginal Australians is 2.5 times as high as the prevalence for non-Aboriginal Australians after adjusting for differences in age structure.

According to the 2014–15 NHS, people with self-reported COPD were more likely to be current smokers, physically inactive and/or obese, compared to those without COPD. The prevalence rate of COPD in SWS was similar to the national and state rate (2.5% and 2.6%, respectively) (Table 49).

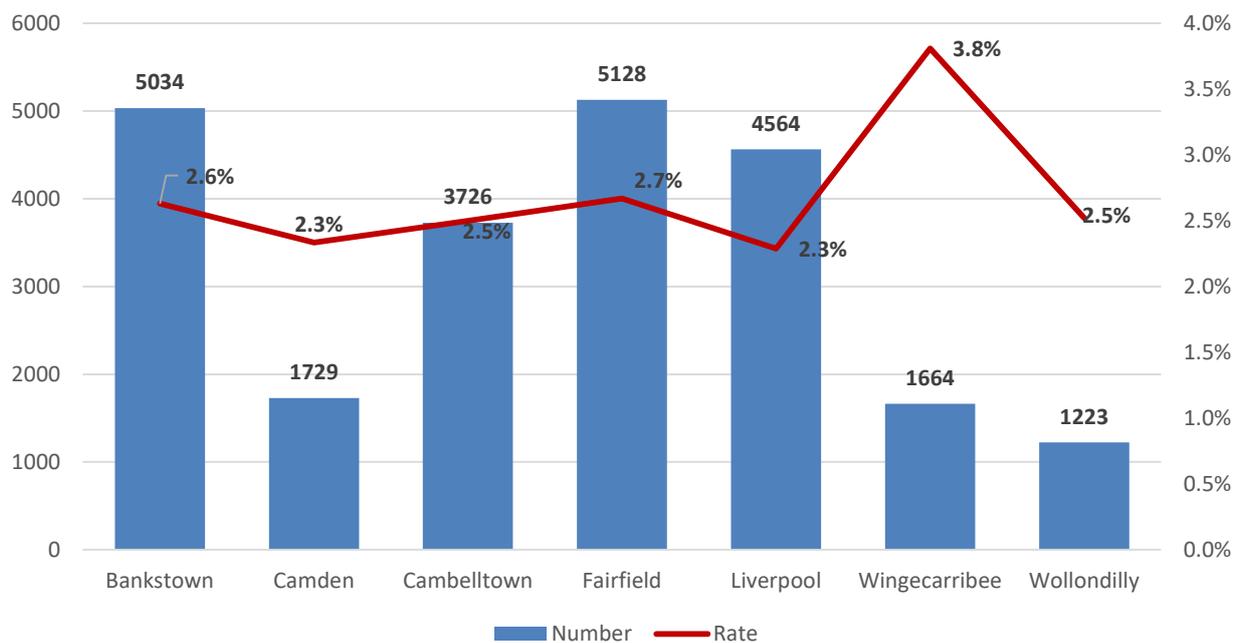
Table 49: Prevalence of chronic obstructive pulmonary disease, Australia, NSW and SWS, 2014-15

Australia	NSW	SWS
• 2.6%	• 2.6%	• 2.5%

Source: 2014–15 ABS National Health Survey (NHS), the prevalence of COPD. COPD captured here as self-reported emphysema and/or bronchitis.

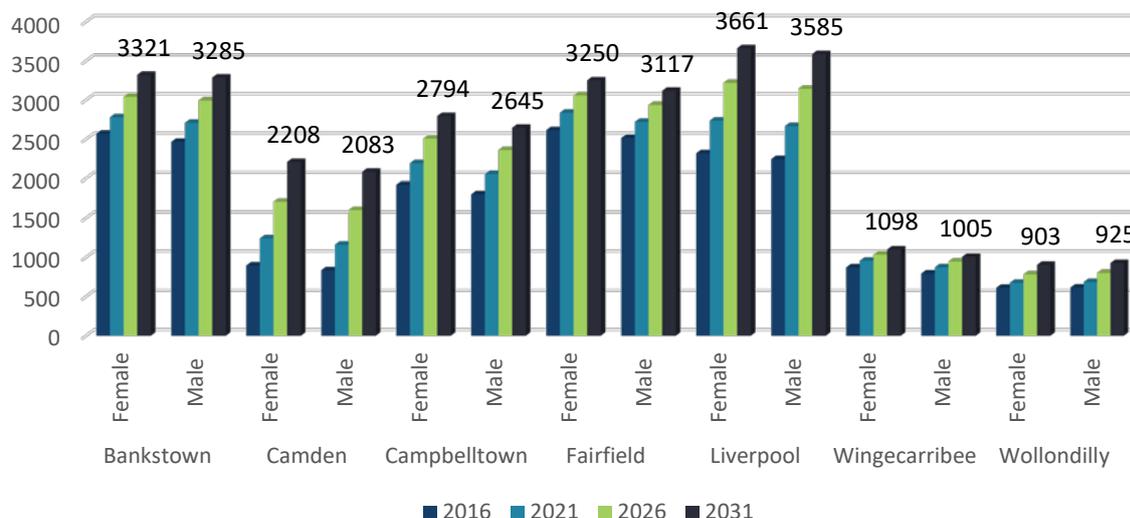
In SWS, the estimated prevalence rate for COPD was 2.5% with 23,068 people affected. The prevalence rate ranged from 2.1% for males in Camden to 3.8% for females in Wingecarribee (Figure 41).

Figure 41: Estimated prevalence rate for COPD for SWS residents by LGA, 2016



The number of persons with COPD in the South West Sydney is projected to increase by 47% by 2031, from 23,069 persons in 2016 to 33,882 persons in 2031 (Figure 42).

Figure 42: Projected number of persons with COPD for SWS by LGA and gender, 2016 to 2031



COPD related hospitalisations

While hospitalisation rates for COPD in SWS for all ages were slightly lower compared with the rest of the state (248.9 and 253.1 per 100,000 population, respectively), and rates for older people over 65 years of age were higher in SWS compared with the rest of NSW (1593.5 and 1538.9 per 100,000 population, respectively) (Table 50).

Table 50: COPD hospitalisations: number and rate per 100,000 population, SWS and NSW 2016-17

NSW	SWS
All ages	
• 24,005 (253.1)	• 2,545 (248.9)
65 +years	
• 18,744 (1538.9)	• 2,015 (1593.5)

Source: NSW Combined Admitted Patient Epidemiology Data and ABS population estimates (SAPHARI). Centre for Epidemiology and Evidence, NSW Ministry of Health.

COPD is amongst the most common chronic conditions for which hospitalisation is considered to be potentially preventable. The term potentially preventable hospitalisation does not mean that a patient admitted for that condition did not need to be hospitalised at the time of admission. Rather, the hospitalisation may have been prevented by timely and appropriate provision of primary or community-based health care (AIHW 2016, *My Healthy Communities*).

In SWS, the age-standardised rate of potentially preventable hospitalisation for COPD was 249 per 100,000 people and was slightly lower than the national rate of 260 per 100,000. Within SWS, rates for Liverpool and Campbelltown were significantly higher than the overall rate for SWS. The total bed days numbers were higher across SWS except for Camden and Wollondilly SA3. An average length of stay in SWS was similar to the national length of stay. Only Southern Highlands and Bankstown had higher average length of stay than the SWS and national average length of stay (7 and 6.5 days compared to 5.6 and 5.4, respectively) (Table 51).

Table 51 : Potentially preventable hospitalisation for COPD for SWS residents by SA3, 2015-16

SA3 name	PPH per 100,000 people (age-standardised)	PPH per 100,000 people (crude)	Number of PPH	Number of same day PPH	Percentage of PPH that are same day (%)	Total PPH bed days	Average length of stay (days)
Southern Highlands	187	352	169	18	10.7	1,190	7
Bankstown	218	242	430	55	12.8	2,779	6.5
Camden	196	164	102	16	15.7	434	4.3
Campbelltown	309	279	448	48	10.7	2,492	5.6
Wollondilly	258	269	109	12	11	598	5.5
Merrylands - Guildford	265	264	110	6	8.4	666	6.2
Bringelly - Green Valley	189	148	143	13	9.1	664	4.6
Fairfield	236	247	473	24	5.1	2,508	5.3
Liverpool	371	321	378	35	9.3	1,829	4.8
SWS	249	251	2,362	227	9.6	13,160	5.6
National	260	302	7,1861	7,517	10.5	385,849	5.4

COPD related deaths

COPD is the fifth leading cause of death after coronary heart disease, dementia and Alzheimer disease, cerebrovascular disease, and lung cancer. COPD mortality has declined over time; however COPD mortality rates are higher for people living in remote areas and for people from lower socioeconomic backgrounds.

COPD mortality rates are also higher among Aboriginal Australians compared with non-Aboriginal Australians after adjusting for differences in age-structure.[65]

Chronic obstructive pulmonary disease, which includes chronic bronchitis and emphysema, was responsible for 2,389 deaths in NSW (91% or 2,180 in those aged 65 years and over). The number of deaths in SWS accounted for about 9.3% of NSW COPD attributed deaths. The COPD death rate in SWS was similar to the state rate (23.8 and 24.4 per 100,000 population, respectively) (Table 52).

Table 52: COPD deaths, number and rate per 100,000 population, 2015

NSW	SWS
• Total deaths 2,389 (24.4)	• Total deaths 223 (23.8)

Source: SAPHaRI, Centre for Epidemiology and Evidence, NSW Ministry of Health

4.5.6.2 Asthma

Asthma is a significant public health problem in Australia and it is estimated that Australian prevalence rates are among the highest in the world. Asthma is a chronic inflammatory condition of the airways associated with episodes of wheezing, breathlessness and chest tightness.

Some people with asthma have other chronic diseases and long-term conditions. Asthma in adults is often associated with obesity, mental disorders, arthritis and cardiovascular disease [66].

Asthma prevalence in SWS is similar to the state and national prevalence (Table 53). There is a difference in the prevalence of asthma in relation to age and gender—it is more common in males than females for those under 15 years of age, and more common in females than in males for those over 15 years of age.

Table 53: Asthma prevalence in adults 16 years and over, by gender, 2014-2015 and 2016-2017

Australia	NSW	SWS
• 11%	• 10.9%	• 10.7%

Sources: 2014–15 Australian Bureau of Statistics (ABS) National Health Survey (NHS). NSW Population Health Survey (SAPHaRI). Centre for Epidemiology and Evidence, NSW Ministry of Health.

According to the NSW Child Population Health Survey 2015-2016, it is reported that 15.6% of SWS children aged 2-15 years ever had asthma in the past, and 9.9% of SWS children currently have asthma which is lower compared to the rest of NSW (13.5%) (Table 54).

Table 54: Asthma status, children 2-15 years of age, SWS and NSW, 2014-15

NSW	SWS
Ever had asthma	
• 19.2%	• 15.6%
Current asthma	
• 13.5%	• 9.9%

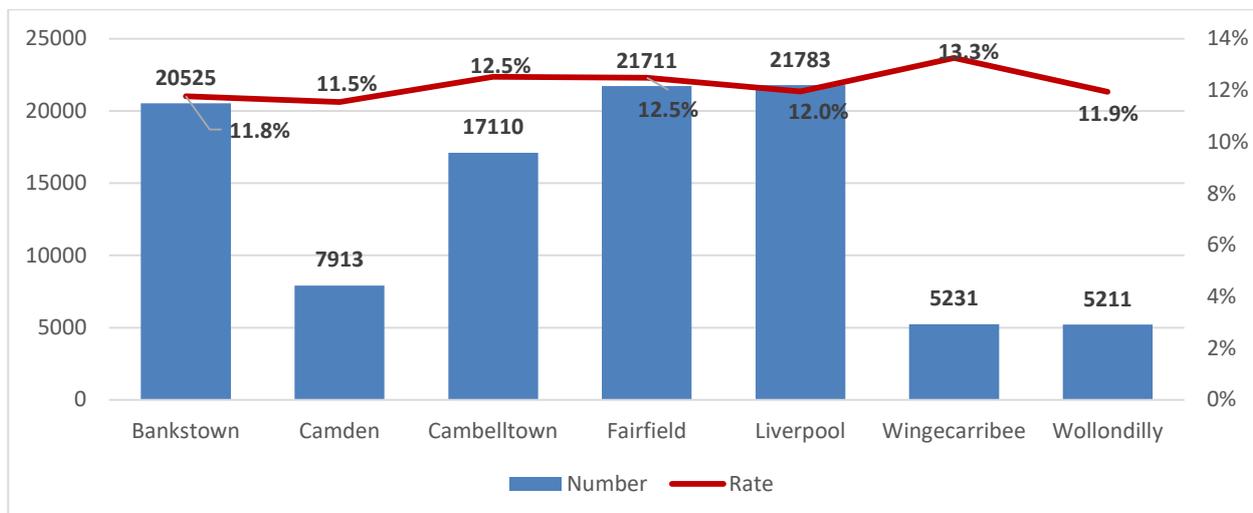
Source: NSW Combined Admitted Patient Epidemiology Data and ABS population estimates ((SAPHaRI). Centre for Epidemiology and Evidence, NSW Ministry of Health.

The difference in asthma prevalence between Aboriginal and non-Aboriginal Australians exists across all age groups, but is more marked for older adults.

In NSW, 15.8% of adult Aboriginal persons aged 16 years and over had asthma, as estimated from the 2017 NSW Adult Population Health Survey.

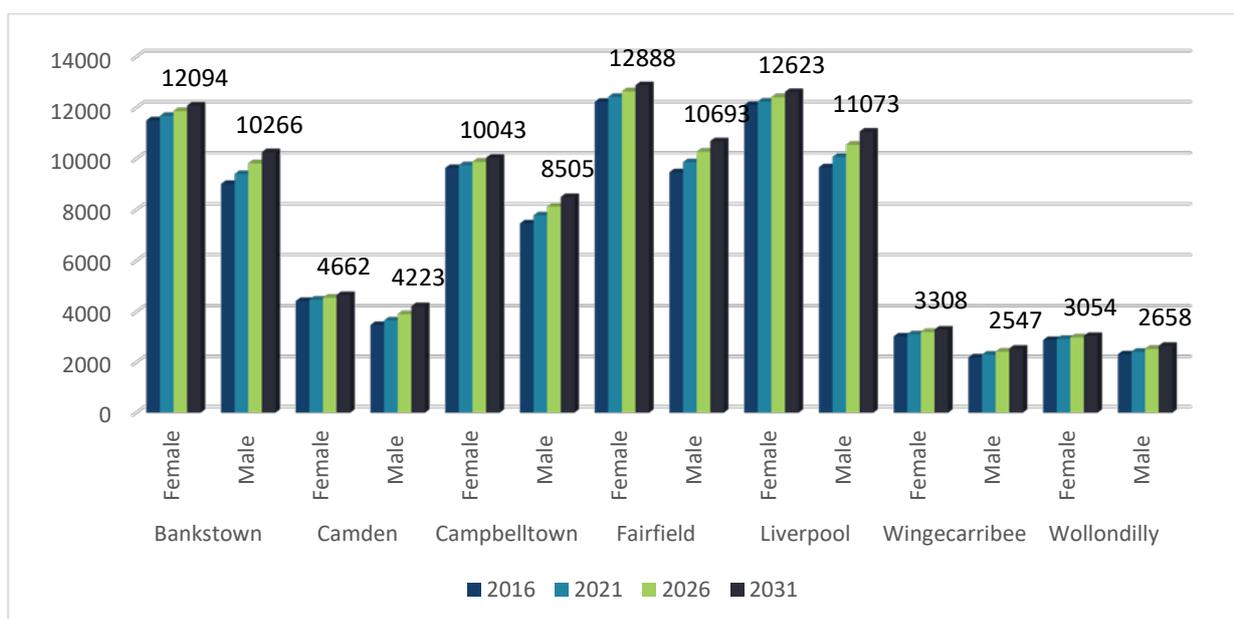
The estimated prevalence rate of asthma for SWS adult residents was 10.7% or 99,486 people had asthma in 2016. The prevalence rate ranged from the lowest 8.7% for males in Camden to the highest 13.3% for females in Wingecarribee (Figure 43). The prevalence rate was higher for females than males.

Figure 43: Estimated prevalence rate for asthma for SWS residents by LGA, 2016



The number of persons estimated to have asthma is forecast to increase by 9% from 99,486 persons living with asthma in 2016 to 108,636 persons with asthma by 2031 (Figure 44).

Figure 44: Projected number of persons with asthma for SWS residents by LGA and gender 2016 to 2031



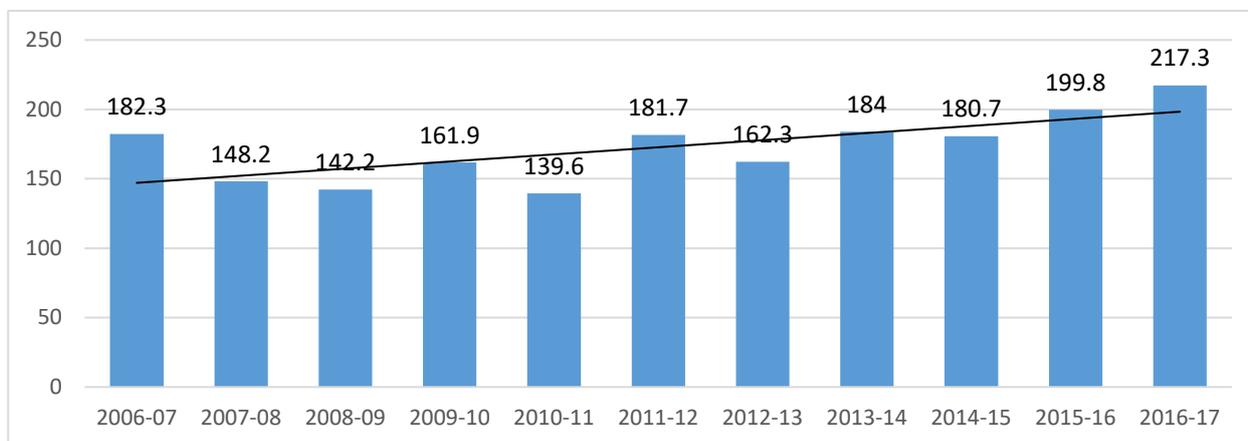
Asthma related hospitalisations

Data from the *AIHW National Hospital Morbidity Database (NHMD)* show that in Australia in 2015–16, there were 39,448 hospitalisations where asthma was the principal diagnosis. The rate of hospitalisations for asthma was 169 per 100,000 population. While most hospitalisations (all causes) in 2015–16 were for older people, half (51%) of the 39,448 hospitalisations for asthma in Australia were for children aged 0–14.

The rate of hospitalisations for asthma for males and females aged 5-34 years initially declined between 2006-07 and 2010-11 before increasing steadily between 2012-13 and 2016-17.(Figure

44). In 2016-17, the hospitalisation rate for SWS residents was higher than the NSW rate (217.3 and 180.5 per 100,000 population, respectively) (Figure 45).

Figure 45: Asthma hospitalisation rates for SWS population aged 5-34 years from 2006-07 to 2016-17^v



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

Asthma hospitalisation rates were higher in SWS compared with the state for all ages (195.5 and 177.2 per 100,000 population, respectively), and for the 5-34 age cohort compared with the state hospitalisation rates (217.3 and 180.5 per 100,000 population, respectively) (Table 55).

Table 55: Asthma hospitalisations: number and rate per 100,000 population, persons of all ages and 5-34 years, SWS and NSW, 2016-17

NSW	SWS
All ages	
• Persons 13,401 (177.2)	• Persons 1,993 (195.5)
5-34 years of age	
• Persons 5,395 (180.5)	• Persons 892 (217.3)

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

Asthma is amongst the most common chronic conditions for which hospitalisation is considered to be potentially preventable. The term potentially preventable hospitalisation does not mean that a patient admitted for that condition did not need to be hospitalised at the time of admission. Rather, the hospitalisation may have been prevented by timely and appropriate provision of primary or community-based health care.[65]

In SWS, the age-standardised rate of potentially preventable hospitalisation for asthma was 148 per 100,000 people and was higher than the national rate of 133 per 100,000. Within SWS, rates for Liverpool and Campbelltown are higher than the overall rate for SWS. A high number of total bed days was recorded for Campbelltown (641), Fairfield (619) and Liverpool (522). An average length of stay was the highest in Southern Highlands compared to the SWS and national average length of stay (2.7 and 2.2 and 2.1 days, respectively) (Table 56).

Table 56: Potentially preventable hospitalisations for asthma for SWS residents by SA3, 2015-16

SA3	PPH per 100,000 people (age-standardised)	PPH per 100,000 people (crude)	Number of PPH	Number of same day PPH	% of PPH that are same day	Total PPH bed days	Average length of stay (days)
Southern Highlands	114	121	58	20	34.5	158	2.7
Bankstown	123	127	226	55	24.3	456	2.0
Camden	121	130	81	21	25.9	184	2.3
Campbelltown	173	170	272	57	21	641	2.4
Wollondilly	81	84	34	9	26.5	69	2.0
Merrylands - Guildford	243	241	58	17	40.5	166	1.7
Bringelly - Green Valley	142	144	139	34	24.5	280	2.0
Fairfield	148	145	278	52	18.7	619	2.2
Liverpool	215	219	258	63	24.4	522	2.0
SWS	148	149	1,404	328	23.4	3,095	2.2
National	133	131	31,245	10,137	32.4	65,238	2.1

Source: my Healthy Communities, AIHW

Note: SA3 are smaller Statistical Areas. Parts of Merrylands - Guildford SA3 are within SWS.

Asthma related deaths

In 2011, asthma was estimated to account for 2.4% of the disease burden in Australia.[65]

Women aged 65 and over are nearly three times more likely to die from asthma than men of the same age group. Asthma was responsible for 16 deaths in SWS out of 154 deaths in NSW. The death rate of 1.6 was the same for SWS and NSW (Table 57).

Table 57: Asthma deaths, average number per year and rate per 100,000 population, SWS and NSW, 2015-16

	Number	Rate per 100,000
NSW	154	1.6
SWS	16	1.6

Source: SAPHaRI, Centre for Epidemiology and Evidence, NSW Ministry of Health

4.5.7 Oral Health

The two main forms of oral disease are dental caries (tooth decay) and periodontal disease (a group of inflammatory diseases of the gum, connective tissue and dental bone). Oral disease also incorporates a number of other conditions, such as mouth ulcers, oral cancers, tooth impactions and misaligned teeth, and traumatic injuries to the teeth and mouth.

A key indicator of the oral health status of a population is the measure of dental caries. In the primary dentition, this is recorded as the number of primary teeth that are decayed (d), missing (m) due to dental caries, or filled (f) because of dental caries. Poor adult oral health is strongly predicted by poor childhood oral health.

The proportion of children 5-10 years old without dental caries in SWS is lower compared to NSW, and similar to NSW for children 8-14 years old (Table 58).

Table 58: Proportion of children with no dental caries, SWS and NSW, 2012-14

	5-10 years	8-14
NSW	63.3%	75.1
SWS	58.1%	74.8

Source: National Child Oral Study 2012-2014

Dental decay is the most costly diet-related disease in Australia - ahead of coronary disease, hypertension and diabetes. There are strong links between dental disease and other chronic diseases; for example between periodontal disease and diabetes.[71]

In Australian population:

1 in 25 people aged 15 and over have no natural teeth	1 in 4 children age 5-10 have untreated tooth decay	3 in 10 adults aged 25-44 have untreated tooth decay	3 in 10 people delayed or avoided a visit to the dentist due to cost	Prevalence of dental caries is 1.5 – 2.5 times higher in Aboriginal children
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Source: AIHW 2015

While untreated decay was more prevalent in the lowest socioeconomic status (SES) group, between 18% - 27% of the two highest SES groups also had untreated tooth decay.

Good oral health is reflection of access to fluoridated drinking water and toothpaste, and good preventive oral health services and dental hygiene practices.

Oral health is a major health issue for Australia with fair to poor oral health being prevalent in around 25% of the population aged 20 to 45 age group.

About 16% of people experienced toothache in the previous 12 months, mostly adults aged 25-44 and were more likely to be:

- Female 17%
- Without dental insurance 20%
- From the lowest income group 24%.

(Source: National Dental Telephone Interview Survey 2013)

People who are socially disadvantaged or on low incomes infrequently visit a dentist, and these visits are for treatment of an oral health problem rather than for preventive care (e.g. check-up). The reasons for this are multi-dimensional, including affordability of care and appropriateness of service delivery. Some groups that experience the greatest burden of poor oral health and the most significant barriers to accessing oral health care include:

People who are socially disadvantaged or on low incomes	<p>Children from low socio-economic areas are 70% more likely to have poor oral health than children in higher socio-economic areas.</p> <p>Adults who are socially disadvantaged or on low incomes have more than double the rate of poor oral health than those on higher incomes.</p>
Aboriginal and Torres Strait Islander people	<p>Aboriginal and Torres Strait Islander people experience poor oral health earlier in their lifespan and in greater severity and prevalence than the rest of the population.</p> <p>Aboriginal and Torres Strait Islander people are also less likely to receive treatment to prevent or address poor oral health, resulting in oral health care which often takes place in the form of emergency treatment.</p>
People living in regional or remote areas	<p>Adults living in regional or remote areas have higher levels of tooth loss and more untreated tooth decay.</p>
People with additional or specialised health care needs	<p>People living with severe mental illness are more than three times likely to have lost all their teeth.</p> <p>Frail older people tend to have two to three more times higher incidence of gum disease than the general population.</p>
People from CALD and refugee backgrounds with low English proficiency	<p>People from CALD and refugee backgrounds with low English proficiency often have poor health literacy associated with poor health outcomes including oral health.</p> <p>Oral health is the greatest physical health issue for most refugee groups.</p>

Reference: *Healthy Mouths Healthy Lives: Australia's National Oral Health Plan 2015-2024*, COAG Health Council 2015.

Dental visits

Reporting on dental visits may include visits for acute conditions or dental check-ups which reflect proactive and preventive measures. Reported rates on dental visits in the previous twelve months for children and adults in SWS were below national rates. The national target for 2025 for dental annual check-ups in adults is 61% and for children is over 81%.

In 2015–16, 43.6% of SWS adults reported that they saw a dentist, hygienist or dental specialist in the preceding 12 months compared with 48.2% nationally.

Between 2011 and 2014, 70% of SWS children 5-15 years of age was seen by a dental professional in the preceding 12 months compared to 75.7% for the state.

The proportion of 7.7% of the SWS childrens' visits to the public dental service in the preceding 12 months was lower compared to 12.7% nationally (Table 59).

Table 59: Reported rates on dental visits for children and adults, SWS, NSW and Australia, 2025 Target

Indicator	SWS	Australia and NSW	2025 Target
Dentist, hygienist or dental specialist visits: adults in the last 12 months (2015-16)	43.6%	48.2% Australia	61%
Dental professional visits: children 5-15 years in the last 12 months (2011-2014)	70%	75.7% NSW	81 %
Public dental service visits: children 0-15 years in the last 12 months (2015-16)	7.7%	12.7% NSW	N/A

Source: AIHW 2018

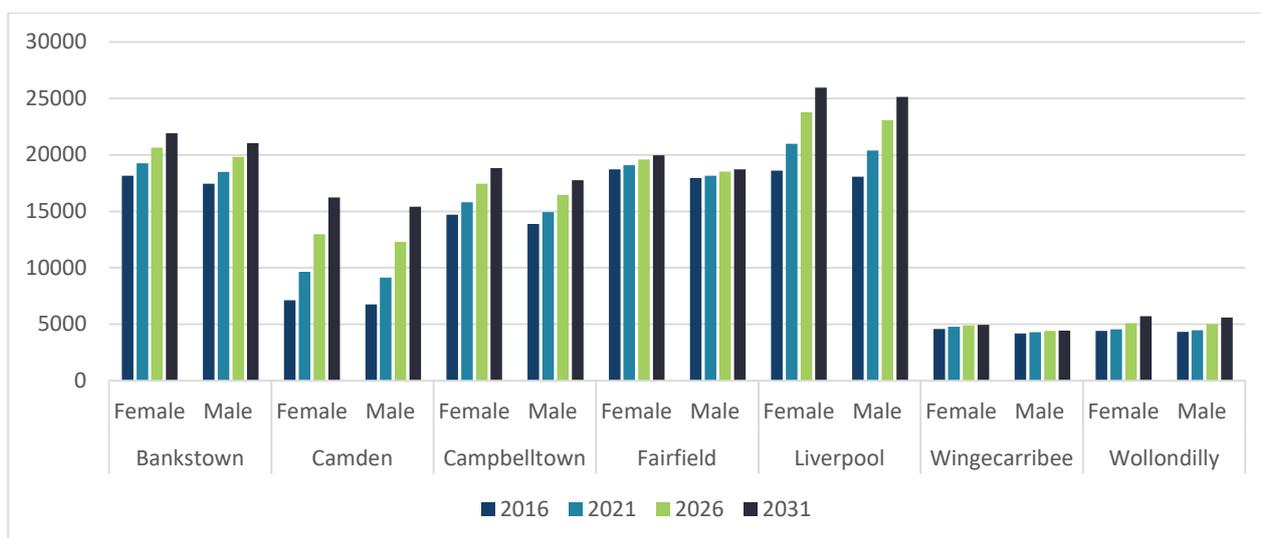
Visits to dental professionals are compounded by the private health insurance rates. About 44.6% of SWS adults in 2015-16, reported that they were covered by private health insurance in the preceding 12 months compared with 57.4% nationally.

Poor oral health rates were used in response to National Dental Telephone Interview Survey 2010 of child and teenager by AIHW and Australia’s Health 2016 with responses of fair/poor oral health.

In SWS, in 2015-16, 55% of 5-14 -year-olds had experienced decay in their baby (deciduous) teeth and 48% of 12-year-olds had experienced decay in their permanent teeth.

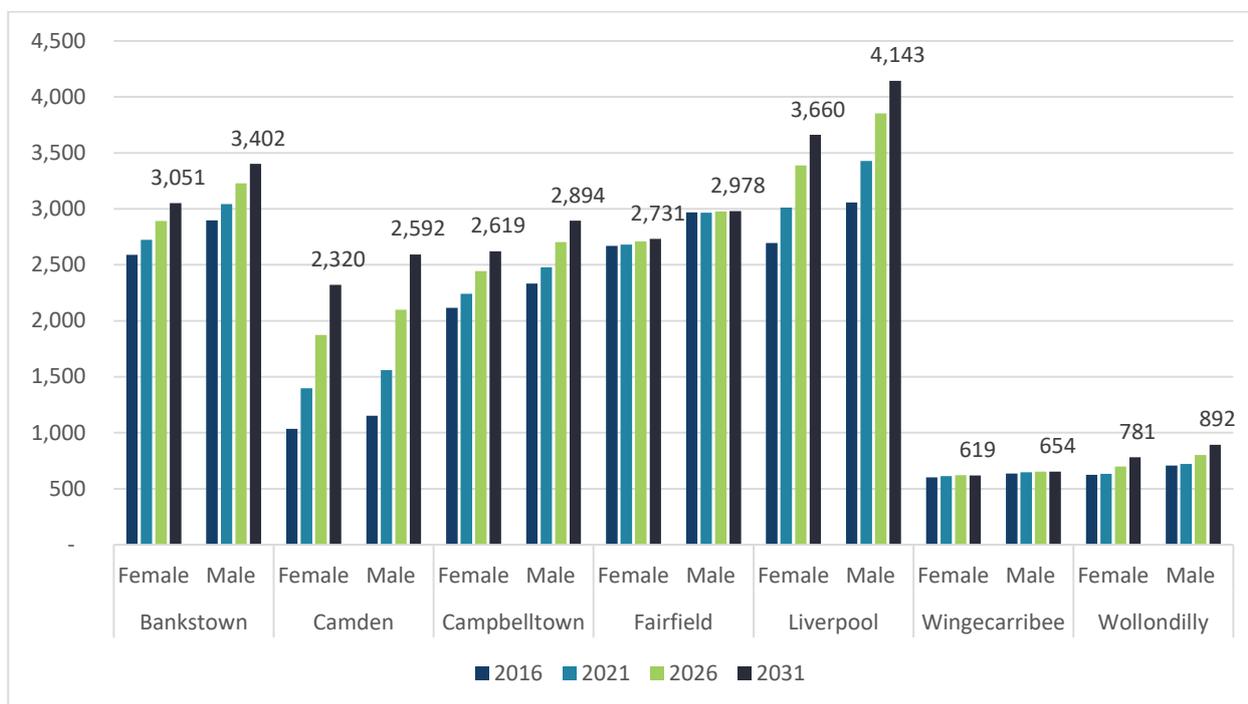
It is estimated that in 2016, 168,918 people or 18% of the SWS population have deciduous teeth decayed or filled. The rate varies between 17.6% for males in Camden to 18.6% for females in Fairfield LGA. The number of persons forecast to have poor oral health by 2031 is expected to increase by 31.2% from 168,918 in 2016 to 221,680 in 2031 (Figure 46).

Figure 46: Number of SWS population with deciduous teeth decayed or filled by gender and LGA, 2016



The incidence rate for hospitalisation from toothache was applied to the number of people with poor oral health. In SWS, the number of persons estimated to have been hospitalised due to the poor oral health in 2016 was 26,080 and is expected to increase by 27.8% to 33,337 people (Figure 47).

Figure 47: Estimated number of persons hospitalised with poor oral health by LGA and gender, 2016-2031



Dental hospitalisations

In 2016-17 in South West Sydney, there were 2,094 hospitalisations (211.8 per 100,000 population) recorded for acute potentially preventable dental conditions. This makes dental conditions the fourth highest cause of acute potentially preventable hospitalisations in SWS.

Hospitalisation rates for the removal and restoration of teeth for dental caries in children aged (5-14) and (0-14) were higher in SWS compared with NSW, while the overall hospitalisation rate for children was similar to the state rate (Table 60).

Young children have the highest rates of preventable hospitalisations due to dental conditions.

Table 60: Hospitalisation for removal and restoration of teeth for dental caries in SWS and NSW, rate per 100,000 population, 2015-16

	0-4 years	5-14 years	0-14 years	15+ years	all ages
SWS	320.8	433.9	397.5	45.2	117.6
NSW	327.2	408.2	382.2	50.1	118.3

Source: NSW Combined Admitted Patient Epidemiology Data and ABS population estimates (SAPHaRI). Centre for Epidemiology and Evidence, NSW Ministry of Health.[72]

Demand for oral health services is expected to grow due to the growth and ageing of the population, increased tooth retention, consumer expectations and changing dental service provision.

4.5.8 Mental health

‘Mental illness’ and ‘mental disorder’ relate to a wide range of mental health and behavioural disorders which interfere with social functioning and capacity to negotiate daily life. Mental disorders can affect all age groups and can vary in severity and be episodic or persistent in nature. Mental problems are also associated with higher rates of health risk factors, poorer physical health, and higher rates of deaths from many causes including suicide. It is estimated that mental illness was responsible for 12% of total disease burden in Australia in 2011, making it the third ranked group of diseases behind Cancer and Cardiovascular diseases.[73]

According to the National Mental Health Survey (NMHS):

- Almost half (45%) of Australians aged 16-85 (9.7 million people in 2011) will experience a mental illness in their life commonly anxiety, substance use disorders (especially alcohol use) and mood disorders (especially depression)
- Almost 64,000 people have a psychotic illness and are in contact with public specialised mental health services each year
- 560,000 child and adolescents aged 4 to 17 (about 14 %) experienced mental health disorders in 2012–13
- Australians living with schizophrenia die 25 years earlier than the general population, mainly due to poor heart health.

Table 61: Severity level and prevalence of mental illness and indicative description

SEVERE 3.1%	“As severe as schizophrenia”. Any diagnosis of psychosis or bipolar disorder or another severe disorder with high impact (e.g. has major depressive disorder and needs hospitalisation, and/or had more than 60 days out of role in the past year, and/or experiencing very high distress, and/or is unable to work at the current time).
MODERATE 4-6%	A diagnosed mental illness with a duration of more than 12 months but does not meet the above definition of severe or has a moderate impact of illness.
MILD 9-12%	All other diagnosed mental illness (mostly anxiety and depression). Duration of less than 12 months and minimal impact on functioning.
EARLY INTERVENTION 23%	Symptoms of mental illness or indicators of distress but does not meet threshold for a formal mental illness diagnosis. May require intervention to prevent progression to a formal diagnosis and to manage distress. For child and adolescent populations, this group includes children of parents with a mental illness in high or extreme risk family situations, who are at higher risk of mental health problems and require psychoeducation and support, and children identified with sub-threshold behavioural problems via school screening programs.

Source: National Mental Health Service Planning Framework (NMHSPF)

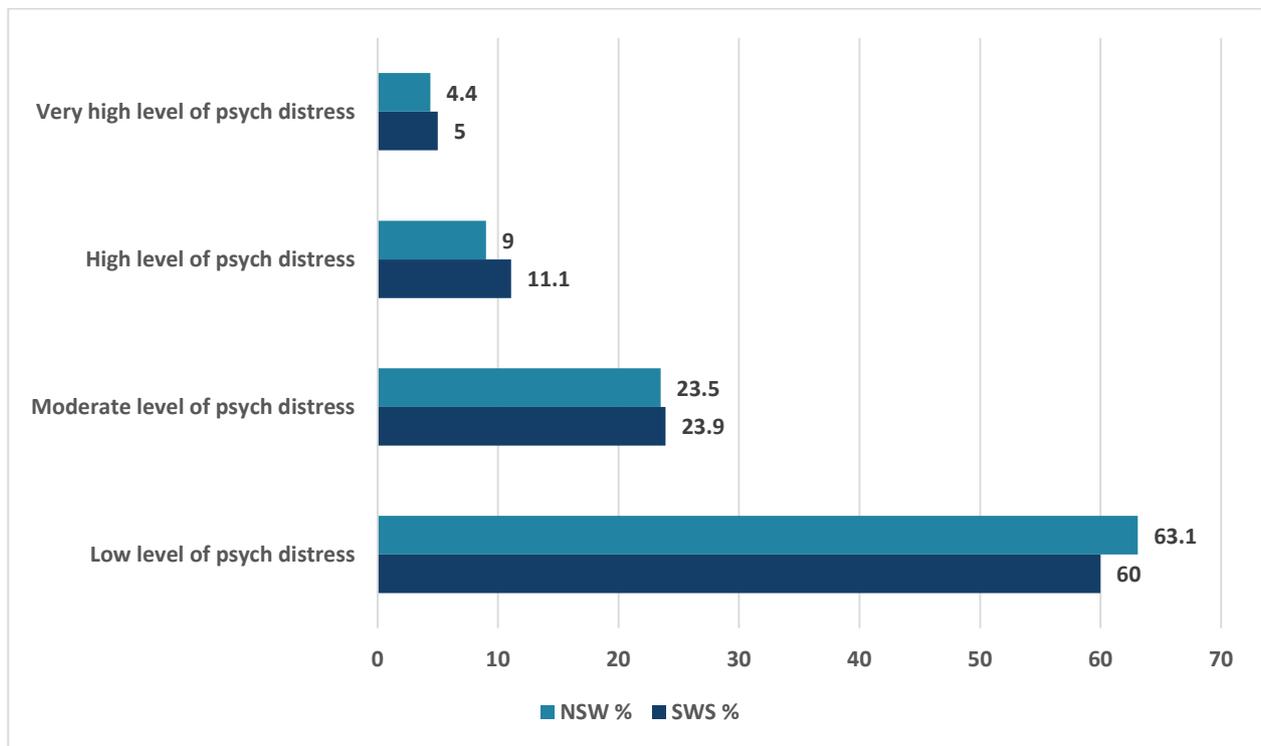
Kessler Psychological Distress Scale

Psychological distress was measured using the Kessler 10 scale (K10). K10 scores were divided into four categories representing low psychological distress (scores ranging from 10-15), moderate psychological distress (scores ranging from 16-21), high psychological distress (scores ranging

from 22-29) and very high psychological distress (scores ranging from 30-50). This is a scale of non-specific psychological distress based on 10 questions which measures anxiety, depression, agitation and psychological fatigue in the most recent 4 week period.

The average K10 score for people with any 12-month mental disorder was 19.1, which is rated as moderate psychological distress, compared to a score of 13.3 or low psychological distress for people who did not have a mental disorder in the previous 12 months. About 5% of South West Sydney residents aged 16 years and over self-reported high or very high levels of psychological distress compared to 4.4% for NSW (Figure 48).

Figure 48: Psychological distress by Kessler 10 categories in persons aged 16 years and over, SWS and NSW, 2015-2017



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

Rates of very high levels of psychological distress were higher in men than in women (5.4% vs. 4.6%) (Table 62).

Table 62: Psychological distress by Kessler 10 categories in persons aged 16 years and over, SWS by gender, 2015-2017

Psychological distress	Sex	Number of Respondents	Actual estimate (%)	LL 95% CI	UL 95% CI
Low level of psych distress	Males	799	57.3	51.8	62.8
Low level of psych distress	Females	922	62.6	58.2	67.1
Low level of psych distress	Persons	1,721	60.0	56.4	63.6
Moderate level of psych distress	Males	799	28.2	22.4	34.0
Moderate level of psych distress	Females	922	19.7	16.4	23.1
Moderate level of psych distress	Persons	1,721	23.9	20.4	27.3
High level of psych distress	Males	799	9.1	6.5	11.6
High level of psych distress	Females	922	13.0	9.6	16.5
High level of psych distress	Persons	1,721	11.1	8.9	13.3
Very high level of psych distress	Males	799	5.4	3.5	7.4
Very high level of psych distress	Females	922	4.6	3.0	6.3
Very high level of psych distress	Persons	1,721	5.0	3.7	6.3

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

Estimated and projected prevalence of mental illness

Mental illness and behavioural problems as defined by the NHS 2014-15 including organic mental problems, alcohol and drug problems, mood (affective) disorders such as depression, anxiety related problems and other mental and behavioural problems.

The National Mental Health Service Planning Framework (NMHSPF) is a strategic planning tool designed to help coordinate and resource mental health services to meet population needs. It uses current disorder prevalence estimates and evidence-based service delivery benchmarks to project the expected level of need and demand for mental health services across different age and disorder severity groups over a 12-month period.

In a current 2018 population of 993,977 in the South West Sydney, it is estimated that approximately 165,852 people would be likely to have mental illness in a 12 month period. The above figure represents the estimated number of people who could be expected to be impacted by different levels of severity of mental illness including mild, moderate and severe; based on a broader population prevalence. It is also estimated that a further 228,453 people or 23% of the population could require some level of early intervention or to be at risk of developing mental illness over a 12 month period. Not all of these individuals in SWS 394,305 with a various levels of mental illness severity will necessary seek or require health services. It is estimated that 168,926 people or 43% of those with mental illness will require treatment (Table 63).

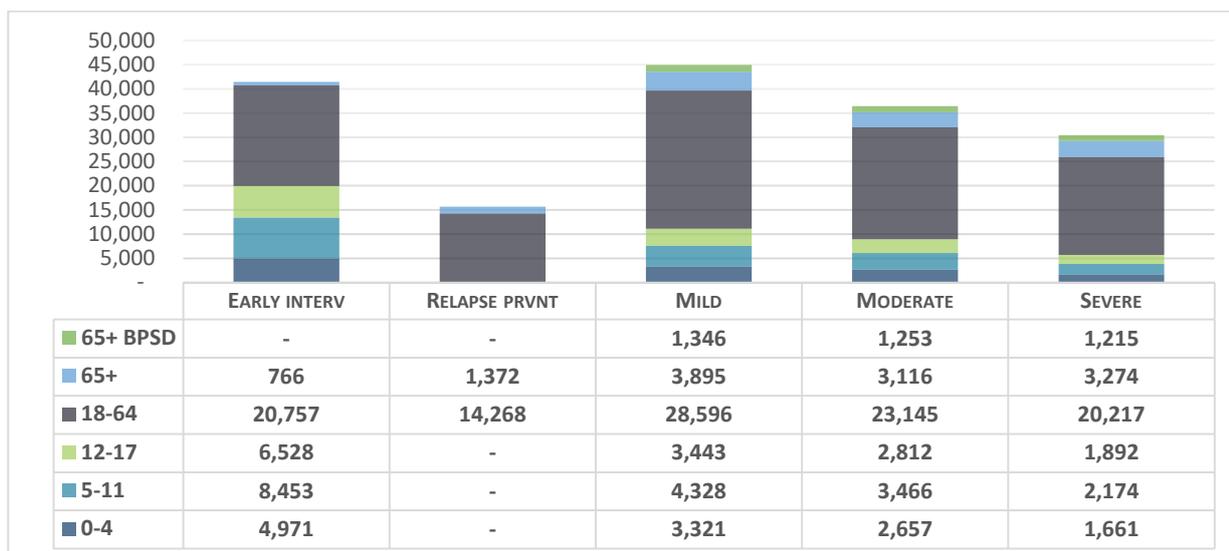
Table 63 : Prevalence and treated population by age groups and severity level, SWS, 2018

Population	0-4	5-11	12-17	18-64	65+	65+ BPSD	Grand Total
Total population	75,314	97,723	80,592	605,875	34,473	-	993,977
Prevalence population	16,595	28,288	21,642	284,486	37,820	5,474	394,305
Early intervention	4,971	13,126	9,350	105,106	14,665	-	147,218
Relapse prevention	-	-	-	73,040	8,195	-	81,235
Mild	6,642	8,656	6,885	57,193	7,790	2,692	89,858
Moderate	3,321	4,333	3,515	28,931	3,895	1,566	45,562
Severe	1,661	2,174	1,892	20,217	3,274	1,215	30,432
Treated population	12,609	18,420	14,675	106,984	12,424	3,815	168,926

Source: National Mental Health Service Planning Framework (NMHSPF).

65+ age group is divided into two groups- BPSD: behavioural and psychological symptoms of dementia.

Figure 49: Treated population distribution for South West Sydney residents by age and severity of mental illness, 2018



Source: National Mental Health Service Planning Framework (NMHSPF) 2018

Mental health hospitalisations

In 2015-16 in South West Sydney there were 97 per 10,000 people age-standardised rate of mental health overnight hospitalisations in both public and private hospitals compared to 102 per 10,000 people nationally. Within SWS, Campbelltown, Southern Highlands and Liverpool had higher rates of mental health overnight hospitalisations (144, 139 and 114 per 10,000 people). Bringelly-Green Valley and Wollondilly had lower rates for mental health overnight hospitalisations in SWS (77 and 80 per 10,000 people) (Table 64).

Drug and alcohol use, and schizophrenia and delusional disorders were the two most common mental health conditions requiring overnight hospitalisation, similar to the pattern observed in 2013-14 and 2014-15. In 2015-16, these two conditions together represented 41% of all mental health hospitalisations and 46.8% of all mental health bed days in SWS.

Table 64: Overnight hospitalisations for mental health for SWS resident by SA3, SWSPHN and national, 2015-16

SA3	Hospitalisations per 10,000	Bed days per 10,000 population	No of hospitalisations	No of bed days
Southern Highlands	139	1,590	594	7,364
Bankstown	82	1,064	1,471	18,849
Camden	87	1,175	505	6,723
Campbelltown	144	1,912	2,202	29,414
Wollondilly	80	1,158	307	4,469
Merrylands Guildford	93	1,554	351	4,287
Bringelly – Green Valley	77	1,090	678	9,524
Fairfield	81	1,165	1,537	22,020
Liverpool	114	1,593	1,304	18,165
SWS	97	1,315	8,949	120,815
National	102	1,401	N/A	N/A

Source: AIHW analysis of the National Hospital Morbidity Database 2015-16 and ABS ERP 2014.

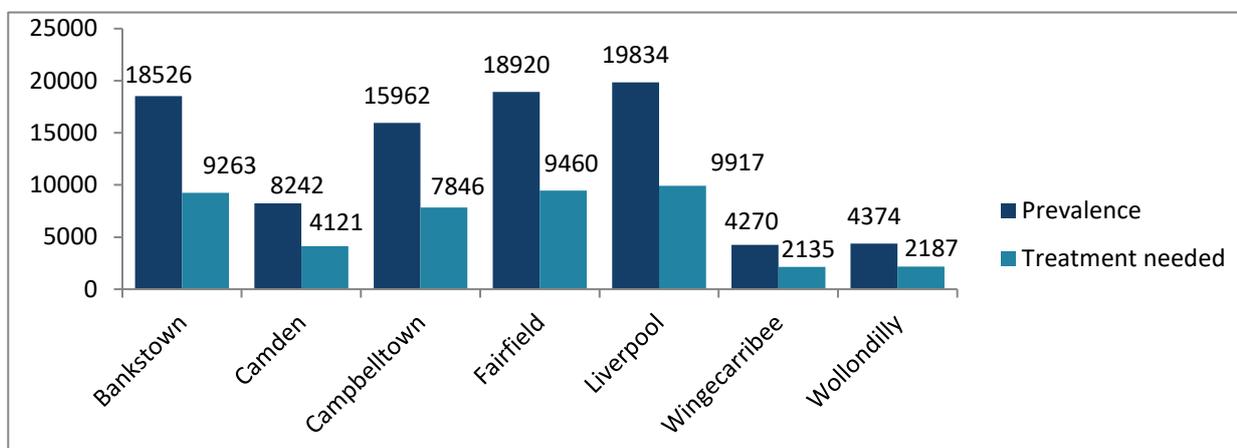
Note: Hospitalisations from both public and private hospitals are included.

Rates are measured per 10,000 people residing in a PHN or Statistical Areas Level 3 (SA3), based on the ERP 30 June 2014.

4.5.8.1 People with Mild Mental Illness

People with mild mental illness includes mostly those with anxiety and depression with duration of less than 12 months and minimal impact on functioning. For SWS, the estimated prevalence rate for mild mental illness is 9.0% or 89,858 people affected in SWS in 2018; There is a small variation between LGAs, from 8.9% for Wingecarribee to 9.08% for Camden (Figure 50). The estimated prevalence for mild mental illness is the highest 9.4% for the 18-64 years old and the lowest 7.8% for older people over 65 years of age. It is estimated that 44,929 people with mild mental illness will potentially need or seek treatment within next 12 months.

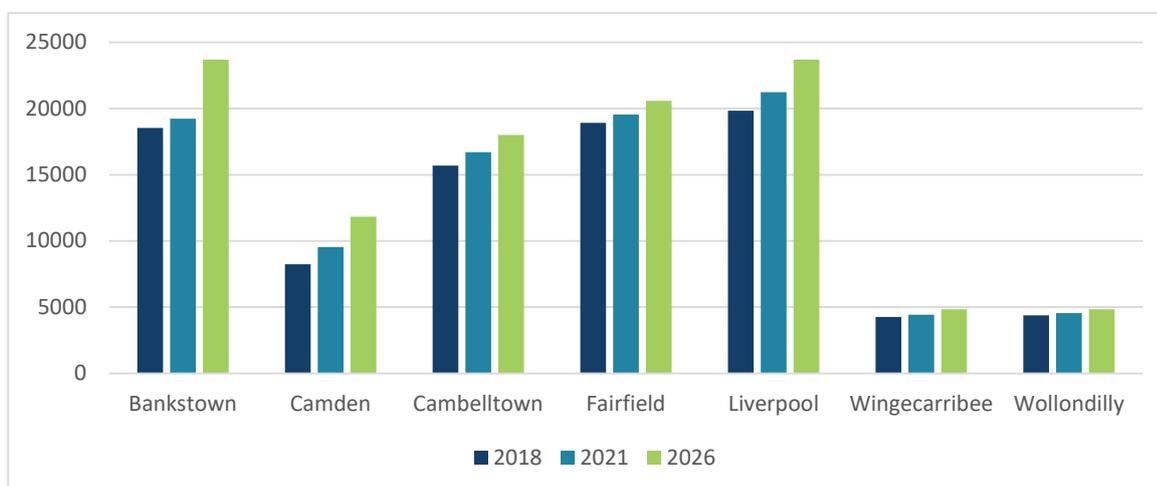
Figure 50: Estimated number of SWS residents with mild mental illness and who need treatment by LGA, 2018



Source: National Mental Health Service Planning Framework (NMHSPF) 2018

The number of people estimated to have mild mental illness in SWS is forecast to increase by 37.8% between 2018 and 2026, from 89,858 persons in 2018 to 107,487 by 2026 (Figure 51).

Figure 51: Projected number of SWS residents with mild mental illness by LGA, 2018 to 2026



In SWS, in 2015-16 there were 1,188 overnight hospitalisations for anxiety and stress episodes in both public and private hospitals. This represented 13% of all SWS overnight hospital admissions for mental health and 9% of total bed days. The SWS mental health overnight hospitalisations rate was 13 per 10,000 people, slightly lower than the national rate of 14 per 10,000 people. The overnight hospitalisations rates were the highest in Southern Highlands and Campbelltown (23 and 20 per 10,000 population, respectively), and the lowest in Fairfield and Bankstown (8 and 9 per 10,000 population respectively) (Table 65).

Table 65: Overnight hospitalisations for anxiety and stress episodes for SWS resident by SA3, SWSPHN and national, 2015-16

SA3	Hospitalisations per 10,000	Bed days per 10,000 population	No of hospitalisations	No of bed days
Southern Highlands	23	205	98	906
Bankstown	9	70	162	1,196
Camden	12	136	75	832
Campbelltown	20	188	318	3,008
Wollondilly	11	140	43	526
Merrylands-Guilford	13	105	45	310
Bringelly - Green Valley	12	124	108	1,096
Fairfield	8	48	152	918
Liverpool	16	171	187	1,908
SWS	13	117	1,188	10,700
National	14	128	N/A	N/A

Source: AIHW analysis of the National Hospital Morbidity Database 2015-16 and ABS ERP 2014.

Note: Hospitalisations from both public and private hospitals are included.

Rates are measured per 10,000 people residing in a PHN or Statistical Areas Level 3 (SA3), based on the ERP 30 June 2014.

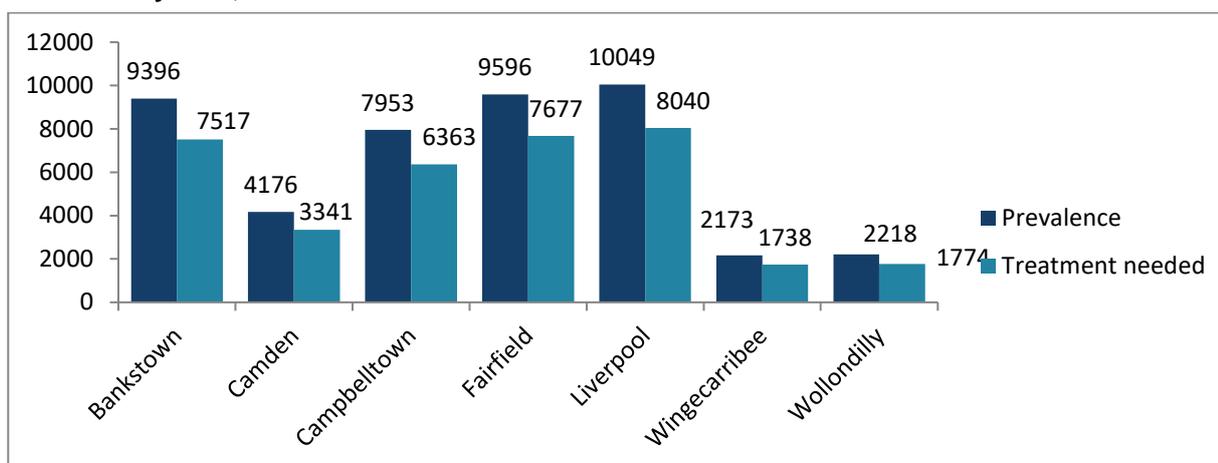
All rates refer to the area where a person lived, not the location of the hospital where they were admitted.

4.5.8.2 People with Moderate Mental Illness

Moderate mental illness is diagnosed mental illness with a duration of more than 12 months which does not meet the definition of severe or has a moderate impact of illness.

The estimated prevalence rate for moderate mental illness is 4.6% with 45,562 people affected in SWS in 2018. It is estimated that 80% of the total population with moderate mental illness or 36,449 persons will require treatment within next 12 months (Figure 52).

Figure 52: Estimated number of SWS residents with moderate mental illness and who need treatment by LGA, 2018



The number of people with moderate mental illness is expected to increase by 24.4% by 2031, from 45,562 people in 2016 to 56,682 by 2031 (Figure 53).

Figure 53: Projected number of SWS residents with moderate mental illness by LGA, 2016 to 2026



There were 1,032 overnight hospitalisations and 16,424 bed days recorded in 2015-16 for SWS residents with depressive episodes. These represented 11.5% of all SWS mental health hospitalisations and 13.6% of all bed days. The SWS overnight hospitalisations rate for depressive episodes was 11 per 10,000 people, slightly lower than the national rate of 12 per 10,000 people. The overnight hospitalisations rates for depressive episodes were the highest in Southern Highlands and Campbelltown (24 and 19 per 10,000 population, respectively), and the lowest rate were in Bankstown and Fairfield (6 and 7 per 10,000 population, respectively) (Table 66).

Table 66: Overnight hospitalisations for depressive episodes for SWS resident by SA3, SWSPHN and national, 2015-16

SA3	Hospitalisations per 10,000	Bed days per 10,000 population	No of hospitalisations	No of bed days
Southern Highlands	24	300	106	1,467
Bankstown	6	93	114	1,712
Camden	16	313	92	1,653
Campbelltown	19	307	298	4,819
Wollondilly	16	306	64	1,284
Merrylands-Guilford	11	193	27	437
Bringelly - Green Valley	8	152	79	1,421
Fairfield	7	96	140	1,862
Liverpool	10	164	112	1,769
SWS	11	177	1,032	16,424
National	12	172	N/A	N/A

Source: AIHW analysis of the National Hospital Morbidity Database 2015-16 and ABS ERP 2014.

Note: Hospitalisations from both public and private hospitals are included.

Rates are measured per 10,000 people residing in a PHN or Statistical Areas Level 3 (SA3), based on the ERP 30 June 2014.

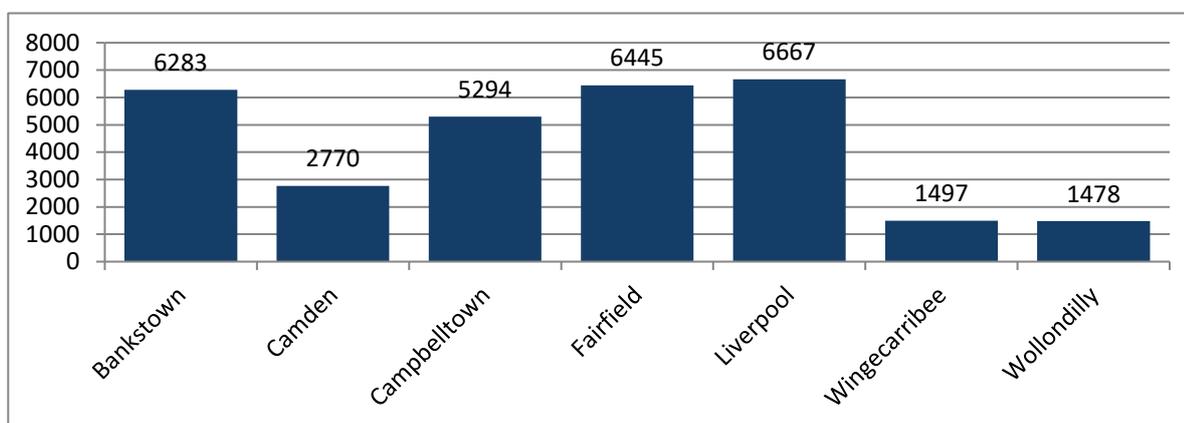
All rates refer to the area where a person lived, not the location of the hospital where they were admitted.

4.5.8.3 People with Severe and Complex Mental Illness

Severe mental illnesses are defined by diagnosis, degree of disability and the presence of some abnormal behavior. They include schizophrenia and psychosis, severe mood problems and personality disorder. Severe mental illness can cause considerable distress over a long period of time to both the person affected and his or her family and friends.

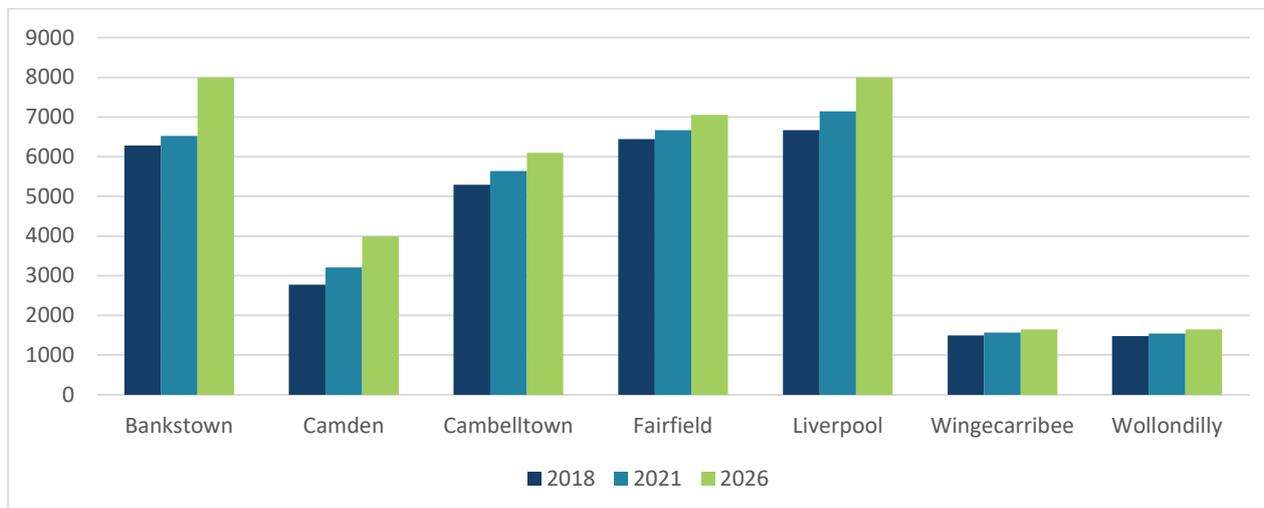
The estimated prevalence rate for severe mental illness is 3%, with 30,432 persons affected in SWS in 2018. There is a small variation in the prevalence rate between LGAs, from 3.04% in Liverpool to 3.11% in Wingecarribee. It is estimated that all 30,432 persons affected will need treatment (Figure 54).

Figure 54: Estimated number of SWS residents with severe and complex mental illness by LGA, 2018



It is estimated that a number of persons with severe and complex mental illness will increase by 19.7% by 2026 from 30,432 persons affected in 2018 to 36,430 persons by 2026 (Figure 55).

Figure 55: Projected number of SWS residents with severe mental illness by LGA, 2016 to 2026



Among mental health overnight hospitalisations in both public and private hospitals, drug and alcohol use, and schizophrenia and delusional disorders were the two most common mental health conditions requiring overnight hospitalisation, similar to the pattern observed in 2013–14 and 2014–15. In 2015–16, these two conditions together represented 41% of all mental health hospitalisations and 46.8% of all mental health bed days in SWS.

The SWS overnight hospitalisations rate for schizophrenia and delusional disorders was 18 per 10,000 people, slightly lower than the national rate of 19 per 10,000 people. However, the overnight hospitalisations rates were higher in Campbelltown and Liverpool (27 and 22 per 10,000 people, respectively) compared to the national hospitalisation rate. Wollondilly had significantly lower hospitalisations rate of 6 per 10,000 people compared to other statistical areas in SWS. Patients residing in Campbelltown and Fairfield who were hospitalised for schizophrenia and delusional disorders spent (10, 298 and 10,413 bed days, respectively) which is almost half of the SWS total bed days (41,509) (Table 67).

Table 67: Overnight hospitalisations for schizophrenia and delusional disorders, SWS population, 2015-16

SA3	Hospitalisations per 10,000 people	Bed days per 10,000 people	Number of hospitalisations	Number of bed days
Southern Highlands	13	315	53	1,132
Bankstown	15	366	250	6,176
Camden	10	181	59	1,113
Campbelltown	27	665	426	10,298
Wollondilly	6	181	22	652
Merrylands-Guilford	20	715	81	1,494
Bringelly - Green Valley	11	325	98	2,911

Fairfield	19	566	348	10,413
Liverpool	22	621	254	7,320
SWS	18	459	1,591	41,509
National	19	471	1,132	N/A

Source: AIHW analysis of the National Hospital Morbidity Database 2015-16 and ABS ERP 2014.

Note: Hospitalisations from both public and private hospitals are included.

Rates are measured per 10,000 people residing in a PHN or Statistical Areas Level 3 (SA3), based on the ERP 30 June 2014

All rates refer to the area where a person lived, not the location of the hospital where they were admitted.

4.5.8.4 Suicide

Suicide and intentional self-harm are significant public health problems in Australia. Suicidality is a serious mental health problem, and includes suicide ideation, attempts, and suicide completion. It is well recognised that the number of suicides and attempted suicides is likely to be underreported for a number of reasons including the practical problems of determining a person's intentions, reporting problems and the stigma around suicide and self-harm.

According to the *Commonwealth of Australia Department of Health, 2017*:

- Between 2007 and 2016, an average of 2,600 Australians died by suicide each year
- Approximately 75% of people who die by suicide are male. Other groups that are at greatest risk include: Indigenous Australians, who experience an overall rate of suicide more than double that of non-Indigenous Australians, the LGBTI community, who experience a rate of attempted suicide four times that of those who do not identify as LGBTI, people in rural and remote areas, and children.
- Suicide is the leading cause of death for people aged 15 to 44 years and the third leading cause of death for people aged 45 to 55 years
- Suicide accounts for one in three deaths among people aged 15 to 24 years and over one in four deaths among people aged 25 to 34 years
- Suicide and self-inflicted injuries contribute to 2.5% of Australia's total burden of disease.

In 2015, 81 people in SWS died by suicide (8.8 per 100,000 population), accounting for around 10% of the state suicide deaths. The suicide death rate in SWS was similar to NSW rate (Table 68).

Table 68: Suicide deaths, Australia, NSW and SWS, 2015

Australia	NSW	SWS
Total deaths 3,027	Total deaths 811 10.6 deaths per 100,000 population	Total deaths 81 8.8 deaths per 100,000 population

Source: SAPHaRI, Centre for Epidemiology and Evidence, NSW Ministry of Health

'Intentional self-harm'

Intentional self-harm includes purposely self-inflicted poisoning or injury, or attempted suicide with intent, based on notes recorded by the treating clinician. This indicator is not a direct measure of the number of people in the NSW population who make suicide attempts. It

measures people admitted to hospital after self-harm, and does not include people who go home after treatment in the Emergency Department (ED). Therefore changes in this indicator over time may reflect changes in the number of people who come to hospital seeking help, or the proportion who are admitted for treatment rather than treated in the ED. Rates for hospitalisation for intentional self-harm for Aboriginal males and females were around 2.5 times and 2 times as high as the rates for *other Australian* males and females.

Hospitalisation rates for self-harm for persons 15-24 years old in SWS were overall similar to the state rate (362.3 and 363.6, respectively). Number of females hospitalised as a result of intentional self-harm outnumbered males at the Region and state level (Table 69).

Table 69: Intentional self-harm hospitalisations for SWS residents 15-24 years old, NSW 2016-17

	Gender	Number	Rate per 100,000 population
SWS	Males	130	192.8
	Females	345	539.4
	Persons	475	362.2
NSW	Males	1,004	194.8
	Females	2,576	541.7
	Persons	3,580	363.6

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

Hospitalisation rates for self-harm for all ages in SWS were similar to NSW (142.3 and 149.0, respectively) with female cases out-numbering male cases (Table 70).

Table 70: Intentional self-harm hospitalisations for SWS residents- all ages, NSW 2016-17

	Gender	Number	Rate per 100,000 population
SWS	Males	510	108.4
	Females	837	177.5
	Persons	1,347	142.3
NSW	Males	4,190	111.7
	Females	6,849	187.9
	Persons	11,039	149.0

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

Overall hospitalisation rate per 10,000 population for self – harm in SWS was lower than the national rate (15 and 17 per 10,000 population, respectively). Within SWS, higher rates were recorded for Southern Highlands and Campbelltown (30 and 27 per 10,000 population, respectively) and the lowest rate was in Bankstown (9 per 10,000 population) (Table 71).

Table 71: Hospitalisations for self-harm by SA3, SWS and Australia, 2015-16

SA3	Hospitalisations per 10,000 population	Bed days per 10,000 population	No of hospitalisations	No of bed days
Southern Highlands	30	144	119	540
Bankstown	9	46	155	824
Camden	15	71	92	435
Campbelltown	27	158	437	2,527
Wollondilly	15	70	55	283
Merrylands-Guilford	12	59	52	307
Bringelly - Green Valley	12	59	116	577
Fairfield	12	61	222	1,150
Liverpool	16	110	181	1,275
SWS	15	85	1,429	7,918
National	17	81	N/A	N/A

Source: Source: AIHW analysis of the National Hospital Morbidity Database 2015-16 and ABS ERP 2014.

Note: Hospitalisations from both public and private hospitals are included.

Rates are measured per 10,000 people residing in a PHN or Statistical Areas Level 3 (SA3), based on the ERP 30 June 2014.

All rates refer to the area where a person lived, not the location of the hospital where they were admitted.

4.5.9 Other Diseases

4.5.9.1 Digestive Diseases

Inflammatory Bowel Disease (IBD) including Ulcerative Colitis (UC) and Crohn's Disease (CD) are chronic illnesses that are characterised by phases of remission and relapse of which there is no cure. International studies have demonstrated a dramatic rise in the incidence of these conditions over the past several decades.

The IBD incidence rates observed in Australia are among the highest reported in the world literature. Comparisons among developed countries show that Australia has one of the highest rates of obesity, which is often linked to digestive issues.

Currently there are approximately 80, 000 (1 in 250 people aged 5 – 49) Australians suffering from IBD. A recent prospective, population based Australian incidence study demonstrated an annual incidence of IBD of 29.6 per 100 000 young adults. Of patients diagnosed with IBD, 25% are diagnosed by age 18, with peak prevalence in the 30 – 39 year age bracket, the most productive years of one's life. This poses a considerable problem for communities with loss of employment, under-education, and increased healthcare costs. The incidence of IBD is second only to type 1 diabetes (26.9/100 000) and followed by rheumatoid arthritis (10-30/100 000).[74]

It is estimated that about 5,000 people suffer from IBD in SWS. Given the current higher proportion of young people in SWS (42% under the age of 30 years in 2016), and growing number of young people in the future (an increase of 27% by 2031 in a proportion of people under the age of 30 years); the number of people affected by IBD in SWS may be higher due to

under-reporting. Although, IBD has been referred to as a ‘western’ disease, it is becoming more prevalent amongst Middle Eastern and Asian populations in SWS.[75]

It is estimated, based on recent incidence surveys, that in 2009–10, there were about 27,000 hospitalisations where Crohn disease or ulcerative colitis was recorded as the principal diagnosis. The average length of stay was 6.2 days for Crohn disease and 7.4 days for ulcerative colitis.[74]

IBD is a lifelong condition and with overall life expectancy in Australia lengthening, people diagnosed in their childhood, adolescent or as young adults will require long-term access to healthcare, presenting a huge cost burden.

4.5.9.2 Arthritis and Musculoskeletal Conditions

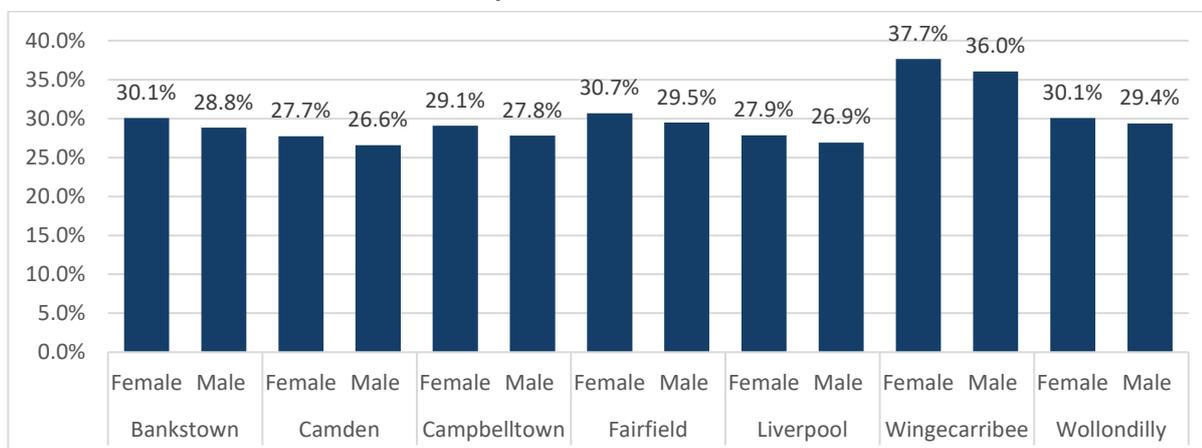
Diseases of the musculoskeletal system and connective tissue

Diseases of the musculoskeletal system are conditions that affect the bones, muscles and connective tissues. There are more than 150 different types of musculoskeletal conditions including back problems, various forms of arthritis and osteoporosis. Their causes include congenital anomalies, metabolic or biochemical abnormalities, infections, inflammatory conditions, overuse of joints, trauma and cancer. The conditions impose substantial burden on the health system through the need for hospital and primary health-care services. In addition, they are contributors to pain, illness and disability disrupting individuals’ daily life. [76]

The Australian Bureau of Statistics (ABS) details the prevalence of seven conditions: arthritis, other arthropathies, rheumatism, back problems (dorsopathies), osteoporosis, other diseases of the musculoskeletal system and connective tissue, and symptoms and signs involving the musculoskeletal system and connective tissue.[72]

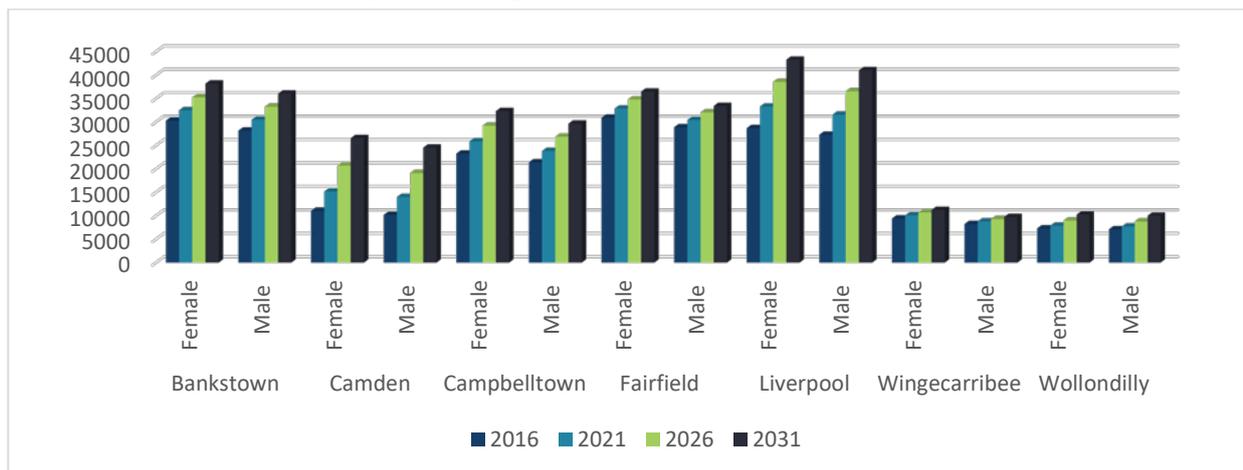
It is estimated that about 272,234 persons or 29.2% of the population in SWS live with the musculoskeletal system and connective tissue diseases. The prevalence rate ranges from 26.6% for males in Camden to 37.7% for females in Wingecarribee. The prevalence is higher in females than in males. (Figure 56).

Figure 56: Estimated prevalence rate for total diseases of the musculoskeletal system and connective tissue for SWS residents by LGA, 2016



The number of persons with diseases of musculoskeletal system and connective tissue is estimated to increase by 41% by 2031, from 272,234 persons in 2016 to 382,863 persons in 2031. The significant increase is expected to be in Liverpool, Bankstown and Fairfield LGAs (Figure 57).

Figure 57: Projected number of people with total diseases of the musculoskeletal system and connective tissue for SWS by LGA and gender, 2016 to 2031



Arthritis and Back Problems

Arthritis is an umbrella term for a wide range of inflammatory conditions affecting the bones, muscles and joints. Arthritis is characterised by an inflammation of the joints often resulting in pain, stiffness, disability and deformity. Arthritis in the NHS 2014-15 includes rheumatoid, osteoarthritis and other type unknown. Rheumatoid arthritis is a chronic disease marked by inflammation of the joints and most often affecting both sides of the body. Over time, there is progressive and irreversible joint damage, resulting in deformities and severe disabilities.

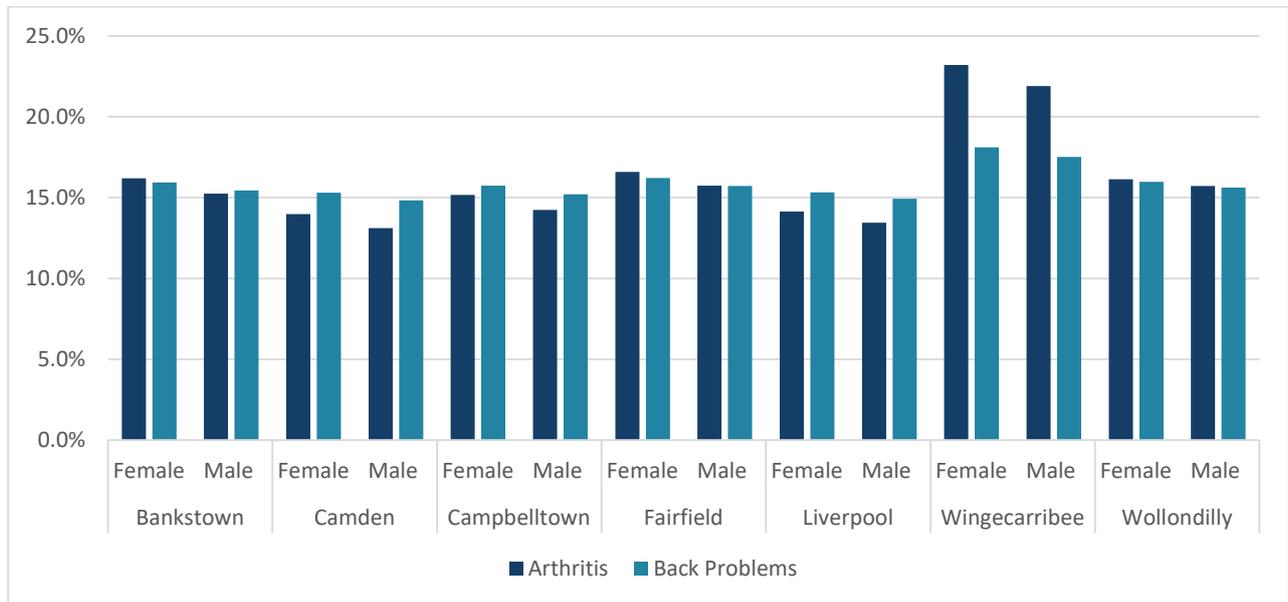
Osteoarthritis is a degenerative joint condition that mostly affects the hands, spine and joints with main feature of breakdown of the cartilage that overlies the ends of the bones in the joints. The strongest factor in the development and progression of osteoarthritis is age. It is the most common form of arthritis and the predominant condition leading to knee and hip replacement surgery in Australia.

Back problems include a range of conditions related the bones, joints, connective tissue, muscles and nerve of the back. Back problems include back pain or problems where there is no identifiable cause or diagnosis (includes sciatica, disc disorders, back pain/problems not elsewhere classified and curvature of the spine). The occurrence is associated with age, occupation, physical fitness and weight.

The estimated prevalence rate for arthritis in SWS is 15.4% and ranges from 13.1% for males in Camden to 23.2% for females in Wingecarribee. The prevalence rate is mostly affected by the age structure across LGAs in SWS. The prevalence rate for arthritis in people aged 65 years and over in NSW is 54% (Figure)

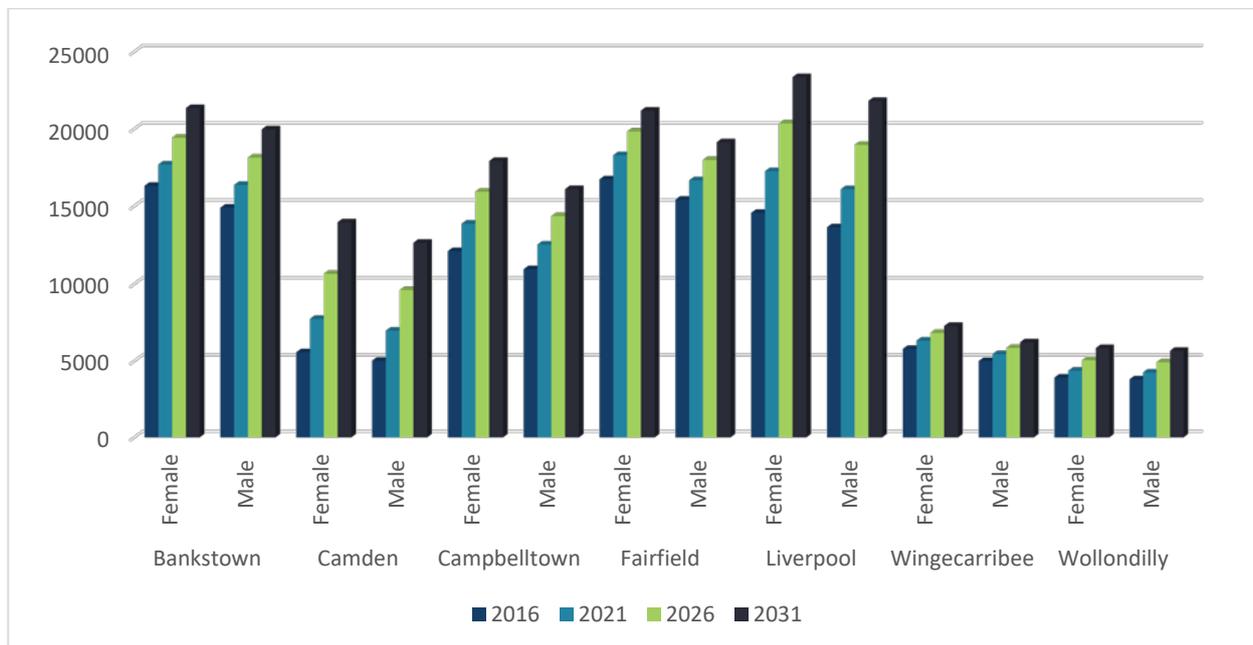
The estimated prevalence rate for back problems is 15.7% for SWS and ranges from 14.8% for males in Camden to 18.1% for females in Wingecarribee (Figure 58).

Figure 58: Estimated prevalence rate for arthritis and back problems for SWS residents by LGA, 2016



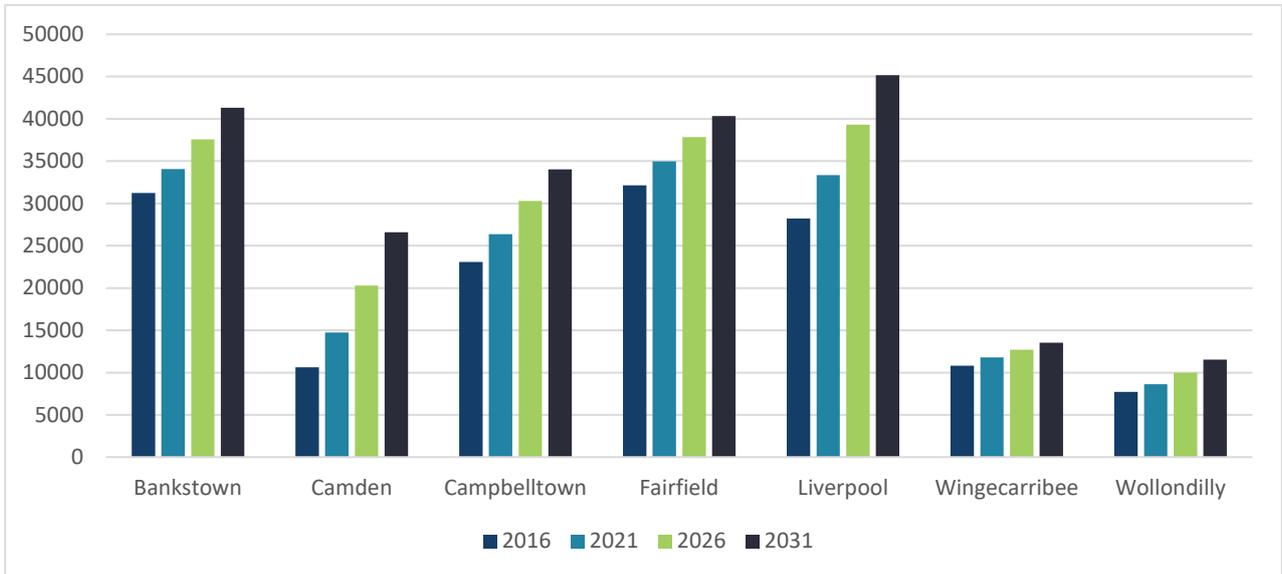
The number of people with arthritis in SWS region is expected to increase by 48% by 2031 from 143,835 in 2016 to 212,497 persons in 2031 (Figure 59).

Figure 59: Projected number of people with arthritis in SWS by LGA, 2016 to 2031



The number of people with back problems is projected to increase by 36% by 2031, from 146,080 persons in 2016 to 198,781 persons in 2031 (Figure 60).

Figure 60: Projected number of SWS residents with back problems by LGA, 2016 to 2031



Hospitalisations

In 2016-17, about 15,670 SWS residents (7,777 males and 7,893 females) were hospitalised for musculoskeletal diseases, which represented 4.4% of all SWS hospitalisations compared to 5.1% for the state.

5. Communicable Diseases

There are a variety of infectious diseases and many can be highly contagious. Whilst some of these conditions are uncomfortable but short-lived, others can be chronic and require lifelong management. Each year, over 200,000 individual notifications of communicable diseases are reported in Australia.

The number of notifications received for any particular condition is almost always an underestimate of the number of cases that actually occur. For a condition to be notified a patient must seek medical help, be diagnosed with the condition, in some cases must have the appropriate laboratory tests done and then the diagnosis must be reported to NSW Health.

This section describes the epidemiology of notifiable sexually transmissible infections (STIs) and BBVs in SWSLHD for 2017, and trends over the seven-year period from 2011 to 2017. It particularly highlights a steady increase in the rate of chlamydia, gonorrhoea and syphilis notifications predominantly in the younger people (15 to 29 years old) over the above period.

5.1 Sexually Transmissible Infections

Sexually transmissible infections are infections that are passed from one person to another through sexual contact. The causes of STIs are bacteria, parasites, yeast, and viruses. Most STIs affect both men and women but in many cases complications of untreated STIs can be more severe for women. Chlamydia, gonorrhoea and syphilis are most commonly notified STIs in NSW residents.

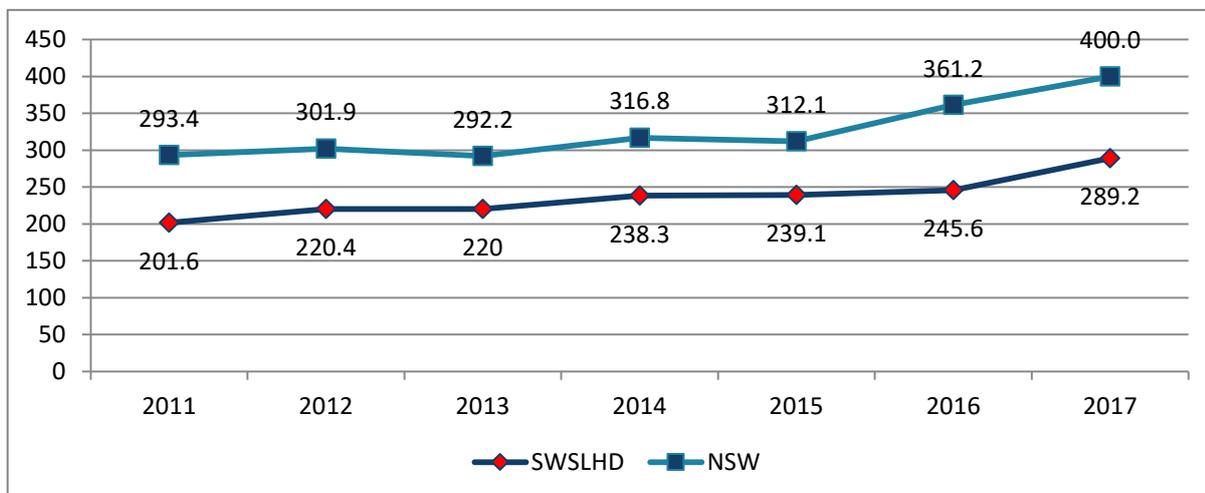
The rates of newly diagnosed STIs remain higher in the Aboriginal and Torres Strait Islander population than in the non-Aboriginal population.[77]

5.1.2 Chlamydia

Chlamydia is caused by bacteria called *Chlamydia trachomatis* and is the most commonly notified sexually transmissible infection in NSW and SWS.

There has been a steady increase in the rate of chlamydia notifications per 100,000 population from 2011 to 2017 for SWSLHD, from 201.6 (95% CI 192.2-211.0) in 2011 to 277.2 (95% CI 278.3-300.0) in 2017. Notification rates for SWSLHD have been between one fifth to one third lower than the NSW state notification rates. (Figure 61).

Figure 61: Chlamydia notifications (rate per 100,000 population) for SWS and NSW, 2011- 17

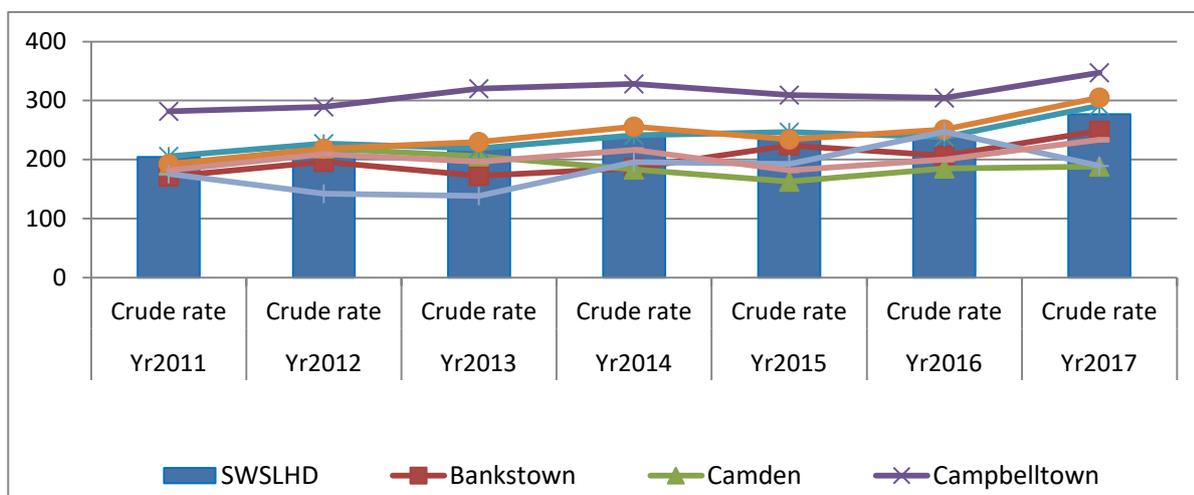


Data source: Notifiable Conditions Information Management System, Health Protection NSW. Extracted 24 August 2018.

South Western Sydney Local Health District Public Health Unit. Sexually Transmissible Infections and Blood Borne Viruses, 2017 Annual Report. South Western Sydney Local Health District; Liverpool, NSW. October 2018.

Except for Camden, chlamydia notification rates in all LGAs and in SWSLHD increased from 2011 to 2017. There was an increase in notification rates between 2016 and 2017 for all LGAs except for Wingecarribee (247.2 vs 189.4) Between 2011 and 2017, Campbelltown had the highest notification rate (range 281.8 to 347.4 per 100,000 population) which was consistently above the notification rate for SWSLHD (range 204.6 to 277.2 per 100,000 population). Liverpool also had higher notification rates than the SWSLHD from 2013-2017 (Figure 62).

Figure 62: Chlamydia notifications for SWSLHD (crude rate per 100,000 population) by LGA and year, 2011-2017



Data source: Notifiable Conditions Information Management System, Health Protection NSW, extracted 24 August 2018. South Western Sydney Local Health District Public Health Unit. Sexually Transmissible Infections and Blood Borne Viruses, 2017 Annual Report. South Western Sydney Local Health District; Liverpool, NSW. October 2018.

More females than males are notified with chlamydia infections annually, however both genders have shown an increase in the number of notifications over the period 2011-2017. The numbers of notifications from both genders peaked in 2016 compared to the previous five years (1,432 females and 1,296 males) (Table 72). Women with untreated chlamydia infections are more likely to develop pelvic inflammatory disease (PID) and in the most severe form have an increased likelihood of ectopic pregnancy and infertility. The rates of chlamydia notifications increase dramatically from the 10-14 year age group to the 20-24 year age group, after which notifications rates decline with increasing age across all years (2011-2017).

Table 72: Chlamydia notifications for SWSLHD by gender and year, 2011-2017

	Year						
Gender	2011	2012	2013	2014	2015	2016	2017
Female	1,002	1,111	1,119	1,212	1,278	1,279	1,432
Male	790	874	892	992	958	1,037	1,296

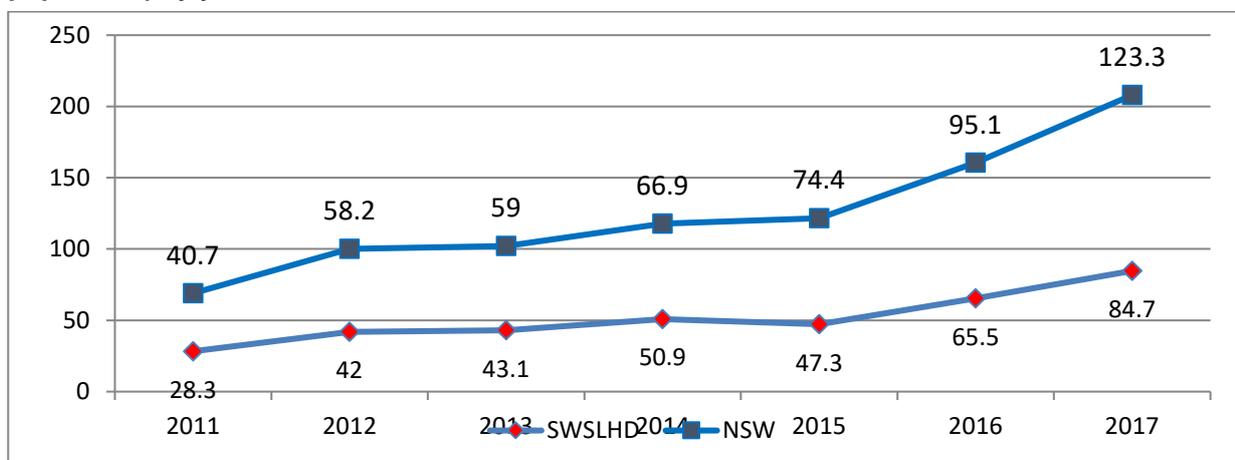
Data source: Notifiable Conditions Information Management System, Health Protection NSW, extracted 24 August 2018. South Western Sydney Local Health District Public Health Unit. Sexually Transmissible Infections and Blood Borne Viruses, 2017 Annual Report. South Western Sydney Local Health District; Liverpool, NSW. October 2018.

5.1.3 Gonorrhoea

Gonorrhoea and infectious syphilis in Australia are diagnosed primarily in men who have sex with men in urban settings, and in young heterosexual Aboriginal and Torres Strait Islander people in remote areas. However, the number of new diagnoses of gonorrhoea among women in urban settings has increased steadily- an increase of up to 126%. [77]

There has been a steady increase in the rate of gonorrhoea notifications in SWSLHD per 100,000 population from 2011 to 2017, with an increase from 28.8 (95% CI 25.2-32.4) in 2011 to 84.7 (95% CI 78.8-90.6) in 2017. Notification rates for SWSLHD have remained between one fifth to one third lower than the NSW state notification rates over the same period (Figure 63:).

Figure 63: Gonorrhoea notification rates for SWSLHD and NSW (standardised rate per 100,000 population) by year, 2011-2017



Data source: Notifiable Conditions Information Management System, Health Protection NSW, extracted 24 August 2018. South Western Sydney Local Health District Public Health Unit. Sexually Transmissible Infections and Blood Borne Viruses, 2017 Annual Report. South Western Sydney Local Health District; Liverpool, NSW. October 2018.

Liverpool, Fairfield and Bankstown LGAs have had consistently higher rates of notifications compared to other LGAs over the period 2011-2017. All LGAs reported an increase in gonorrhoea notification rates in 2017.

More males than females are notified with gonorrhoea infections annually. There was an increase in the number of notifications received for both females (23.8% increase) and males (26.5% increase) in 2017 compared with 2016.

Between 2011-2017, gonorrhoea notification rates increased with age from 10-14 years until 20-24 years, after which notifications declined with increasing age. In 2017 notification rates were at an all time high for most persons in age groups under 50 years of age.

Similar to the infection with chlamydia, if left untreated gonorrhoea can cause pelvic inflammatory disease in females and infertility in both males and females.

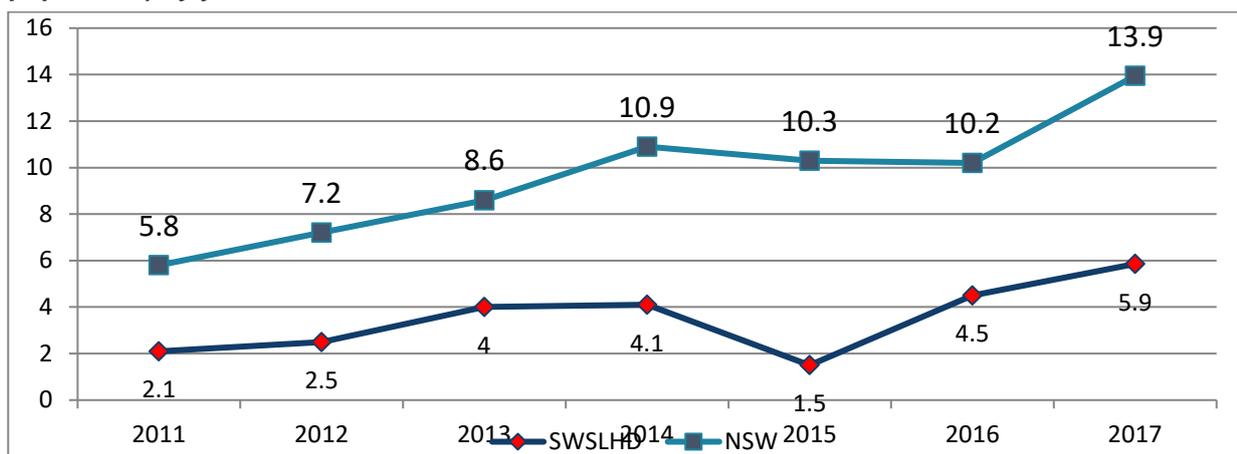
5.1.4 Syphilis

Cases of infectious syphilis require public health management which includes contact tracing and treatment. Notification rates for infectious syphilis indicate trends in disease transmission. Only crude rates are presented for infectious syphilis notifications.

Rates of infectious syphilis notifications for NSW have remained two to seven times higher than SWSLHD over the period 2011 to 2017.

Between 2011 and 2013, crude notification rates of infectious syphilis for SWSLHD nearly doubled and then remained stable at 4.1 per 100,000 population, declined in 2015 and has been increasing since 2016. The crude notification rates of infectious syphilis in 2017 was 5.9 per 100,000 population, an increase from 4.5 per 100,000 population in 2016. (Figure 64).

Figure 64: Infectious syphilis notification rates for SWSLHD and NSW (crude rate per 100,000 population) by year, 2011-2017



Data source: Notifiable Conditions Information Management System, Health Protection NSW, extracted 24 August 2018. South Western Sydney Local Health District Public Health Unit. Sexually Transmissible Infections and Blood Borne Viruses, 2017 Annual Report. South Western Sydney Local Health District; Liverpool, NSW. October 2018.

In 2017, all LGAs reported lower crude rates of infectious syphilis notifications (range 1.2-9.1 per 100,000 population) compared with the NSW rate (13.9 per 100,000 population). Campbelltown LGA had the highest crude rate of infectious syphilis notifications with 9.1 per 100,000 population, followed by Bankstown and Fairfield each with 6.8 per 100,000 population.

The majority of notifications were among men, with more than four times the number of notifications for males than females since 2014.

5.1.5 Human Papilloma Virus (HPV)

The Australian Government operates a school based immunisation program against Human Papilloma Virus (HPV) for girls and boys aged 12-13, and a catch-up program for boys aged 14-15. In SWS, 81.9% of females and 65.9% of males were fully immunized against HPV in 2014-15 compared with 81.5% and 64.7% for NSW respectively.[78] There has been a marked reduction in diagnoses of genital warts in younger age groups, due to the introduction of a human papillomavirus vaccination program in 2007.[77]

5.2 Blood Borne Viruses

5.2.1 HIV

There were 1,013 new diagnoses of HIV in Australia in 2016. This has remained stable in the last five years. Male-to-male-sex continues to be the major HIV risk exposure in Australia, reported for 75% of diagnoses in 2016, followed by heterosexual sex (20%). Newly acquired HIV infection may be diagnosed in individuals aged 18 months or older at the time of blood sample collection. There has been an increase in HIV testing annually in NSW since 2012. Any changes in trends in HIV diagnosis may be related to increased testing and detection of new cases in NSW.

The number of SWSLHD residents notified with newly diagnosed HIV infection accounted for between 5.4% to 9.4% of notifications for NSW over the period 2011- 2017 (Table 73). In 2017, the majority of notifications for newly diagnosed HIV infections in SWSLHD were among the 20-29 and 30-39 year age groups, with the latter age group accounting for approximately 38% of notifications.

Table 73: Number of SWSLHD and NSW residents notified with newly diagnosed HIV infection by year, 2011-2017

	Year						
	2011	2012	2013	2014	2015	2016	2017
SWSLHD	18	31	33	30	28	29	29
NSW	331	413	353	344	347	317	313
% of NSW notifications	5.4	7.5	9.4	8.7	8.1	9.1	9.3

Data source: Notifiable Conditions Information Management System, Health Protection NSW, extracted 2 October 2018. South Western Sydney Local Health District Public Health Unit. Sexually Transmissible Infections and Blood Borne Viruses, 2017 Annual Report. South Western Sydney Local Health District; Liverpool, NSW. October 2018.

There was very little variation in the numbers of newly diagnosed HIV infection notifications received each year from 2012-2017 in SWSLHD. Among newly diagnosed HIV infection

notifications there were less than five notifications identified among Aboriginal and/or Torres Strait Islander people for the period 2011-2017 (Table 74).

Table 74: Number of SWS residents with newly diagnosed HIV infection, by age and gender and Aboriginality, 2011- 2017

		Year						
		2011	2012	2013	2014	2015	2016	2017
Gender								
	Female	<5	6	6	<5	<5	<5	<5
	Male	15	25	27	27	24	26	26
	Transgender	0	0	0	0	<5	<5	0
	Unknown	0	0	0	0	0	0	0
Aboriginality								
	Aboriginal and/or Torres Strait Islander	0	<5	<5	0	0	0	0
	Non-Aboriginal	17	29	31	29	28	29	29
	Unknown	<5	<5	0	<5	0	0	0
Age group (years)								
	0-19	<5	0	<5	0	<5	0	0
	20-29	5	13	10	7	10	9	4
	30-39	5	7	8	12	8	10	11
	40-49	<5	6	<5	7	<5	6	3
	>50	<5	5	9	<5	6	<5	11
Total		18	31	33	30	28	29	29

Data source: Notifiable Conditions Information Management System, Health Protection NSW, extracted 2 October 2018. South Western Sydney Local Health District Public Health Unit. Sexually Transmissible Infections and Blood Borne Viruses, 2017 Annual Report. South Western Sydney Local Health District; Liverpool, NSW. October 2018.

From 2011 to 2017, SWSLHD residents notified with newly diagnosed HIV infection reported HIV risk exposures including men who have sex with men (MSM) for 66.2% (n=131), heterosexual sex for 27.3% (n=54), and injecting drug use (PWID) for 2.0% (n=4). In 2017, 58.6% (n=17) of SWSLHD residents notified with newly diagnosed HIV infection reported male to male sex compared to 69.0% (n=216) across NSW.

Between 2011 and 2017, the majority of newly diagnosed HIV infection notifications in SWSLHD were acquired in Australia, among persons born in Australia (average 37.2%, n=74) and persons born overseas (31.6%, n=63).

5.2.2 Hepatitis B

Hepatitis B is transmitted by infectious blood or body fluids and babies of infected mothers can be infected during birth. Universal infant vaccination is considered to be the most effective strategy to control hepatitis B. As hepatitis B is often asymptomatic, a significant proportion of people living with hepatitis B are not aware of their infection, and people may be tested many years after an initial infection.

Living with hepatitis B is associated with increased morbidity, mortality and health-related costs. If not diagnosed and managed appropriately, hepatitis B infection can lead to cirrhosis (scarring of the liver), liver cancer or liver failure. Up to 1 in 4 people with chronic hepatitis B can die from liver cancer or liver failure unless they receive appropriate treatment and monitoring. Not all

people with chronic hepatitis B need treatment but they all require regular (six to twelve monthly) monitoring. (*NSW Hepatitis B SWSLHD Report Card January-December 2017*).

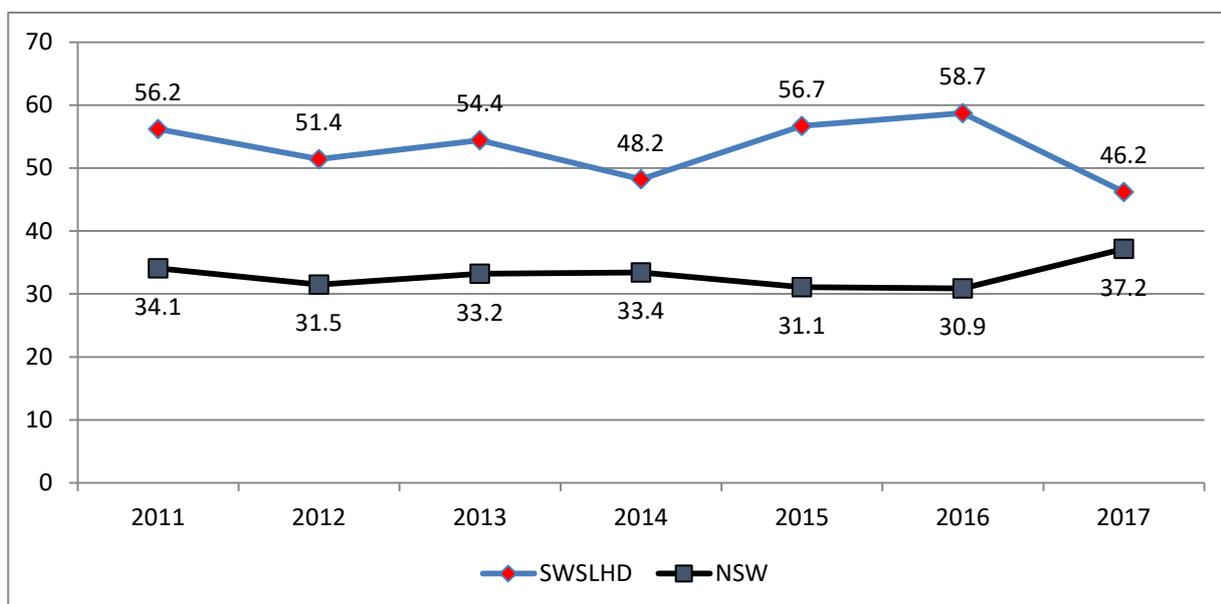
There were 6,555 new hepatitis B diagnoses in Australia in 2016. It is estimated that 233,034 people in Australia are living with chronic hepatitis B and out of that number approximately 84,600 people in NSW [79]. In NSW, hepatitis B infection is not evenly distributed, with higher notification rates in some local health districts (LHD) including South Western Sydney, Western Sydney, South Eastern Sydney, Sydney and Northern Sydney. In 2016 these five Sydney metropolitan LHDs accounted for 85% of NSW hepatitis notifications, similar to previous years. SWSLHD had the highest number of notifications of hepatitis B (554) of all NSW LHDs. [80]

In general, the proportion of people living with chronic hepatitis B reflects the proportion of the population born in a country with high prevalence of hepatitis B. (Australasian Society for HIV Medicine Hepatitis B Mapping Project: Estimates of chronic hepatitis B diagnosis, monitoring and treatment by Medicare Local, 2014/15 – National Report. The hepatitis B notification rate in NSW Aboriginal people in 2015 was 1.3 times higher than the rate in non-Aboriginal people. [81]

In SWSLHD, the number of notifications of newly acquired hepatitis B is low compared to the number of notifications for chronic (of unspecified duration) hepatitis B with less than five cases of newly acquired hepatitis B reported each year from 2011 to 2017. Numbers of notifications of chronic hepatitis B fluctuated between 482 in 2011 and 446 in 2017.

Across six years 2011 to 2017, hepatitis B notification rates for SWSLHD have been 1.4-1.9 times higher than the NSW average. There was a decrease in the notification rate of chronic (unspecified) hepatitis B in SWSLHD in 2017 (Figure 65).

Figure 65: Chronic (unspecified) hepatitis B notifications (rates per 100,000 population) for SWS and NSW, 2011-2017



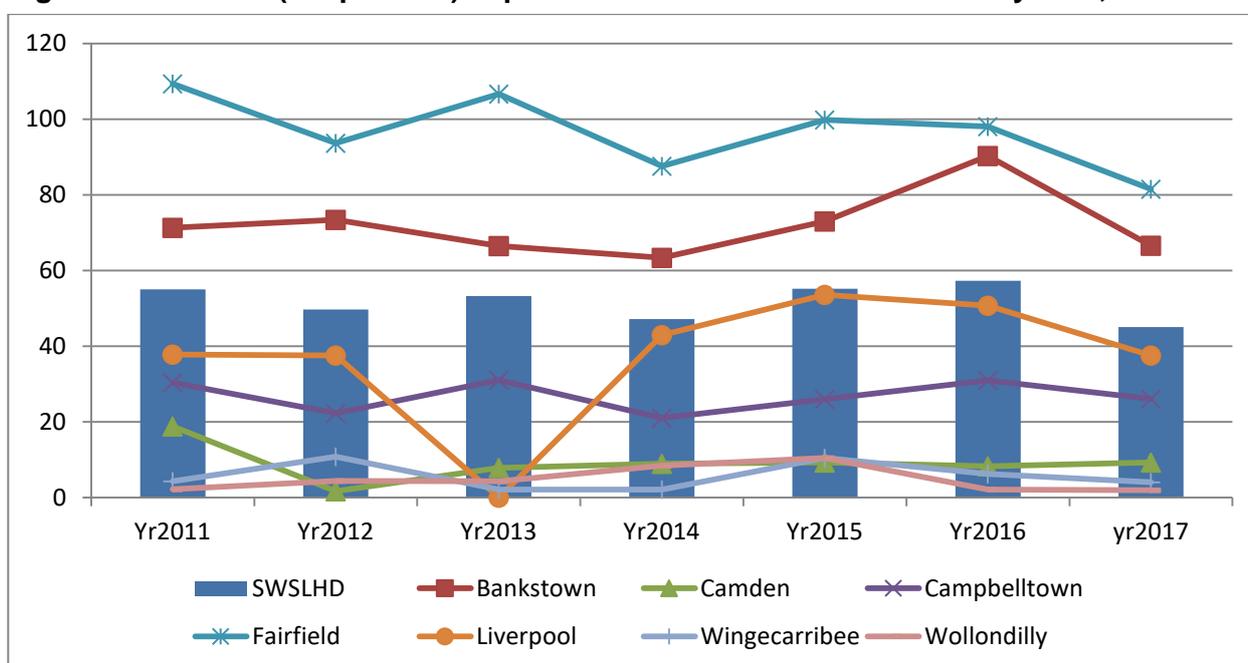
Data source: Notifiable Conditions Information Management System, Health Protection NSW, extracted 24 August 2018. South Western Sydney Local Health District Public Health Unit. Sexually Transmissible Infections and Blood Borne Viruses, 2017 Annual Report. South Western Sydney Local Health District; Liverpool, NSW. October 2018.

Fairfield and Bankstown LGAs consistently had higher rates of notifications for chronic (unspecified) hepatitis B between 2011 and 2017 compared to the notification rate at the LHD level, while Wingecarribee and Wollondilly had the lowest notification rates (Figure 66).

The high number of hepatitis B notifications in parts of South West Sydney is a reflection of its migrant and refugee settlement pattern. A large proportion of SWS residents is born in countries with a high prevalence of hepatitis B including Vietnam, China, Cambodia, the Philippines and Fiji; and a large proportion of refugees and humanitarian entrants have settled in SWS.

There were slightly more males than females notified with chronic (unspecified) hepatitis B. Notifications fluctuated over the reporting period 2011-2017 for both sexes and there were fewer notifications in 2017 compared with 2016. Notification rates increased considerably with age from 10-14 years until 35-39 years, after which notifications gradually decline with increasing age.

Figure 66: Chronic (unspecified) hepatitis B notifications for SWSLHD by LGA, 2011-2017



Data source: Notifiable Conditions Information Management System, Health Protection NSW, extracted 24 August 2018. South Western Sydney Local Health District Public Health Unit. Sexually Transmissible Infections and Blood Borne Viruses, 2017 Annual Report. South Western Sydney Local Health District; Liverpool, NSW. October 2018.

Chronic viral hepatitis is a major contributing factor to the increase of liver cancer and one of the most common reasons for liver transplantation. Chronic Hepatitis B (CHB) affects CALD and Aboriginal populations disproportionately due to the late diagnosis in those groups.[82]

In 2015 about 10,263 people with chronic hepatitis B in NSW were not receiving treatment, and about one quarter of them were living in SWS (2,582 people).

Between 2008 and 2012, South West Sydney had higher incidence and mortality rates of liver cancer than NSW (9.2 and 7.2 and 5.7 and 4.8 respectively).[82]

Hepatitis B immunisation coverage rates for children

Health Protection NSW monitors hepatitis B immunisation rates in children. Annual average hepatitis B vaccine coverage rates are calculated based on routine quarterly reports from the Australian Immunisation Register (AIR). Data are assigned to local health districts and LGAs based on the postcode of residence. The target rate for hepatitis B immunisation for children aged 12 to 27 months (12 to <15 months and 24 to <27 months) is 92%. SWS rates were consistent with the NSW and Australian averages for both age groups. In 2017, all LGAs in SWS, except Bankstown (91.5%) and Wingecarribee (91.7%) exceeded the hepatitis B immunisation target rate of 92% in the 12 to <15 months age group; while only Wollondilly surpassed the target for those aged 24 to <27 months.

In 2017, hepatitis B immunisation coverage for Aboriginal and Torres Strait Islander children in SWS exceeded the target rate of 92% for children aged 12 to <15 months but not for those aged 24 to <27 months. The target rate of 92% was exceeded for children aged 12 to <15 months in Camden, Campbelltown, Liverpool and Wingecarribee, and for children aged 24 to <27 months in Camden, Liverpool and Wollondilly. Camden achieved 100% immunisation rate for both age groups. It is important to note that the numbers of Aboriginal and Torres Strait Islander children in some LGAs within SWS are relatively small and therefore immunisation coverage rates fluctuate considerably between years from 62.5 and 100.0%.

5.2.3 Hepatitis C

Hepatitis C is an infectious disease caused by the hepatitis C virus which can cause both acute and chronic infection. Hepatitis C infection can occur as a mild illness that lasts a few weeks to a serious lifelong illness that may cause cirrhosis (scarring of the liver), liver cancer or liver failure if left untreated. Approximately a third of all liver transplants (31%) in Australia and an estimated 814 deaths were attributable to hepatitis C infection.

Hepatitis C is primarily spread by blood to blood contact. In Australia, the main route of transmission of the hepatitis C virus is through intravenous drug use. Fifty one percent of people who inject drugs surveyed in the Australian Needle and Syringe Program Survey were positive for hepatitis C.

Despite the fact that the rate of diagnosis of hepatitis C infection has declined over the past decade, hepatitis C is still the most commonly notified blood-borne virus in Australia. It is estimated that in 2016, there were 227,310 people living with chronic HCV in Australia and 80,700 people living with chronic HCV in NSW. [83]

The rate of hepatitis C diagnosis among Aboriginal people in Australia is almost five times higher than the rate in the non-Aboriginal population. [77]

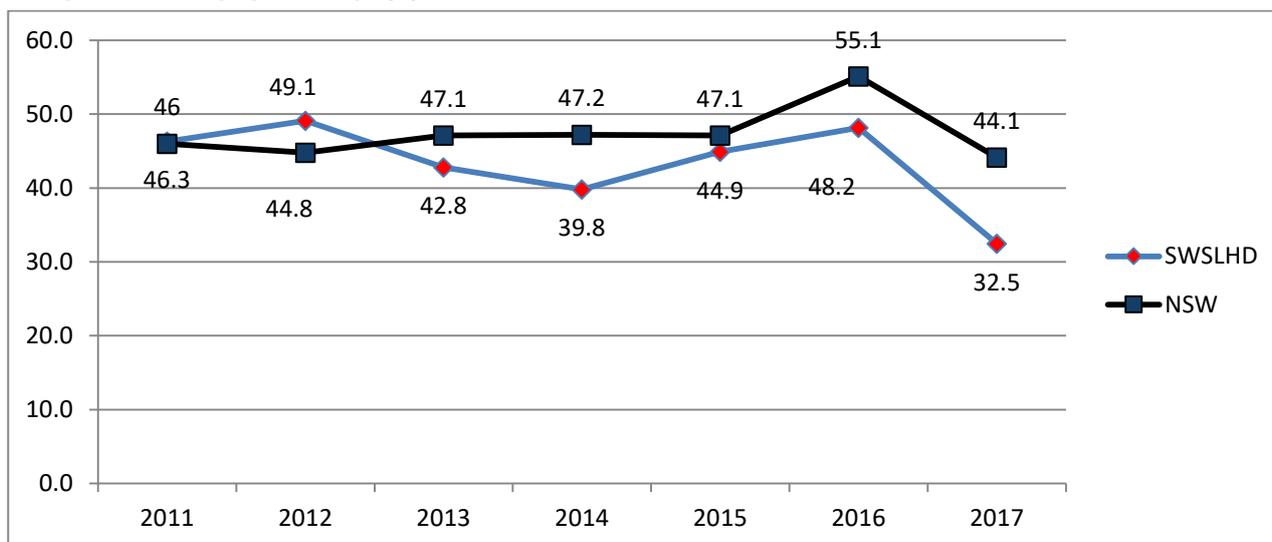
In SWS, about 12% of people assessed for hepatitis C treatment were Aboriginal and/or Torres Strait Islander compared to 7.6% for the state.

Chronic viral hepatitis is the leading cause of liver cancer in Australia and the most common reason for liver transplantation. Ninety percent of new hepatitis C infections and 80 % of existing infections are due to transmission by sharing injecting equipment.[83]

The number of newly acquired hepatitis C notifications is low compared to the number of notifications for chronic (unspecified) hepatitis C with less than five cases of newly acquired hepatitis C notified each year from 2011 to 2017.[83]

The notification rate of chronic (unspecified) hepatitis C has steadily increased from 39.8 per 100,000 population in 2014 to 48.0 per 100,000 population in 2016, with a slight decline to 32.5 per 100,000 population in 2017. Since 2013, the notification rate of chronic (unspecified) hepatitis C for SWSLHD has remained slightly below the NSW state average (Figure 67).

Figure 67: Chronic (unspecified) hepatitis C notification rates for SWSLHD and NSW (standardised rate per 100,000 population) by year, 2011-2017



Data source: Notifiable Conditions Information Management System, Health Protection NSW, extracted 24 August 2018. South Western Sydney Local Health District Public Health Unit. Sexually Transmissible Infections and Blood Borne Viruses, 2017 Annual Report. South Western Sydney Local Health District; Liverpool, NSW. October 2018.

Campbelltown and Fairfield LGAs have consistently had higher notification rates of chronic (unspecified) hepatitis C compared to the SWSLHD rates during the period 2011-2017, with the exception of Fairfield in 2014. Hepatitis C rates in Bankstown have exceeded the LHD rates since 2014 and surpassed all other LGAs in 2015 and 2016, and went down in 2017 below rates for Campbelltown and Fairfield.

There were more males than females notified with chronic (unspecified) hepatitis C in SWSLHD during 2011 to 2017. The age group with highest notification rate was 35-39 years (68.2 per 100,000 population), followed by 50-54 years (67.8 per 100,000 population) and 55-59 years (61.3 per 100,000 population).

Hepatitis C treatment and hepatitis C prevalence

An estimated 32,550 people in Australia received hepatitis C treatment in 2016. Access to new highly effective hepatitis C treatments resulted in a 12 fold increase in the number of people receiving hepatitis C treatment between 2012 and 2016.

In 2016, for the first time in ten years, the estimated number of people in Australia living with hepatitis C who had severe liver disease because of their infection reduced by 10% (severe fibrosis) and by 38% (hepatitis C-related cirrhosis). [79]

NSW is actively working towards hepatitis C elimination. Achieving this requires increased treatment coverage, with a focus on increasing prescribing in general practice. Other key settings include prisons, drug and alcohol services, Needle and Syringe Program and Aboriginal community controlled health services. Access to sterile needle and syringe programs and opioid treatment programs continue to be important in the prevention of hepatitis C transmission.

The Kirby Institute conducted mathematical modelling to project the hepatitis C virus (HCV) prevalence, incidence, and HCV-morbidities in NSW over 2016-2030. They assumed three scenarios for the roll-out of direct-acting antiviral (DAA) treatment for HCV in NSW based on the estimated number treated in 2016 from Pharmaceutical benefits Scheme (PBS) data. Three scenarios include:

- Pessimistic roll-out: sharp decrease of DAA uptake from 2017
- Intermediate roll-out: moderate decrease of DAA uptake from 2017
- Optimistic roll-out: where DAA uptake remains at 2016 level.

The Kirby Institute modelling [84] estimated that 10,770 people in SWS in 2015 are living with chronic hepatitis C. SWS treatment coverage was 12% compared to an overall coverage of 14% in NSW and Australia. Between 1 March 2016, when new hepatitis C treatments were listed on the PBS, and 31 March 2018, 2,183 residents of SWS (20%) had initiated hepatitis C treatment. It is projected that by 2030, number of people living with chronic HCV in SWS will reduce by 96% from 10,770 to 470 people and an annual number of HCV infections will reduce by 89% from 280 to 30 infections in a year (Table 75).

Table 75: Estimates and projections of the hepatitis C virus, 2015 and 2030 based on the intermediate scenario only

Region	2015 Estimates				Initial DAA coverage (2016)
	People living with chronic HCV	New infections	New HCC cases	Annual liver-related deaths	
SWS	10,770	280	30	40	12%
NSW	80,700	2,090	210	290	14%
Australia	227,310	5,900	610	830	14%
2030 Projections					
Region	People living with chronic HCV	New infections	New HCC cases	Annual liver-related deaths	
SWS	470	30	1	2	
NSW	120	20	0	0	
Australia	154	18	0	0	

Source: The Kirby Institute, UNSW, 2017 Estimates and Projections of the Hepatitis C Virus in NSW : Summary Report). Note: numbers rounded to nearest 10

According to the the intermediate treatment scenario [84], the roll-out of new DAA treatment in NSW by 2030 will result in a substantial decline (overall and across all LHDs) in:

- People living with chronic HCV (75-100% reduction)
- HCV incidence (77-100% reduction)
- Associated liver mortality (33-100% reduction).

Due to an initial treatment coverage of 12%, SWS will reach the three World Health Organisation (WHO) elimination targets (80% reduction in new chronic infections, 80% of eligible treated, and 65% reduction in HCV-related deaths by 2030 compared to 2015) by 2029 in the intermediate scenario, later than in the overall NSW projections (which have an initial coverage of 12%).

6. Our Lifestyles and how they impact on our health

6.1 Lifestyle Behaviours

Many chronic diseases share common risk factors that are preventable. Modifying these risk factors can reduce the risk of developing a chronic condition, leading to large health gains in the population through the reduction of illness and rates of death. Chronic diseases are closely associated with modifiable behavioral risk factors such as tobacco use, physical inactivity, unhealthy diet and the harmful use of alcohol. Behavioral risk factors often occur together, and may cluster particularly in disadvantaged communities and groups. These behaviors contribute to the development of biomedical risk factors, including overweight and obesity, high blood pressure, and high cholesterol levels, which in turn lead to chronic disease.

SWS residents on average have elevated rates of behaviours that have been linked to poorer health status and chronic disease prevalence. This includes diabetes, cardiovascular and respiratory diseases, cancer, and other conditions that account for much of the burden of morbidity and mortality in later life.

6.1.1 Tobacco Smoking

Tobacco smoking is the single most preventable cause of death and disease globally. It is a major risk factor for death from ischaemic heart disease and stroke. Tobacco smoking refers to the frequency of smoking of tobacco, including manufactured (packet) cigarettes, roll-your-own cigarettes, cigars and pipes. It excludes chewing tobacco, electronic cigarettes (and similar products) and smoking of non-tobacco products.

In 2014-15, one in seven (14%) Australians aged 15 years and over smoked daily, with an additional 2% smoking irregularly. Australian males aged 15 and over were more likely to smoke than females. In males, the prevalence of smoking was highest amongst those aged 25-34 years. Smoking status in females increased in the 45-54 year age-group.

According to the 2014-15 Australian National Health Survey, Australians living in regional and remote locations, those who were unemployed and those who were most disadvantaged were significantly more likely to smoke. Smoking rates among Aboriginal Australians were more than double those among non-Aboriginal Australians.

Smoking rates are also higher among those with a mental health issues or alcohol and drug dependency, lesbian and bisexual women and among HIV positive men. [85] Amongst CALD communities, three priority communities with high smoking rates include: Chinese men (20.3%) including Mandarin and Cantonese-speakers, Vietnamese men (32%) and Arabic-speaking men

(39.3%). Previous research has indicated that there is a need for consistent and tailored messages to address smoking in these communities. [86]

Smoking prevalence in SWS adult residents was higher compared to NSW (20.4% vs. 15.2%, respectively). Although, men have been consistently more likely to smoke, SWS has a high proportion of women who smoke (19.3%) compared to NSW (12.3%) (Table 76).

Table 76: Current smoking in adults by gender, NSW and SWS, 2017

NSW	SWS
Persons 15.2%	Persons 20.4%
<ul style="list-style-type: none"> • Males 21.4% • Females 19.3% 	<ul style="list-style-type: none"> • Males 18.1% • Females 12.3%

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

About 4.6% of SWS secondary school students aged 12-17 years reported smoking, similar to 4.2% for NSW.

Smoking attributable hospitalisations

In 2011, tobacco smoking was the leading risk factor contributing to death and disease in Australia and was responsible for 9% of the total burden of disease and injury. This includes the risks associated with past tobacco use, current use, and exposure to second-hand smoke. It was estimated that 80% of lung cancer burden and 75% of chronic obstructive pulmonary disease burden were attributable to tobacco smoking [61].

The rate of hospitalisations attributable to smoking in NSW decreased in males by almost 23% between 2001-02 and 2014-15 but remained stable in females.

A total of 47,196 hospitalisations were attributed to smoking in NSW in 2014-15, which was approximately 1.5% of all hospitalisations. In SWS, 4,875 hospitalisations were attributed to smoking, accounting for 10% of all NSW smoking attributable hospitalisations. The smoking-attributable hospitalisation rates were lower in SWS compared to NSW (508.0 and 542.1 per 100,000 population, respectively) (Table 77).

Only Campbelltown LGA had higher hospitalisation rate compared with NSW (699.5 and 542.1 per 100,000 population, respectively).

Table 77: Smoking attributable hospitalisations, number and age standardised rate per 100,000 population, 2014-15

NSW	SWS
Persons 47,196 (542.1)	Persons 4,875 (508.0)
<ul style="list-style-type: none"> • Males 28,366 (683.1) • Females 18,830 (418.3) 	<ul style="list-style-type: none"> • Males 3,019 (659.8) • Females 1,856 (373.2)

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

Smoking attributable deaths

The rate of death attributable to smoking has been declining in the decade up to 2013. A total of 5,460 deaths were attributed to smoking in NSW in 2013, which was approximately 11% of all deaths in NSW in 2013.

The smoking attributable death rate was overall slightly higher in SWS than in NSW (64.9 and 60.8 per 100,000 population respectively) (Table 78).

In SWS, only Campbelltown and Bankstown LGAs have significantly higher smoking attributable death rates than the NSW rate (78.7 and 65.1 per 100,000 population compared to 60.8 respectively) [87]

Table 78: Smoking attributable deaths, number and age standardised rate per 100,000 population, 2013

NSW	SWS
Persons 5,460 (60.8) <ul style="list-style-type: none"> • Males 3,441 (85.3) • Females 2,019 (40.7) 	Persons 578 (64.9) <ul style="list-style-type: none"> • Males 379 (93.7) • Females 199 (41.2)

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

6.1.2 Physical Activity

Physical activity is a preventive factor for cardiovascular disease, cancer, mental illness, diabetes mellitus and injury.

Physical inactivity has been identified by the World Health Organisation as the fourth leading risk factor for global mortality causing an estimated 3.2 million deaths globally.

For adults aged 18-64 years, physical activity guidelines recommend 150-300 minutes of moderate or 75-150 minutes of vigorous physical activity, or an equivalent combination of both, per week. The guidelines also recommend that adults aged 18-64 years undertake muscle strengthening activities at least 2 days per week.

For adults aged 65 years and over, guidelines recommend at least 30 minutes of moderately-intense physical activity on most, and preferably all days.

In 2014-15, 56% of Australians aged 18 and over were with sedentary behaviour or had low levels of exercise. The prevalence of sedentary behavior increases with age.

About 47.3% of SWS residents over 16 years of age reported insufficient level of physical activity compared to 41.2% for NSW (Table 79).

Table 79: Prevalence of insufficient physical activity in persons aged 16 and over, NSW and SWS, 2017

NSW	SWS
• 41.2%	• 47.3%

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

6.1.3 Overweight and Obesity

Carrying extra weight can lead to cardiovascular disease (mainly heart disease and stroke), type 2 diabetes, musculoskeletal disorders like osteoarthritis, and some cancers. Being overweight or obese is a risk factor for colorectal, breast (post-menopause), oesophageal (adenocarcinoma), endometrial, pancreatic, liver and kidney cancers. These conditions cause premature death and substantial disability. In addition, being overweight can impact the ability to control or manage chronic disorders.

Body Mass Index (BMI) is a commonly used measure of whether a person is underweight, normal weight, overweight or obese. For persons aged 18 years and over, the body weight categories are: underweight (BMI less than 18.5), healthy weight (BMI from 18.5 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).

For children and adolescents, the same categories are used to describe body weight. However, the BMI range for each category varies by individual year of age of the child and is different for boys and girls.

The 2014-15 NHS estimated that about 11.2 million Australian adults (63.4% of adult population) aged 18 years and over were overweight (35.5%) or obese (27.9%), with the prevalence being higher among males than females (70.8% compared with 56.3%). The prevalence of adults being overweight or obese increased with age, peaking at 55-64 years for males (81.8%) and at 65-74 years for females (68.8%), before decreasing to 73.2% of males and 65.3% of females aged 75 years and over.

Australians living in regional or remote locations, Aboriginal and Torres Strait islanders and those living in the areas with the lowest socio-economically gradient were significantly more likely to be overweight/obese. Aboriginal Australians were 1.6 times as likely as non-Aboriginal Australians to be obese (rate ratio 1.4 for males and 1.7 for females). The social gradient of obesity showed that proportionally people living in lowest SES areas were 1.6 times more likely to be obese than those living in the highest SES areas (32.9% compared with 20.7%, respectively).

In 2017, about 32.2% of SWS population reported to be overweight, similar to 32.5% for NSW. The proportion of SWS males who were overweight was significantly higher compared to females (41.3% vs. 23.0, respectively).

It is estimated that SWS had a higher rate of obesity compared to NSW (24.5% and 21.0%, respectively) (Table 80).

Table 80: Prevalence of obesity in adults by gender, NSW, and SWS, 2017

NSW	SWS
Persons 21.0% <ul style="list-style-type: none">• Males 20.6%• Females 21.4%	Persons 24.5% <ul style="list-style-type: none">• Males 21.6%• Females 27.4%

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

In 2014, 27.4% of SWS secondary school students aged 12-17 years were overweight or obese compared to 20.6% of NSW students.

In 2015, 4,105 persons or 11% of NSW's hospitalisations were hospitalised in SWS. The SWS rate for the high body mass attributable hospitalisations was lower than the state rate (425.5 and 436.8 per 100,000 population, respectively) (Table 81).

At the LGA level, between 2013-14 to 2014-15, Campbelltown LGA had a significantly higher hospitalisation rate compared with the rest of the state (586.7 and 508.46 per 100,000 population, respectively).

Table 81: High body mass attributable hospitalisations for SWS residents, number and age standardised rate per 100,000 population, NSW 2014-15

	Gender	Number	Rate per 100,000 population
SWS	<i>Males</i>	2,424	518.3
	<i>Females</i>	1,681	337.7
	<i>Persons</i>	4,105	425.5
NSW	<i>Males</i>	22,191	526.3
	<i>Females</i>	16,325	352.3
	<i>Persons</i>	38,516	436.8

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

High body mass attributable deaths

A total of 287 deaths were estimated to be caused by high body mass in SWS in 2013, which was approximately 11% of NSW deaths. The rate of high body mass attributed deaths was slightly higher in SWS compared to NSW (31.7 and 29.5 per 100,000 population, respectively) (Table 82).

Overall death rates have been stabilising in recent years in NSW and SWS.

Table 82: High body mass attributable deaths for SWS residents, number and age standardised rate per 100,000 population, 2013

	Gender	Number	Rate per 100,000 population
SWS	<i>Males</i>	150	36.3
	<i>Females</i>	137	26.9
	<i>Persons</i>	287	31.7
NSW	<i>Males</i>	1,397	34.8
	<i>Females</i>	1,296	24.5
	<i>Persons</i>	2,693	29.5

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

6.1.4 Vegetable and Fruit Consumption

Fruit and vegetable consumption is strongly linked to the prevention of chronic disease and to better health. As nutritional needs differ at different stages of life, the National Health and Medical

Research Council has developed dietary guidelines for babies, children, adolescents and adults in Australia. A guide for healthy eating supports these guidelines.

For fruit, the indicator includes those who consumed 2 or more serves a day (both males and females aged 9 years and over). For children, the recommended intake of fruit is at least 1 serve each day for children aged 2-3 years and 1.5 serves each day for children aged 5-8 years.

For vegetables, the indicator includes those males aged 16-18 years who consumed at least 5.5 serves of vegetables a day; males aged 19-50 years who consumed at least 6 or more serves a day; males aged 51-70 who consumed at least 5.5 serves per day; and males aged over 70 and all females aged 16 years and over who consumed at least 5 serves per day.

The prevalence of fruit and vegetables consumption in SWS residents was similar to NSW residents (45.8% and 6.1% vs. 46.4% and 6.6%, respectively) (Table 83).

Table 83: Fruit and vegetables, recommended daily consumption, persons aged 16 years and over, NSW and SWS, 2017

	NSW	SWS
Fruit	46.4%	45.8%
Vegetables	6.6%	6.1%

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

6.2 Drug and Alcohol

The impact of alcohol and other drug use, including pharmaceuticals, on individuals, families and communities is significant including quality of life, family and community function and crime rates.

In 2016, in Australia, 4 in 10 people either smoked daily, drank alcohol in risky quantities or used an illicit drug in the past 12 months. Although alcohol and other drug – related harm can affect the whole population, some populations experiencing disproportionate impacts from a range of factors such as poor education, unemployment and housing problems which can influence substance use.

Based on the available data and evidence concerning alcohol and other drug – related harm, priority populations are:

- **Aboriginal people:** Although fewer Aboriginal people drink alcohol than the general population, they experience a disproportionate amount of harm from alcohol and other drug use. In 2016, Aboriginal Australians were: 1.8 times as likely to use any illicit drug in the last 12 months; 1.9 times as likely to use cannabis; 2.2 times as likely to use meth/amphetamines; and 2.3 times as likely to misuse pharmaceuticals as non-Aboriginal people.
- **People living in rural and remote NSW** are more likely to drink alcohol at harmful levels, particularly males, with 10% more males living in rural and remote areas of NSW drinking alcohol at levels of immediate risk and lifetime risk. Rates of alcohol attributable

hospitalisations were 8% higher in 2014-15 for people living in rural and remote NSW compared to those living in major cities.

- **People with mental health issues:** risky substance use is associated with a higher risk of anxiety, depression and suicide. Risky substance use is also associated with poorer outcomes for mental health treatment.
- **Women who are pregnant or who may become pregnant** and who drink alcohol and use other drugs may cause significant harm to the developing fetus. Effects may include Fetal Alcohol Spectrum Disorder (FASD), spontaneous abortion, stillbirth, low birth weight, prematurity and birth defects, as well as longer term family, well-being and social harms. 56% of pregnant women are abstaining from alcohol in 2016.
- **Individuals at risk of domestic and family violence:** twenty-four percent of women who were screened for domestic violence when accessing a NSW drug and alcohol service disclosed domestic violence.
- **Children of parents who have substance use issues** are more likely to be at reportable risk of significant harm (more than 1 in 5) and to be receiving out of home care.
- **Young people (16-24 years of age)** in NSW tend to report the highest rate of long term risk drinking of all age groups in 2015 and they are at a higher risk of alcohol related harm. About 27.5% of young people (20-29 years of age) and 14.5% of (14-17 years of age) reported using any illicit drugs.
- **Older people** have a higher daily drinking rates than younger age cohorts but are less likely to drink at lifetime risk levels than younger people. People in their 50s and aged 60 or older make up a much greater proportion of illicit drug users in 2016 than in 2001, (increased from 6.1% to 11.5% for people in their 50s) and (4.4% and 10.9% for people aged 60 years or older).
- **Some CALD populations** have higher rates of, and are at higher risk of drug use: new migrants maybe at greater risk from alcohol related harm if they have come from countries where alcohol is not commonly used and emerging communities of newly arrived refugees have additional risk factors that may heighten harmful consequences for risky use of alcohol and other drugs.
- **People who identify as LGBTI** are more likely to consume alcohol at risky levels and misuse pharmaceuticals than heterosexuals. 5.8 times as likely to use of ecstasy and meth/amphetamines than heterosexuals.
- **People in contact with criminal justice system** have higher rates of alcohol, tobacco and other drug use than the general population [85]

6.2.1 Alcohol Consumption

Some people drink at levels that increase their risk of developing health problems over the course of their life, as well as increasing their risk of alcohol-related injury. Long-term adverse effects of high consumption of alcohol on health include contribution to cardiovascular disease, some cancers, nutrition-related conditions, risks to unborn babies, cirrhosis of the liver, mental health conditions, tolerance and dependence, long term cognitive impairment, and self-harm [2]. Alcohol continues to be the drug for which most people seek treatment for and is second only to tobacco as a preventable cause of drug-related death and hospitalisation.

The 2009 National Health and Medical Research Council (NHMRC) lifetime risk guidelines for the consumption of alcohol recommends drinking no more than two standard drinks (one standard drink =12.5 ml of alcohol) on any day.

For NSW, males aged 35 to 44 years had the highest prevalence rate of risky alcohol consumption at 33.3% while for female it peaks at 11% for those aged 45 to 54 years. About 41.3% of Aboriginal adults consumed more than the recommended two standard drinks per day.

In 2016, 23.2% of SWS adults consumed more than 2 standard alcoholic drinks on a day when they consumed alcohol compared to 29.8% of NSW adults (Table 84).

Table 84: Alcohol consumption at levels posing a long - term risk to health, persons aged 16 years and over, NSW and SWS, 2016

NSW	SWS
• 29.8%	• 23.2%

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

According to the NSW Population Health Survey, 2016-17 on alcohol drinking frequency, about 37.8% of SWS males and 46.7% of females self-reported that they have never been drinking compared to 23.1% of males and 34.1% of females in NSW.

About 46.7% (37.5% males and 56.4% females) adults born in non-English speaking countries self-reported that they have never been drinking compared with 22.8% (18.2% males and 27.2% females) among Australian born adult population.

In 2016-17, 46.7% of SWS secondary school students aged 12-17 years self-reported that they have ever been drinking alcohol compared to 61.4% school students in NSW.

Harm from alcohol-related accident or injury is experienced disproportionately by younger people; over half of all serious alcohol-related road injuries occur among 15–24-year-olds.

Alcohol attributable hospitalisations

Estimating ill health and death associated with alcohol use is complex. People who consumed alcohol in risky quantities (lifetime or single occasion risk) were far more likely to require medical attention or admission to hospital due to injuries sustained while drinking or due to intoxication. While both can occur as a direct result of alcohol use (for example, alcohol poisoning), in most cases alcohol is one of a number of contributing factors. Estimates suggest that up to one-third (35%) of people presenting to NSW hospitals have an alcohol and / or other drug problem in need of some level of intervention [85]. The data presented on alcohol-related hospitalisations is therefore likely to represent only a fraction of the total harm caused by alcohol.

A total of 53,933 hospitalisations were attributed to alcohol in NSW in 2014-15, which was approximately 1.1% of all hospitalisations. The rate of hospitalisations attributable to alcohol was relatively stable in all persons in recent years. The rate in the Aboriginal population was 2.2 times higher than the rate in non-Aboriginal population in 2014-15.

In 2014-15 in SWS, 5,249 persons (10% of NSW alcohol attributable hospitalisations) were hospitalised for alcohol related problems. Rates for both males and females were lower than the state rates (Table 85).

Table 85: Alcohol attributable hospitalisations for SWS residents, number and rate per 100,000 population, NSW 2014-15

	Gender	Number	Rate per 100,000 population
SWS	Males	3,242	717.8
	Females	2,007	410.5
	Persons	5,249	562.9
NSW	Males	30,749	797.8
	Females	23,184	544.7
	Persons	53,933	671.6

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

Alcohol related deaths

A total of 1,323 deaths were attributed to alcohol in NSW in 2013, which was approximately 2.6% of all deaths in 2013. The death rate attributable to alcohol declined slightly between 2004 and 2013.

135 deaths or 10% of NSW deaths were attributed to alcohol in SWS in 2013. Overall death rate in SWS was similar to the state (15 and 16.1 per 100,000 population, respectively) (Table 86).

Table 86: Alcohol related deaths for SWS residents, number and rate per 100,000 population, NSW 2012-13

	Gender	Number	Rate per 100,000 population
SWS	Males	99	23.0
	Females	36	7.5
	Persons	135	15.0
NSW	Males	955	24.6
	Females	368	8.1
	Persons	1,323	16.1

Source: SAPHaRI, Centre for Epidemiology and Evidence, NSW Ministry of Health.

6.2.2 Illicit Drug Use

Illicit drug use is associated with a range of adverse health, social and criminal outcomes.

Illicit use of a drug' or 'illicit drug use' (used interchangeably in this report) can encompass a number of broad categories including:

- Illegal drugs—a drug that is prohibited from manufacture, sale or possession in Australia—for example cannabis, cocaine, heroin and amphetamine-type stimulants.
- Pharmaceuticals—a drug that is available from a pharmacy, over-the-counter or by prescription, which may be subject to misuse—for example opioid-based pain relief

medications, opioid substitution therapies, benzodiazepines, over-the-counter codeine and steroids.

- Other psychoactive substances—legal or illegal, potentially used in a harmful way—for example kava, synthetic cannabis and other synthetic drugs, or inhalants such as petrol, paint or glue.

According to the National Drug Household Survey 2016:

- 4 in 10 people had ever illicitly used a drug and 1 in 6 (15.6%) had one in the last twelve months
- The most commonly used illicit drugs in the past twelve months were: cannabis (10.4%); misuse of pain-killers/opioids (3.6%); cocaine (2.5%) and ecstasy (2.2%).
- People in their 20s continue to be the most likely age group (28%) to have used illicit drugs in the last twelve months.

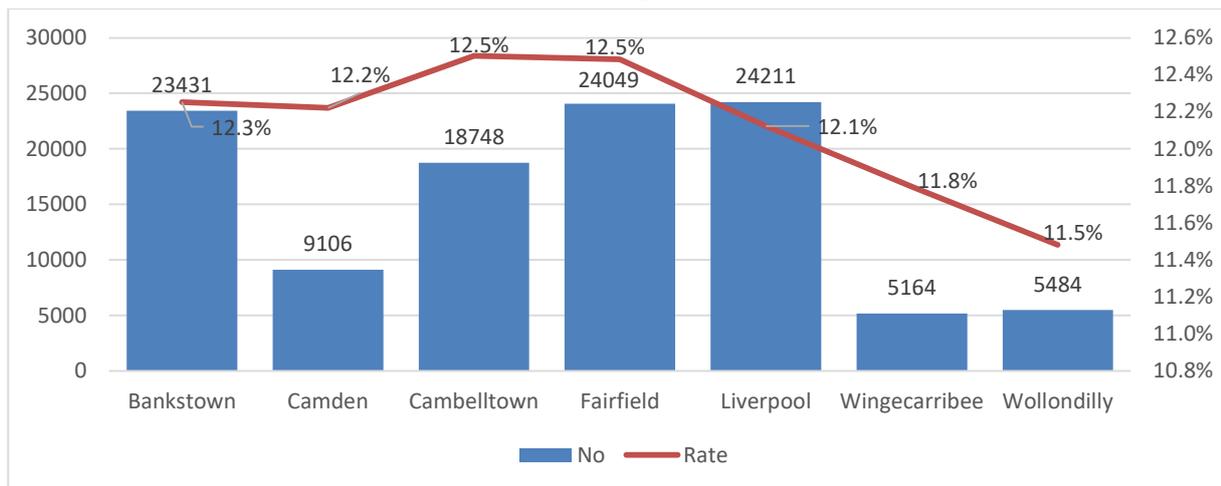
Identified changes in the use of illicit drugs between 2013 and 2016 were:

- A significant decline in use of meth/amphetamines (from 2.1% to 1.4%), hallucinogens (from 1.3% to 1.0%) and synthetic cannabinoids (from 1.2% to 0.3%)
- Ice (or crystal methamphetamine) was the predominant form used in 2016 and increased (from 50% to 57%)
- Cocaine use is now at the highest level seen over the last 15 years (from 2.1% in to 2.5%).

In NSW, there was a slight rise in recent illicit drug use (from 14.2% to 14.7%).

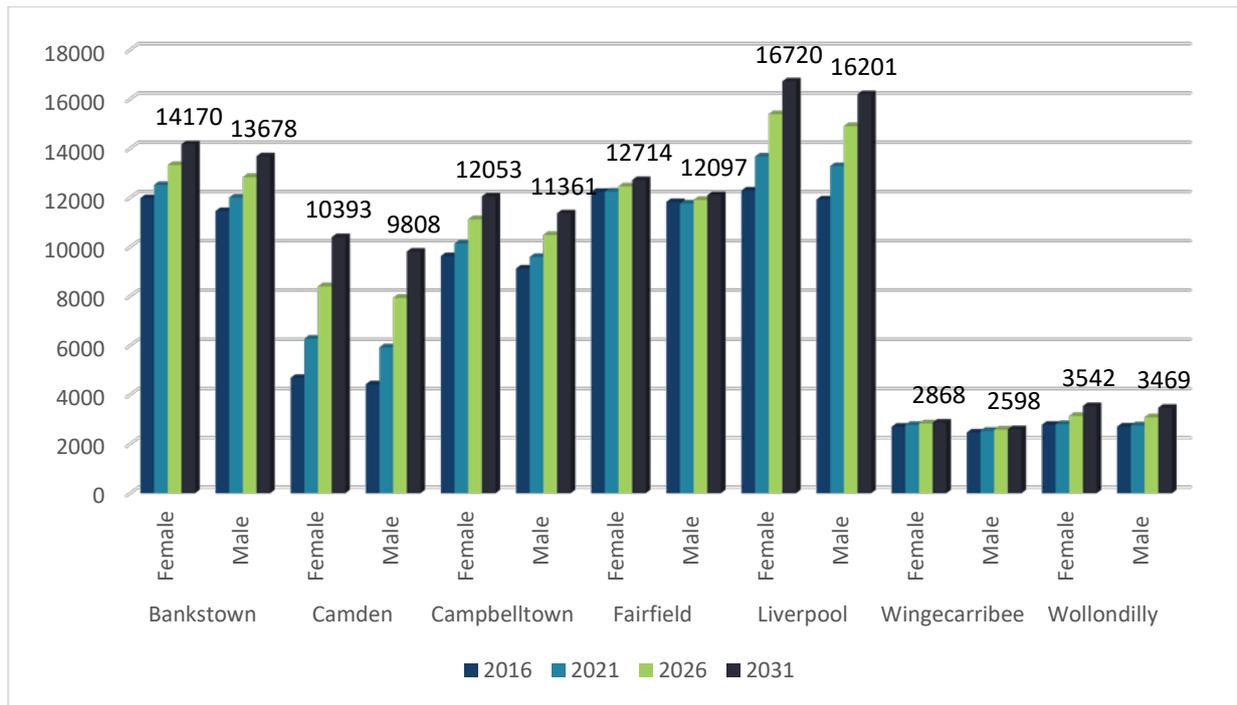
It is estimated that 110,193 people in SWS used an illicit drug in the past 12 months, with the prevalence rate of 11.8%. The prevalence ranges from 9.9% for males in Wingecarribee to 12.5% for females in Campbelltown and Fairfield LGAs (Figure 68).

Figure 68: Estimated prevalence rate for illicit drug use for SWS population by LGA, 2016



It is estimated that an illicit drug use in SWS will increase by 29% from 110,193 people in 2016 to 141,673 people in 2031 (Figure 69).

Figure 69: Projected number of persons using illicit drugs for SWS residents by LGA and gender, 2016 to 2031



Drug and alcohol related hospitalisations

Drug and alcohol use, and schizophrenia and delusional disorders were the two most common mental health conditions requiring overnight hospitalisation. In 2015–16, drug and alcohol related hospitalisations represented 22% of all mental health hospitalisations and 11.6% of all mental health bed days in SWS. The age-standardised rate for drug and alcohol related overnight hospitalisations was 22 per 10,000 people in both public and private hospitals compared to 20 per 10,000 people nationally. SWS had 156 bed days per 10,000 population compared with 145 per 10,000 population nationally. The highest rates per 10,000 population for drug and alcohol related overnight hospitalisations were for Liverpool and Campbelltown, and Southern Highlands residents (29 and 26 per 10,000 hospitalisations, respectively) (Table 87).

Table 87: Overnight hospitalisations related to drug and alcohol consumption for South West Sydney residents by SA3, SWSPHN and national, 2015-16

SA3	Hospitalisations per 10,000 people	Bed days per 10,000 population	No of hospitalisations	No of bed days
Southern Highlands	26	204	91	731
Bankstown	22	151	360	2,516
Camden	11	91	65	560
Campbelltown	29	207	448	3,214
Wollondilly	16	143	61	546
Merrylands-Guilford	20	152	74	553
Bringelly - Green Valley	16	121	151	1,124
Fairfield	19	141	360	2,616
Liverpool	29	183	346	2,155
SWSPHN	22	156	1,956	14,015
National	20	145	N/A	N/A

Source: AIHW analysis of the National Hospital Morbidity Database 2015-16 and ABS ERP 2014.

Note: Hospitalisations from both public and private hospitals are included.

Rates are measured per 10,000 people residing in a PHN or SA3 area, based on the ERP 30 June 2014.

All rates refer to the area where a person lived, not the location of the hospital where they were admitted.

6.2.3 Methamphetamine Use

Methamphetamines are potent and illegal stimulants that speed up the function of the brain and nervous system and can be consumed as ice, powder, base or pills. Regular methamphetamine users may suffer from poor mental health, including depression, anxiety, chronic sleep disturbance, mood changes, impaired concentration and lack of motivation. Methamphetamines can cause psychotic symptoms in otherwise healthy people and can also worsen or bring on psychotic symptoms in people with pre-existing mental health problems. Poly drug use is significant among methamphetamine users.

According to the *AIHW Alcohol and Other Drugs Treatment Services Report (2013)*: amphetamines were a drug of concern (principal or additional) in 28% of closed treatment episodes in 2012-13; and were the principal drug in 1 in 7 treatment episodes (14%). This is a 4% increase since 2011-12 [88]. An increase of regular and dependent methamphetamine users in Australia is reflected through the methamphetamine-related emergency department (ED) presentations and hospitalisations in NSW and SWS. Around one-third of methamphetamine-related emergency department presentations result in the patients being admitted to hospital.

Methamphetamine related hospitalisations

Between 2009-10 and 2016-17, the annual total number of unplanned presentations at 57 emergency departments in NSW for overdose, drug and alcohol or mental health problems where methamphetamine use was recorded, increased from 531 to 4,478 (an 8.5-fold increase). In 2016-17 there was a 10% decrease in methamphetamine-related presentations to emergency departments compared with 2015-16 (there were 5,000 presentations)[63].

The number of methamphetamine-related emergency presentations declined in the 16-24, 25-34 and 35-44 year age groups in 2016-17. The decrease in methamphetamine-related presentations in 2016-17 was seen in both males and females.

In 2016-17, there were 7,763 methamphetamine-related hospitalisations for NSW residents aged 16 years and over, comprising 0.3% of all NSW hospitalisations in that year. Aboriginal people accounted for 10% of all patients with methamphetamine-related hospitalisations in that year. The population rate of hospitalisation among Aboriginal people was 7-fold higher than non-Aboriginal people in 2016-17.

In 2016-17, in SWS there were 928 methamphetamine-related hospitalisations at a slightly lower rate compared to NSW (134.3 and 136.3 per 100,000 population, respectively) (Table 88).

However, the rate was higher for number of persons hospitalised for the methamphetamine use compared to NSW (95.1 and 92.8 per 100,000 population respectively) [87] (Table 89).

Table 88: Methamphetamine-related hospitalisations (number and rate per 100,000 population) for SWS residents, aged 16 years and over, NSW 2016-17

	Number	Rate per 100,000 population
SWS	928	134.3
NSW	7,763	136.3

Table 89: Methamphetamine-related hospitalisations and persons hospitalised (number and rate per 100,000 population) , persons aged 16 years and over, SWS and NSW 2016-17

	Number	Rate per 100,000 population
SWS	657	95.1
NSW	5,284	92.8

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

In 2014-15, Aboriginal people accounted for 14% of all patients with methamphetamine-related hospitalisations. The population rate of hospitalisations among Aboriginal people was just under six-fold higher than non- Aboriginal people in 2014-15.

6.2.4 Non –medical use of pharmaceutical drugs

In 2016, 2.5 million (or 12.8%) people in Australia misused a pharmaceutical drug at some point in their lifetime. Just under 1 in 20 (4.8%) Australians misused a pharmaceutical in the last 12 months. In line with previous years, pain-killers/analgesics and opioids' was the most commonly misused class of pharmaceutical (3.6%), making it the second most illicitly used drug, after cannabis, in 2016. The non-medical use of pharmaceutical drugs, in particular opioids and benzodiazepines, contributes to significant harm.

Cannabis

Cannabis is the most widely used illicit substance in Australia, it is estimated:

- 6.6 million or 35% of Australians aged 14 or older had used cannabis in their lifetime

-
- 1.9 million or 10.4% of Australians had used cannabis in the previous 12 months
 - 19% of Aboriginal Australians had used cannabis in the previous 12 months
 - there was a significant increase in the recent use of cannabis by people aged 55 years and over between 2010 and 2013
 - 9.5% of people in NSW aged 14 years or older had used cannabis in the previous 12 months
 - in 2014, 14.9% of students in NSW reported ever using cannabis
 - in 2016, cannabis was the drug most often used in addition to other illicit drugs in the previous 12 months.

Research on long-term effects of cannabis use is limited, but major probable adverse effects include increased risk of respiratory disease (associated with smoking), decreased memory and learning ability and decreased motivation in areas such as study or work.[10]

6.2.5 Drug Use and Harm Minimisation

Injecting drug use is a major risk factor for transmitting blood borne viruses, including HIV, hepatitis B and hepatitis C.

The Harm Minimisation Program aims to prevent transmission of HIV, Hepatitis B and C and other blood-borne diseases among people who inject drugs. National and State Hepatitis C Strategies estimate that 90% of new infections, and 80% of existing infections are transmitted through sharing injecting equipment. The Harm Reduction Program protects the community from the spread of blood borne viruses such as HIV and Hepatitis C principally through the distribution of sterile injecting equipment to intravenous drug users and provision of information, advice and referral services. In 2017-18, 1,378,898 units of equipment were distributed within SWSLHD by the public and pharmacy Needle and Syringe Program (NSP). 69% (955,921 units) of all equipment distributed was by SWSLHD and 31% (422,977 units) was by community pharmacies.

7. Areas of Focus

7.1 Our Refugees

This section describes the health of refugees and others of refugee-like backgrounds settling in South West Sydney. The term *Refugee* will at times be used to encompass people arriving in Australia on refugee and humanitarian visas, asylum seekers applying for refugee status in Australia and people of refugee-like backgrounds who have arrived under the Family Migration Program or other programs.

The term *people of refugee-like backgrounds* includes people who may have experienced separation and loss of family members due to persecution or civil war, and may have come to Australia on another visa, such as a partner or orphan visa under the Family Migration Program, or under the Skilled Migration Stream.

The term *asylum seeker* is used to describe persons who arrived without a valid visa and subsequently sought protection to remain in Australia based on refugee claims. They are known as asylum seekers while their refugee status is being determined.

Australia commenced resettling refugees permanently after the end of the Second World War. In recent years, under the Humanitarian Resettlement Program, Australia accepted 13,750 refugees annually; however the annual refugee intake has increased by 36% from 18,750 in 2018-19 and beyond.

Over 2016 and 2017, the Australian Government also resettled an additional 12,000 people displaced by conflicts in Syria and Iraq. The majority are refugees selected from overseas, although some visas are also given to people who have been recognised as refugees after arrival in Australia as asylum seekers.

Within NSW, the majority of refugees tend to settle in the South West and Western Sydney. Between 2012 and 2016 about 15,658 refugees (56%) of the state intake settled in South West Sydney, predominantly in Fairfield, Liverpool and the former Bankstown LGA. Refugees arriving from Iraq and Syria accounted for over 80% of the refugee intake. Other source countries include Afghanistan, Burma, Lebanon and Iran.

Although refugees represent a subset of the population, they are a significant group for health care providers working in SWS due to their complex health and social care needs, often with health profiles that are unfamiliar to local clinicians.

Refugees are different from the most other migrants, as unlike migrants they don't choose to leave their country, they are forced to flee. In that context, their health status is affected by persecution, forced exile from their homelands, and grief and loss. Refugees face substantial health challenges – both from pre-migration trauma, and the demands of settling in a new and unfamiliar country.

Pre-arrival health screening and assessment of refugees selected from overseas are conducted by the Australian Government Immigration authorities through an initial medical check, which covers certain communicable diseases and conditions.

Although a proportion of resettled refugees have communicable, chronic or psychological health concerns, their conditions differ based on demographics, migration history and prior screening. Newly arrived refugees are encouraged to undertake an initial health assessment after arrival in Australia.

In the Sydney metropolitan area, an initial health assessment is provided through the NSW Refugee Health Service (RHS) Refugee Nurse Program that exists in key settlement areas or through a general practitioner (GP) in a community. The aim of this initial assessment is to facilitate transition into mainstream healthcare. It includes a review of health issues, including physical, psychological, dental and vaccination status, and some baseline investigations. Screening is based on the *World Health Organization principles for screening for disease and the Australasian Society for Infectious Diseases (ASID) Refugee Health Guidelines*.

To inform approaches in service provision for the current resettlement of refugees from the Middle East (predominantly Iraq and Syria), health issues and barriers to accessing health care are summarised below.

Health Issues:

- **Disability** among children and adults is a current and emerging issue
- **Overweight and obesity** among newly or recently arrived children and adolescents
- Undetected or under-treated **chronic diseases**
- **Psychological issues**, including grief, depression, anxiety and post-traumatic stress disorder
- Sequels of war trauma (physical and psychological)
- Under immunisation
- Infectious diseases – low prevalence (Hepatitis B and C, Strongyloides stercoralis)
- Oral health (untreated decay)
- Low vitamin D, iron deficiency and under-nutrition
- No or little access to preventative care.

Barriers to Accessing Health Care:

People from refugee backgrounds may experience a range of barriers to accessing health care including:

- Language and cultural barriers
- Limited understanding of Australian health system and poor health literacy
- Differing beliefs about health and illness and preference for use of traditional medicines
- Misconceptions that their health issues could affect their immigration status
- Financial costs, including transport, medicines, private specialists, and allied health

- Prioritisation of housing and employment needs
- Lack of trust of authority and perceived discrimination
- Limited cultural competence of some health professionals and services.

These barriers may also limit people from refugee backgrounds from participating in preventive health care and they may present to services late in the course of their illness or condition.

7.1.1 Refugee children

Refugee families with young children are a significant proportion of humanitarian entrants to Australia. Refugee children as well as children of asylum seekers living in the community have generally not had access to early childhood preventive health care, either overseas or since arrival.

The RHS's Refugee Early Childhood Nurse Program enables early identification of a range of health issues affecting young refugee and asylum seeker children and provides an opportunity to address maternal and women's health issues as well.

Table 90: Patient Journey: Newly arrived refugee families with children

Underlying issues: Child	Health Service Response
Normal child development affected by <ul style="list-style-type: none"> - poor nutritional status, - exposure to traumatic situations - limited past access to vaccinations and general healthcare services - undetected or poorly managed chronic disease or disability. 	NSW Refugee Health Service (RHS) Early Childhood Nurse Program (ECNP) is a home visiting outreach program for newly arrived refugee children (0-6 years) and refugee mothers.
Impact of illness: Child	Referrals
<ul style="list-style-type: none"> - Delays in fine motor skills - Delays in language development - High prevalence of tooth decay - Incomplete immunisation - Layered psychosocial issues related to history of trauma. 	<ul style="list-style-type: none"> - Oral Health Service - Child Development and Disability Services - Occupational Therapy - Nutrition/Dietetics - RHS clinics (GP Program, Immunisation, 4yo clinics) - Supported playgroups/Mother's groups - Child & Family Health Services.
Underlying issues: Mother	Referrals
<ul style="list-style-type: none"> - Maternal and women's health issues including mental health; family planning; breast feeding; and domestic violence. 	<ul style="list-style-type: none"> - Women's Health - Mental Health/counselling.
Communication and language	Navigating the healthcare system
<ul style="list-style-type: none"> - The Health Care Interpreter Service is an essential component of the program for refugee clients to understand the service and identify health issues for their child. 	<ul style="list-style-type: none"> - Unfamiliarity with the Australian health system and services. - Understanding the rights and standards they should experience in Australia.

Systemic issues

- Lack of eMR access for the program, as mainstream community health or inpatient services cannot view health records of the RHS CNP.
- Fragmentation of care that can occur between specialised refugee services and mainstream, public and nongovernment health and welfare services.

Data limitations

The collection of clinical data for refugees and their inclusion in population surveys is hampered by the absence of a standard Australian Bureau of Statistics indicator for visa status. There is no standard migration status measure in most health service data collections to allow routine assessment of morbidity and mortality among refugee groups. Currently, NSW Refugee Health Service has undertaken a data linkage study to look at reasons for hospitalisations, ambulatory mental health care, and cause of death.

7.2 Our Aboriginal Population

South West Sydney includes the traditional boundaries of the Dharawal, Gundungurra and Darug nations. Migration and historic settlement patterns have resulted in the diverse Aboriginal community of South West Sydney, made up of people from across the state and country. Although sharing many similarities, Aboriginal people also have significant individual and cultural differences.

Differences in social determinants of health (levels of education, employment, income, and quality housing); and health risk factors (rates of smoking and risky alcohol consumption and exercise); and access to appropriate health services are key contributors to the health gap between Aboriginal and non-Aboriginal communities in Australia and SWS.

In the Table 91. below, some indicators of community structure and wellbeing are calculated for Aboriginal people in SWS LGAs. Changes in the rates of indicators are tracked over the past five years. The green colour indicates the rate improvement, yellow colour indicates that the rate was fairly stable and red colour indicates that rate was worsening compared to the previous years.

Table 91: Indicators of social determinants of health for SWS Aboriginal residents by LGA, 2011 and 2016

Indicators	Canterbury-Bankstown	Camden	Campbelltown	Fairfield	Liverpool	Wingecarribee	Wollondilly
Home- ownership	Rate worsening	Rate worsening	No Change	Improvement	No Change	Improvement	No Change
Personal income	Improvement	Improvement	Improvement	Improvement	Improvement	Improvement	Improvement
Household income	Improvement	Improvement	Improvement	Improvement	Improvement	Improvement	Improvement
Preschool education	No Change	Rate worsening	No Change	Improvement	No Change	Rate worsening	Rate worsening
Children at school	Improvement	Improvement	Improvement	Improvement	Improvement	Rate worsening	No Change
Average years of schooling	No Change	Improvement	No Change	No Change	Improvement	No Change	No Change
Disability	Rate worsening	No Change	Rate worsening	No Change	No Change	No Change	No Change

Recorded change between 2011-2016



The improvement has been recorded in domains of personal and household incomes for Aboriginal population across all SWS LGAs since the last Census in 2011. Geographically, in Fairfield and Liverpool LGAs rates for the indicators haven't worsen. Disability rates have increased in Canterbury-Bankstown and Campbelltown LGAs since last Census.

The rates for the preschool attendance for Aboriginal children under five years of age decreased in Camden, Wingecarribee and Wollondilly LGAs since 2011, as well as rates for the school attendance for Aboriginal children 5-14 years of age in Wingecarribee.

The rates of homeownership (owning or buying home) have decreased for Aboriginal residents in Canterbury-Bankstown and Camden LGAs since 2011.

Health Issues:

As part of its commitment to improving health service provision for Aboriginal communities SWSLHD has developed an annual *Closing the Gap Report Card* which looks at key gaps in health outcomes and service provision.

The 2017 SWS Report Card identified:

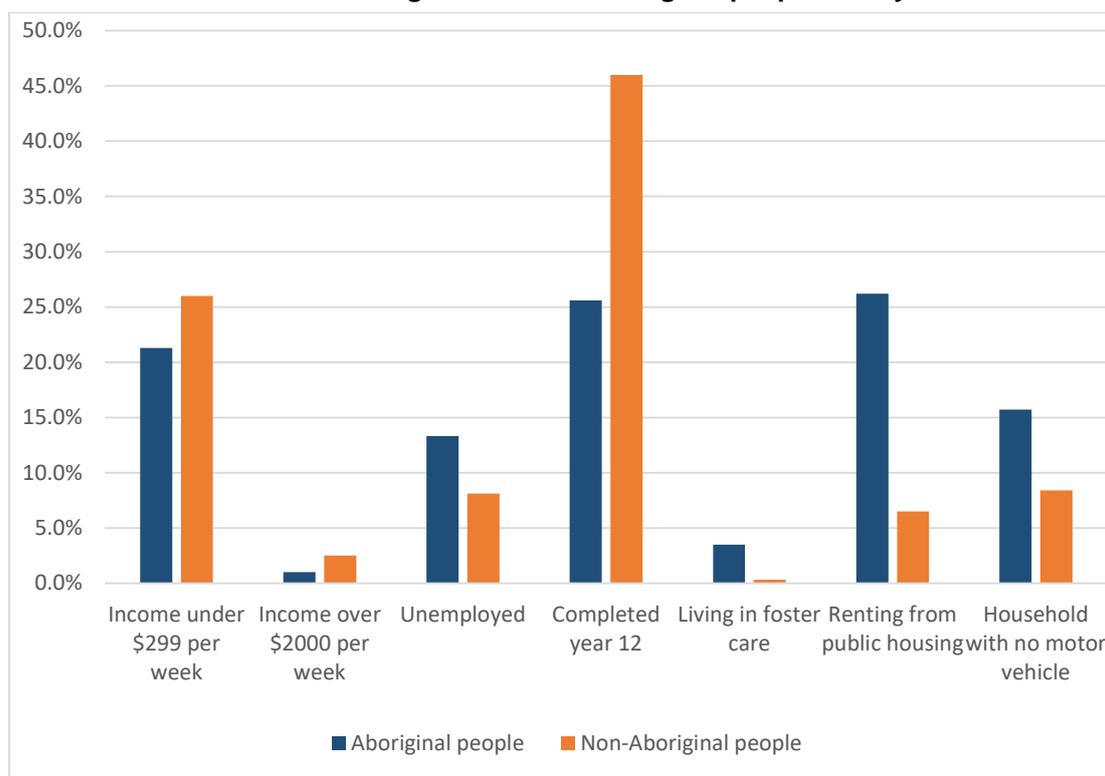
-
- Aboriginal people are three times more likely to be hospitalised for dialysis than non-Aboriginal people.
 - Aboriginal people are twice as likely to be hospitalised for mental health disorders, and endocrine diseases such as type 2 diabetes.
 - Aboriginal deaths rates from all causes are almost double those of non-Aboriginal people.
 - Cardiovascular diseases and malignant neoplasms remain the main causes of death, but there has been a reduction in the death rate from (25.6 per 10,000 to 20.5 per 10,000).
 - 16% of Aboriginal babies are born with a low birthweight compared to 7% for non-Aboriginal babies.
 - There has been a significant reduction in smoking in pregnancy rates for Aboriginal women from 45% in 2012 to 36% in 2017.
 - Immunisation rates for one year old Aboriginal children are the same as for non-Aboriginal children and rates for 5 years old are higher than for non-Aboriginal children (97.0% and 94.7%, respectively).
 - 25% of Aboriginal women in SWS participated in breast screening compared to 45% for non-Aboriginal women.

Social determinants of health

The social determinants of health include education, employment, access to safe and affordable housing, transport, healthy food and community safety. South western Sydney includes pockets of significant socioeconomic disadvantage, in communities such as Claymore, Airs, Miller and Cartwright. These suburbs have traditionally had high levels of social housing stock and have been home to a high proportion of Aboriginal people. Aboriginal people are also disproportionately represented in the criminal justice system, with rates of incarceration at least 14 times higher than the general population.

Figure 70. below shows the difference between Aboriginal people and non-Aboriginal people living in south western Sydney in relation to some key determinants. Aboriginal people are also more likely to have a higher household size than non-Aboriginal people.

Figure 70: Differences between Aboriginal and non-Aboriginal people on key determinants



Source: Australian Bureau of Statistics Census 2011

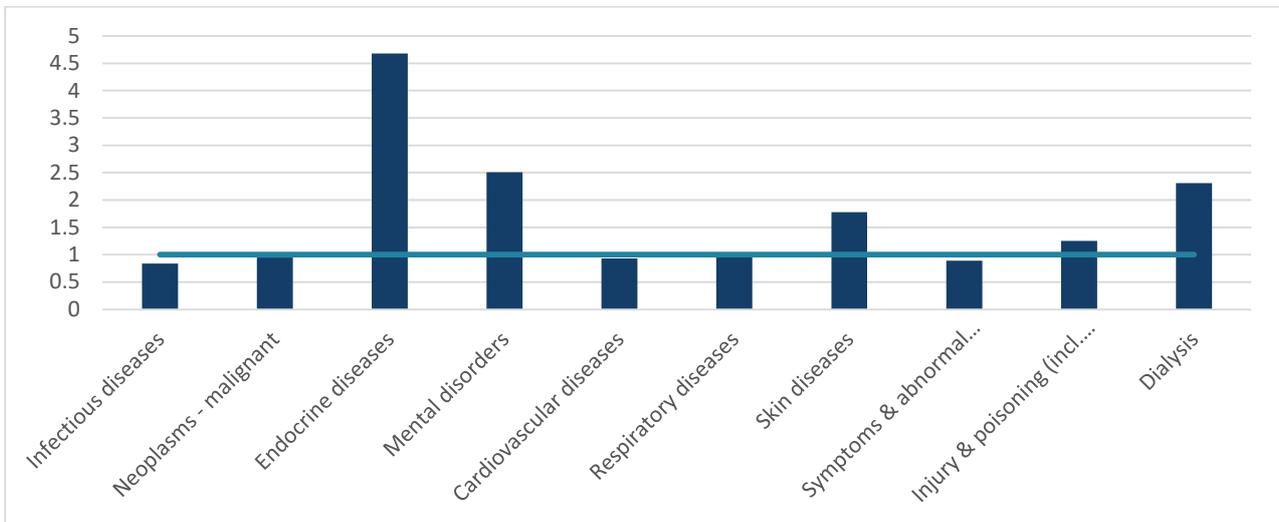
Health Service utilisation

In NSW, Aboriginal people are more likely than non-Aboriginal people to be hospitalised for reasons attributable to smoking, alcohol consumption and high body mass index than non-Aboriginal people. Aboriginal people in NSW are also more likely to be hospitalised for intentional self-harm than non-Aboriginal people.

Figures 68 and 69 depict the main causes of hospitalisation for Aboriginal men and women in SWSLHD, compared with non-Aboriginal men and women in 2013-14 using a Standardised Incidence Ratio (SIR). An SIR is used to determine if hospitalisations for a particular category of cause is higher in one population compared to another population. In the case of the figures below, a value of “1” means that the observed number of hospitalisations is the same in the Aboriginal population as the non-Aboriginal population.

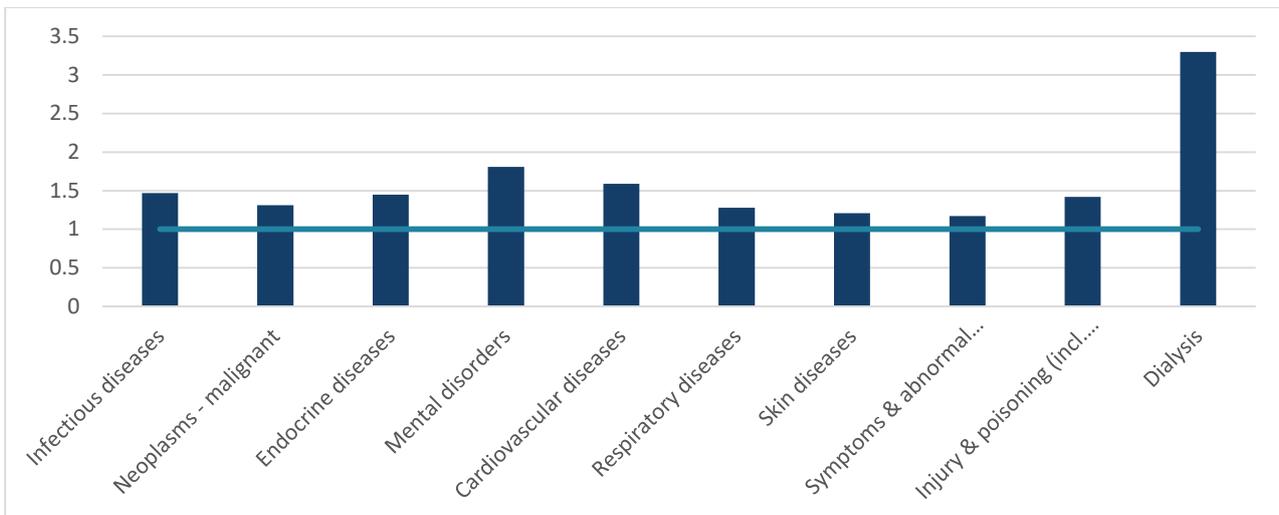
One of the most significant differences between the Aboriginal and non-Aboriginal population relates to hospitalisations for dialysis, whereby Aboriginal women are 3.3 times more likely to receive dialysis and Aboriginal men 2.31 times more likely to receive dialysis than their non-Aboriginal counterparts. Aboriginal men are almost five times as likely to be hospitalised for endocrine diseases than non-Aboriginal men. Hospitalisation for mental disorders is also a significant issue (Figure 71 and 72).

Figure 71: Aboriginal male hospitalisations by category of cause (top 10), standardised incidence ratio 2013-2014



Source: Combined Admitted Patient Epidemiology Data (CAPED) in the SAPHaRI (Secure Analytics for Population Health Research and Intelligence) Centre for Epidemiology and Evidence, NSW Ministry of Health, 2016

Figure 72: Aboriginal female hospitalisations by category of cause (top 10), standardised incidence ratio 2013-2014



Source: Combined Admitted Patient Epidemiology Data (CAPED) in the SAPHaRI (Secure Analytics for Population Health Research and Intelligence) Centre for Epidemiology and Evidence, NSW Ministry of Health, 2016

Barriers to Accessing Health Care:

Aboriginal people may experience a range of barriers to accessing health care including but not limited to:

- Cultural barriers-including a lack of cultural safety, competency and respect in the health service;
- Lack of trust in the health service as a result of transgenerational trauma;
- Social determinants of health- including income, employment status, education and housing; and

-
- Inability to meet the financial obligations for treatment, including transportation to and from healthcare appointments.

These barriers may also limit Aboriginal people from participating in preventative health programs, and presenting late may cause an Aboriginal person to seek medical attention for their condition after the onset of the ailment.

Specific Aboriginal Health Services

Specific Aboriginal health services have been successfully established to support health and wellbeing in the Aboriginal community by means of providing culturally safe and holistic health care for Aboriginal people in South West Sydney. Tharawal Aboriginal Medical Service and Gandangara Health Services are examples of non-government primary health care providers established to meet the specific health needs of Aboriginal communities. The intersection and collaboration between Aboriginal Community Controlled Health Organisations and SWSLHD is essential in addressing health inequity for SWS Aboriginal communities.

Challenges

In order to improve the often complex health and social issues Aboriginal people often present with, the principles of self-determination, cultural safety and holistic care need to be embedded within health service models. Self-determination is fostered in health care environments that involve Aboriginal people along with their families and support networks in making decisions about their care.

Holistic care that considers all aspects of health, including social, emotional, spiritual and cultural wellbeing of the individual, and further, in their community provides the best possible outcomes for Aboriginal people accessing health services. Harnessing strengths from these areas and applying them to health interventions results in the encouragement of Aboriginal people to effectively navigate the health system.

Aboriginal community controlled organisations and Aboriginal Health Workers are integral to providing culturally appropriate services that respond to the cultural and social elements of health care provision to Aboriginal people. The creation of a culturally safe and respectful health service enables the provision of opportunities in healthcare, education and career pathways for Aboriginal people to make improvements in overall health and wellbeing as well as in social contexts.

Patient Journey: Aboriginal patient accessing Aboriginal Chronic Care Program

The Aboriginal Chronic Care Program (ACCP) works with Aboriginal people to effectively manage their chronic conditions, including cardiovascular, renal and respiratory conditions diabetes, mental health conditions and cancer.

A team consisting of Aboriginal Health Workers, Care Coordinators and a number of allied health professionals (Dietician, Exercise Physiologist, Social Worker) work together with the patient as well as their families to support them in improving their health and wellbeing.

Approximately 600 clients from South West Sydney access the ACCP. A great majority of clients are over 50 years of age with multiple co-morbidities.

Table 92: Patient Journey: Aboriginal patient accessing Aboriginal Chronic Care Program

Patient Context	<ul style="list-style-type: none"> ▪ Patient lives alone in a unit in SWS ▪ Patient is unemployed, and does not own a car ▪ Patient has been reluctant to engage with health services as a result of previous negative experiences
Underlying Health Issues	<ul style="list-style-type: none"> ▪ Patient has been diagnosed with hypertension, diabetes and sleep apnoea by his GP ▪ Patient is a smoker, and he is overweight
Referral	<ul style="list-style-type: none"> ▪ After presentation to a Metropolitan Hospital Emergency Department, patient is referred into the Aboriginal Chronic Care Program by the hospital's Aboriginal Liaison Officer.
Treatment	<ul style="list-style-type: none"> ▪ A home visit by the Aboriginal Health Worker (AHW) and Case Coordinator is arranged for the patient with the patient's support people being present. ▪ A needs assessment is undertaken to determine the best supports available for the patient ▪ Re-engagement with a regular GP and specialist appointments required by the patient are arranged by the team. The AHW attends the appointments with the patient to provide support ▪ Medical equipment for sleep apnoea is supplied by the ACCP ▪ Patient is linked in to exercise group and dietetics services for weight management and smoking cessation support.
Impact	<ul style="list-style-type: none"> ▪ Diabetes is well managed by patient and as a result of positive lifestyle changes and weight loss his medication dosage has been reduced ▪ A CPAP machine is sourced for patient resulting in improved sleep, thus improving overall health and wellbeing ▪ Personalised strategies are put into place to encourage the patient to take blood pressure medication regularly ▪ Patient is actively attending support groups to quit smoking, improve health, and to be more involved in the local Aboriginal community.

7.3 Our Pacific Communities

South West Sydney is home to one of the largest populations of Pacific communities in NSW. As per 2016 Census, there are 139,173 Pacific people born in Australia, of whom 59,010 live in NSW and 19,346 in South West Sydney. A Pacific Island born person is defined as someone born in any of the 26 countries within the Australian Bureau of Statistics geographical regions of Melanesia, Polynesia and Micronesia.

The *SWSLHD Pacific Communities Health Needs Assessment* [89] shows that in SWS, the three highest Pacific ethnic groups in terms of population size are Fijians, Samoans and

Tongans, a quarter of whom reside in the Campbelltown LGA (26%). An overwhelming majority (97%) of those with Pacific ethnicity were born in Australia signifying a well-established community. Three quarters of the population, (76%) are aged 20 to 59 years.

Compared with those with the Australian ancestry, those with the Pacific ancestry had a higher percentage (39.6% vs. 29%) of people who attained year 12 education, a greater percentage of people with a total personal income of less than \$400 per week (26.1% vs 27.5%) but significantly less people earning a personal income greater than \$1500/ week (2.7% vs. 6.9%).

Health Characteristics for people from Pacific Communities:

- Higher average crude death rate (2004-2015) for Pacific born males (532.7 per 100,000) and for Pacific born females (416.0 per 100,000) compared to Australian born males (486.2 per 100,000 population) and Australian born females (487.2 per 100,000 population)
- Endocrine diseases were the most frequent causes of death for both males and females
- Dialysis was the most common reasons for hospital admissions for both genders (972.3 SSR for males and 673.4 SSR for females)
- Pacific born males have a high hospital admission rate for an acute myocardial infarction
- Pacific born females have high hospital admission rates for chest pain and childbirth
- Higher rates of gestational diabetes (9.1% vs. 3.6%) and late first antenatal visit (41% vs. 29%) compared to Australian born pregnant women
- Lower rates of smoking during pregnancy (5.1% vs. 10.2%) compared to Australian born pregnant women
- A smaller percentage of babies born to mothers from Pacific communities were fully breast-fed at discharge (68.6% vs. 72.0%)

7.4 Our Older Population

SWS is experiencing a significant growth in older population over the next 10-15 years. The number of people over 70 years of age is expected to increase by 91% by 2031, from 84,350 people in 2016 to 161,350 older people in 2031, with an extra 77,000 older people. The Australian aged care system delivers services through a range of provider and care types within residential and community-based settings.

Generally, ageing-related conditions affect Aboriginal people at a younger age than non-Aboriginal Australians. This reflects the generally poorer health of Aboriginal Australians compared with other Australians. Hence, planning for aged care services takes account of the Aboriginal population aged 50 and over and 65 and over for non-Aboriginal Australians. Older Aboriginal people have poorer health and higher rates of disability than other older Australians.

Older people from culturally and linguistically diverse backgrounds are a significant and growing section of the older population in SWS. Relevant factors such as length of time since arriving in Australia, reasons for migration, postmigration experiences, and English language proficiency influence their expectations and use of services. Older people from refugee backgrounds are particularly vulnerable due to their refugee experience and mental and physical health issues and

its impact on ageing well in Australia. Relatively low rates of dementia found in many CALD groups may reflect reduced access to residential care or delays in diagnosis due to poor understanding of the early signs and symptoms of dementia.[90]

About 19.6% of people aged 65 years or older in SWS reported speaking a language other than English and speaking English 'not well' or 'not at all'. Main languages other than English spoken at home by people aged 65 years or older in SWS were: Arabic (5.2% of people); Italian (5.0%) and Vietnamese (4.3%).

7.4.1 Dementia

Dementia is a term that describes a syndrome associated with over 100 different diseases; it is not a single specific disease. It is characterised primarily by impairment of brain function across several possible domains, including language, memory, perception, personality and cognitive skills. The most common types of dementia are: Alzheimer disease, which accounts for about 55-75% dementia cases and vascular dementia which accounts for about 20-30% cases.[91] Dementia is usually of gradual onset, progressive in nature and irreversible.

Table 93: Dementia prevalence, Australia and SWS, 2016

Australia	SWS
<ul style="list-style-type: none"> Persons 354,000 (1.3%) 	<ul style="list-style-type: none"> Persons 10,513 (1.1%)

Source: *The estimated prevalence of dementia in Australia in 2016 and 2011 were sourced from the AIHW Report, which contains calculations made by AIHW using rates based on ADI (2009) and Harvey et al. (2003).*

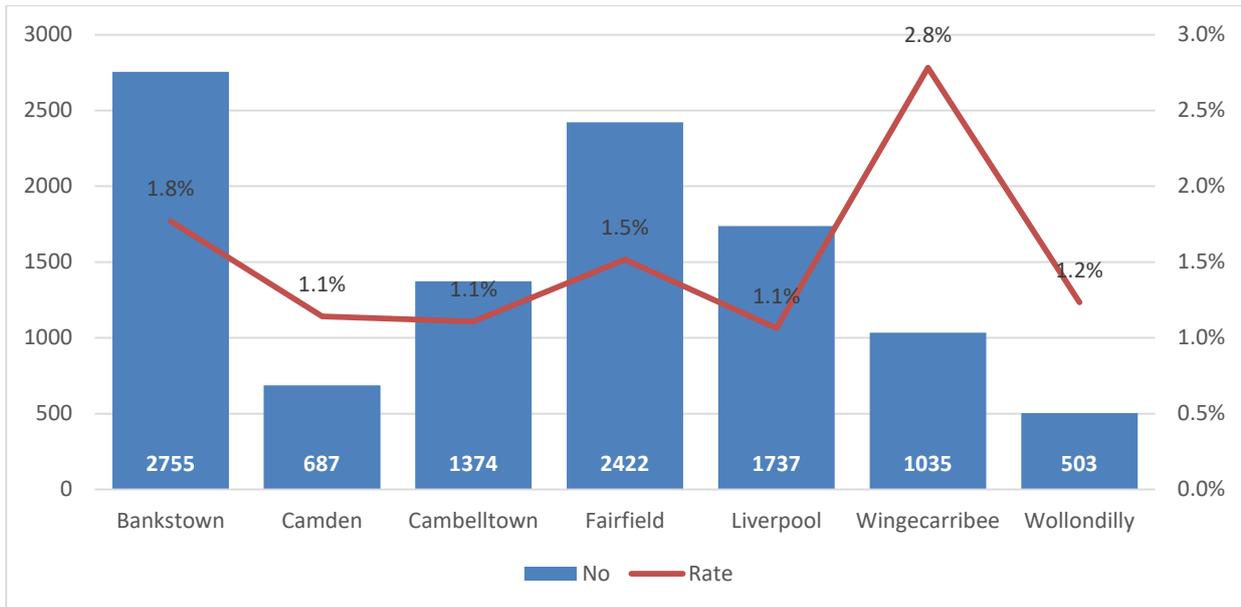
- Currently an estimated 250 people are developing dementia each day
- Three in 10 people over the age of 85 (30%) and almost one in 10 people over 65 have dementia (9%)
- In 2016, an average of 36 people died per day where dementia was the underlying cause of death
- Females account for 64.4% of all dementia related deaths.[65]

Based on projections of population ageing and growth, it is estimated that number of people with dementia in Australia will raise to 536,164 by 2025, an increase of 51% or 182,500 more people with dementia. There is an estimation that in 2018 about 26,443 Australians have younger onset dementia, and it is expected that this number will rise by 11% to 29,375 people by 2025.

Dementia prevalence rates are relatively low until the age of 70 years, when prevalence rates start to increase rapidly.

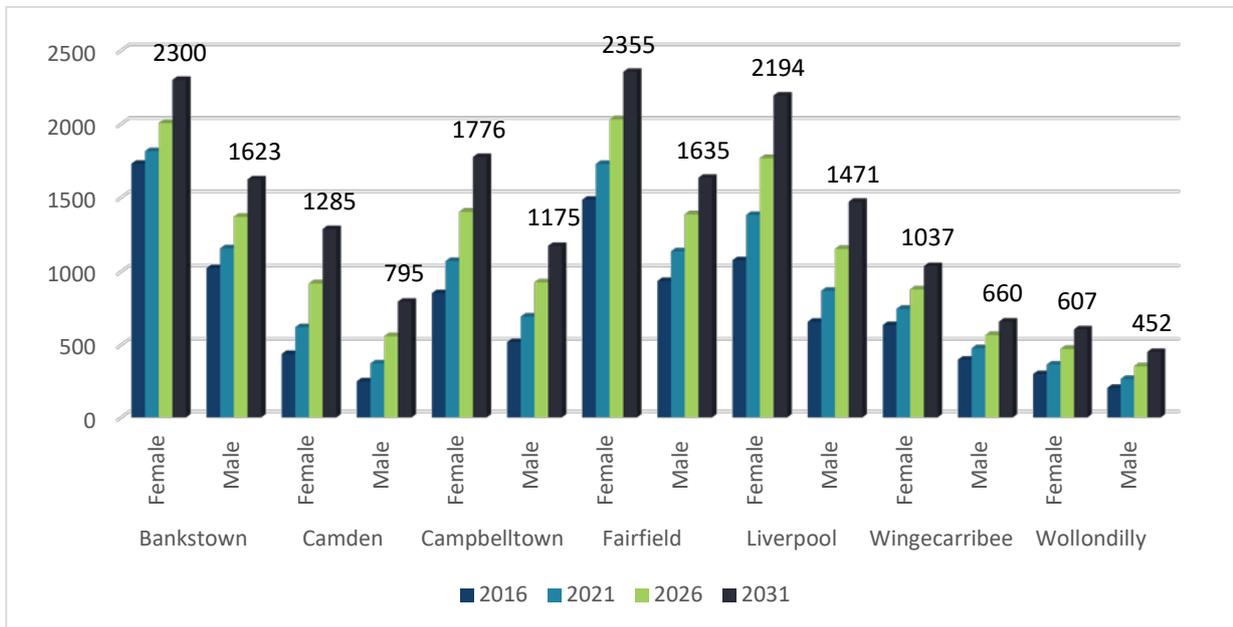
The estimated number of people with dementia in SWS in 2016 was 10,513. The prevalence rate of dementia for the region was 1.1% and ranged from 0.6% for males in Camden to 2.8% for females in Wingecarribee LGA. Wingecarribee LGA has the largest proportion of older people per LGA's population in SWS. The prevalence rate was higher in females across all LGAs. It was estimated that the highest number of people with dementia resides in Bankstown and Fairfield (2,755 and 2,422 respectively) (Figure 73).

Figure 73: Estimated prevalence rate for dementia for SWS residents by LGA and gender, 2016



The number of people with dementia is expected to increase by 84.2% from 10,513 to 19,367 people by 2031. The projected number of people with dementia is based on two factors: age and gender and is a reflection of the ageing population in South West Sydney (Figure 74).

Figure 74: Projected number of persons with dementia for SWS 2016 to 2031 by LGA and gender



Dementia related hospitalisations

Hospital separations do not reflect the burden of dementia in the community as not all people living in the community with dementia come into contact with the hospital system.

Usually, about 10% of hospitalisations of persons with dementia in NSW are principally for dementia or conditions that are often characterised by dementia (such as Alzheimer's or Parkinson's disease). The remaining 90% of hospitalisations are for other, unrelated conditions

with dementia identified as co-morbidities, which in some way have affected the clinical treatment during a hospital stay.

The hospitalisation rate per 10,000 population for dementia was slightly higher compared with the national rate (7 and 6 per 10,000 population respectively), with higher hospitalisation rates for both Campbelltown and Liverpool LGAs. More than third of dementia hospitalisations in SWS were for Bankstown and Fairfield residents (173 and 113 per 10,000 population respectively) (Table 94).

Most of hospital separations for dementia or with dementia were in persons aged 65 years and over.

Table 94: Hospitalisations for dementia for South West Sydney residents by PHN and SA3, 2015-16

SA3	Hospitalisations per 10,000	Bed days per 10,000 population	No of hospitalisations per 10,000 population	No of bed days
Southern Highlands	5	126	46	1,154
Bankstown	8	100	173	2,117
Camden	7	51	35	257
Campbelltown	9	93	103	1,086
Wollondilly	5	80	21	297
Merrylands-Guilford*	5	48	35	417
Bringelly-Green Valley	8	110	50	707
Fairfield	6	73	113	1,488
Liverpool	9	112	84	1,127
SWSPHN	7	92	660	8,650
National	6	93	N/A	N/A

Source: AIHW analysis of the National Hospital Morbidity Database 2015-16 and ABS ERP 2014.

Note: Hospitalisations from both public and private hospitals are included.

Rates are measured per 10,000 people residing in a PHN or SA3 area, based on the ERP 30 June 2014. Parts of Merrylands-Guilford* are within Bankstown and Fairfield LGAs.

All rates refer to the area where a person lived, not the location of the hospital where they were admitted.

In 2016-17, there were 21,998 hospitalisations for dementia recorded as a principal diagnosis and/or comorbidity in NSW, and out of that number 2,015 hospitalisations were in SWS.

The hospitalisation rate for dementia as a principal diagnosis or as a comorbidity in SWS in 2016/17 for all ages was lower than the NSW rate. The dementia hospitalisation rates for people over 65 years of age for the period 2015-16 to 2016-17 were higher in Campbelltown and Canterbury-Bankstown LGAs compared with NSW. [87]

As the death rate from cardiovascular disease fell, rates from other diseases, such as dementia rose. Dementia, including Alzheimer's disease has replaced heart disease as the leading cause among women following a small decrease in heart disease numbers and a further increase in dementia numbers. There are close associations between dementia and cardiovascular disease, as cardiovascular disease itself is a major cause of dementia, and it is often listed as an associated cause when dementia is the underlying cause of death.

A number of studies have indicated that Indigenous people across urban, regional, and remote Australia have higher rates of dementia, and earlier age of onset, than comparable populations of

non-Indigenous people. The Koori Growing Old Well study indicates that Aboriginal people over 60 years of age, who live in urban areas, have very high rates of dementia (21%), which is three times higher than the non-Indigenous population. While the reasons for this are not known, key potential associations of dementia are being explored, including: age, early life factors (e.g., separation, formal/informal education; parenting; childhood trauma) and mid-life factors (e.g. social engagement, discrimination, resilience, jobs, prior stroke, vascular risks, head injury, alcohol, smoking).[91, 92]

Many people with dementia rely on health and aged care services, and often require a high level of care and support. According to the Australian Institute Health and Welfare's [Residential aged care and Home Care 2013-14 report](#), 52% of all people in the permanent Government –subsidised residential aged care had a diagnosis of dementia. Compared to aged care residents without dementia, they are in the need of high care in relation to activities of daily living and behaviour.

People with dementia living in the community also depend on informal care provided by family and friends. Around 42% of primary carers of people with dementia were the spouse/partner and 44% were the son or daughter. SWS is experiencing a rapid growth in ageing population. As a leading cause of death and burden of disease, the demand that dementia places on health and aged care services is expected to increase considerably over time.[91]

7.4.3 Falls and Falls Related Injury

More than one in five persons aged 65 years and over report having a fall each year. Falls are the most commonly identified cause of injury-related hospitalisations, with injuries to the hip or thigh being the most common.[95] Fall-related injury is a major cause of morbidity and mortality in older people.

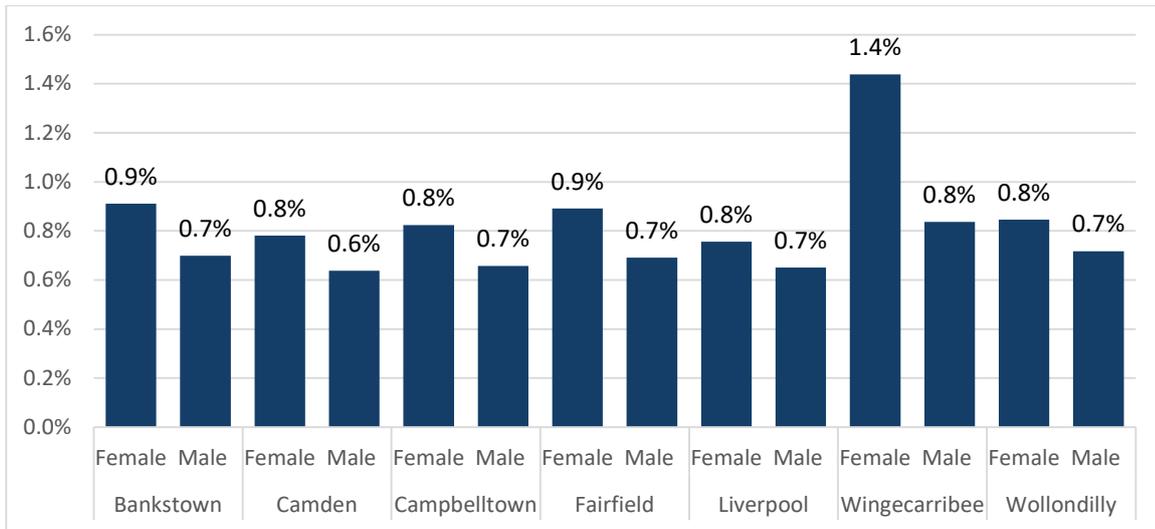
Males and females have similar rates of fall-related deaths and hospitalisations, except among older people where females have higher rates of fall-related hospitalisations.

Injury has a major, but often preventable, influence on Australia's health. It affects Australians of all ages and is the greatest cause of death in the first half of life. It leaves many with serious disability or long-term conditions. Severe fall injuries in older people are associated with reduced mobility, loss of independence, and, for some, the need to enter residential care. Falls are the leading cause of injury hospitalisations for Aboriginal and Torres Strait Islander people in New South Wales.[96] The number of fall-related injuries to older Aboriginal Australians increased from 2007–08 to 2010–11 by an average of 10.2% per year; the average annual increase for all older Australians was 4.3%. [95]

Slips and trips were the most common mechanism of falls requiring hospitalisations (52%). Residents of aged care facilities had a greater proportion of fall injury hospitalisations compared with people living in the community (85% and 65% respectively). [97]

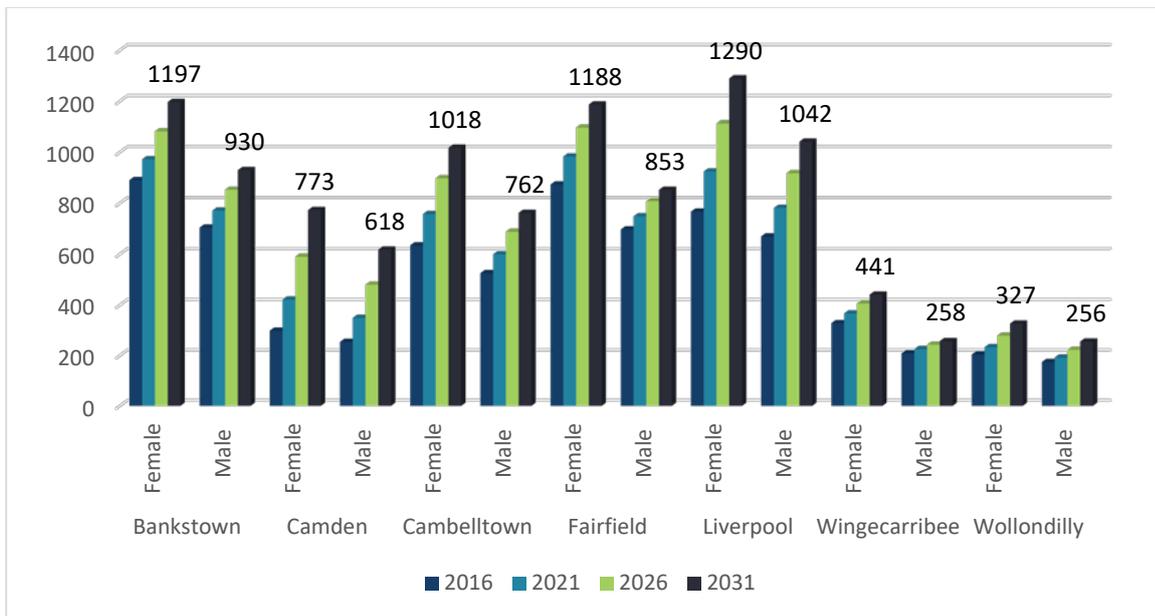
For SWS, the estimated number of falls is 7,232 with a prevalence rate of 0.8%. The prevalence rate ranges from 0.6% for males in Camden to 1.4% for females in Wingecarribee. Rates for females were consistently higher compared with males (Figure 75).

Figure 75: Estimated prevalence rate for falls for SWS residents by LGA and gender, 2016



The number of SWS residents affected by falls is expected to increase by 51.4% by 2031, from 7,232 in 2016 to 10,952 in 2031. The highest increase is expected in Camden (151%) and Liverpool (62%) (Figure 76).

Figure 76: Estimated number of SWS residents affected by falls by LGA and gender, 2016-2031



Fall-related hospitalisations

Rates of overnight hospitalisations for falls among persons aged 65 years and over have been increasing for the last 15 years for both males and females. The greatest increase was in people aged 85 years and over. [98] Hospitalisations that are related to falls may be attributed to injury from the fall itself, or may be due to conditions related to or exacerbated by a fall, such as subsequent rehabilitation.

In SWS in 2016/17, 1,598 males and 2,860 females over 65 years of age were hospitalised for the injury related to falls. The falls hospitalisation rate for older people in SWS was higher than for the state (3393.8 and 3126.1 per 100,000 population respectively).[87] It is expected that an increase in ageing population in the region will further compound the issue.

7.4.4 Influenza and Pneumococcal Immunisation in Adults

Influenza and pneumonia are a group of acute respiratory infections that can be very severe and, in persons at high risk, lead to death. There were 29,900 hospitalisations due to influenza and pneumonia in 2014-15 in NSW (342.7 per 100,000 population), of which more than half were patients aged 65 years and older. [87]

An influenza immunisation uptake in adults over 65 years of age has significantly improved in SWS. The NSW Population Health Survey indicates that in 2015-16, 74.4% of older adults in SWS were immunised against influenza compared with 71.6% in NSW. About 42.2% of SWS older residents were immunised against pneumococcal disease, below the NSW average of 47.0%.

7.4.5 Palliative Care

The World Health Organization (WHO) describes palliative care as “an approach that improves the quality of life of patients and their families facing the problems associated with life-threatening illness, through the prevention and relief of suffering by means of early identification and impeccable assessment and treatment of pain and other problems, physical, psychosocial and spiritual.”^{vi} Providing care to people who are approaching the end of life includes a range of health professionals including GPs, specialists from a wide range of medical disciplines, nurses, allied health professionals and palliative care specialists. Carers and family members are an integral part of care and the demands on carers in particular can be significant. Some communities such as Aboriginal people and Torres Strait islanders, people from CALD and refugee backgrounds, people with socio-economic disadvantage, people with disabilities, people in rural areas and people who live alone with no carer have an increased risk of missing out on receiving quality end of life care due to a number of factors and experiences linked to the vulnerability of these groups. Carers and family members are an integral part of care and the demands on carers in particular can be significant. Some communities such as Aboriginal people and Torres Strait islanders, people from CALD and refugee backgrounds, people with socio-economic disadvantage, people with disabilities, people in rural areas and people who live alone with no carer have an increased risk of missing out on receiving quality end of life care due to a number of factors and experiences linked to the vulnerability of these groups. Palliative care can be provided in homes, clinics, residential aged care facilities (RACF), acute hospitals or specialist palliative care wards or units. Not every person with a life limiting illness will require access or treatment by specialist palliative care services, however a pathway to specialist advice is essential to comprehensive care [99]

According to the latest finding from the AIHW Palliative Care Services in Australia 2017:

- 50% of patients who died as an admitted patients received palliative care
- The average patient age of all palliative care hospitalisations was 72.8 years
- Only about 1 in 10 (10.9%) of the total number of palliative care-related hospitalisations was for patients aged under 55 years
- Proportion of palliative care hospitalisations was twice as high for Aboriginal Australians as for other Australians (46.6 and 22.9 per 10,000 population, respectively)
- People living in areas classified as having the lowest socioeconomic status accounted for a higher proportion of palliative care-related hospitalisations (22.3%) than those living in other areas
- 2% of residential aged care residents were assessed as requiring palliative care.
- 1 in 1,000 GP encounters were palliative care-related.

The ageing population and rising rates of cancer and other chronic conditions in SWS will drive demand for palliative care services. Cancer is a major driver of the need for palliative care services. It is projected that the cancer incidence between 2016 and 2031 for SWS will increase by 61% from 5,616 new cancer cases in 2016 to 9,036 new cancer cases in 2031, and with an annual growth of 4%. Cancer deaths in SWS would overall increase by 42.3% between 2016 and 2031 from 1,923 cancer deaths in 2016 to 2,736 cancer deaths in 2031.[67] Palliative care-related hospitalisations were most frequently recorded for cancers of secondary/unspecified site, lung, colorectal and pancreas.

Demand for palliative care is driven by chronic conditions such as cardiovascular disease, respiratory diseases including COPD, renal failure, and endocrine nutrition and metabolic disorders. The most frequently recorded were hospitalisations for stroke, heart failure, influenza and pneumonia and COPD.[65] Other neuromuscular diseases such as multiple sclerosis, motor neurone disease and Parkinson's disease which could occur earlier in life may need palliative care support.

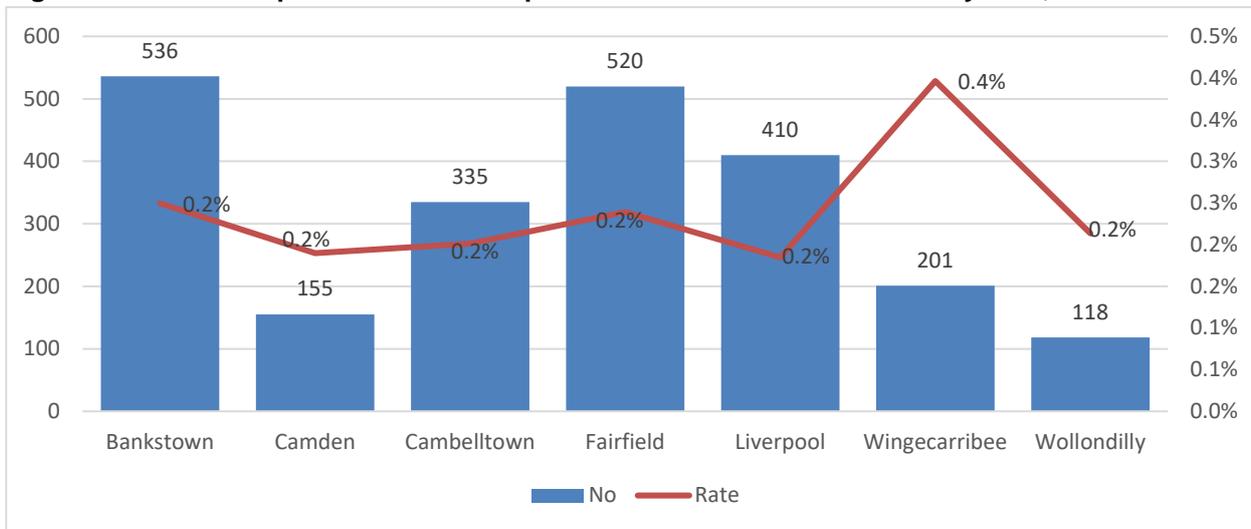
Nationally, hospitalisations for palliative care rose by 28% over the four years to 2015-16, from 57,614 to 73,884 hospitalisations accounting for about 1 in 140 (0.7%) of all hospitalisations. In NSW, a number of hospitalisations for palliative care increased by 26% from 17,701 to 22,281 over the same period. [65]

It is projected that in ten years (2011-2021), palliative care subacute overnight hospitalisations in SWSLHD will increase by 73% from 873 to 1,500 hospitalisations.

In 2016, an estimated number of persons that required palliative care in SWS was 2,275 with a prevalence rate of 0.2%. The prevalence rate in SWS ranges from 0.2% to 0.4% for Wingecarribee LGA (Figure 77).

Prevalence rates for SWS were based on the National Hospital Morbidity Database, AIHW 2011-12.

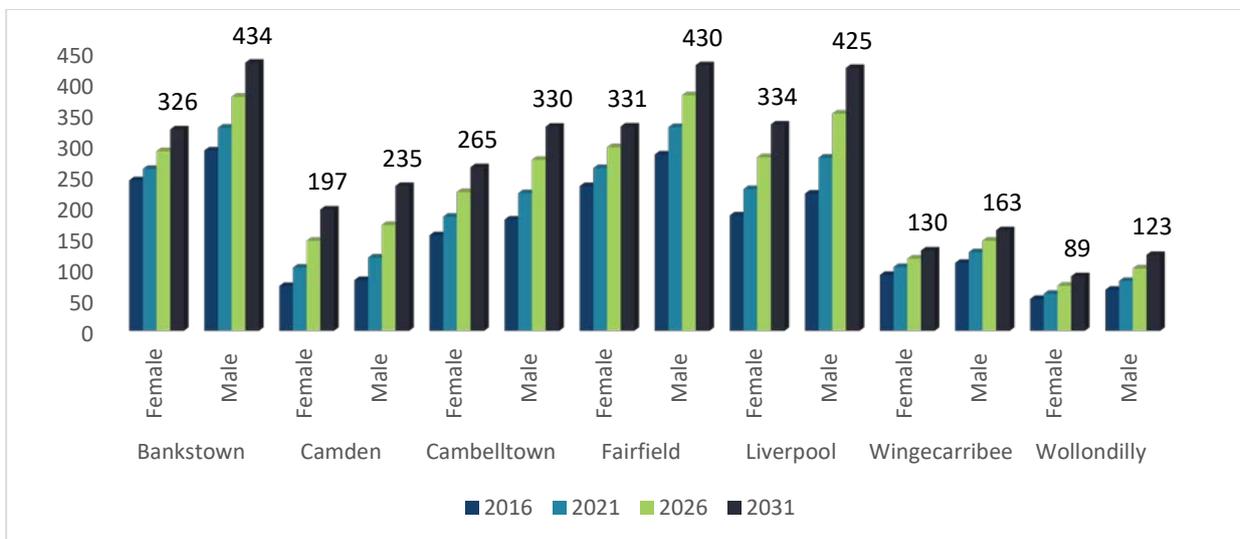
Figure 77: Estimated prevalence rate for palliative care for SWS residents by LGA, 2016



The demand for palliative care is expected to increase by 67.5% in the region with the number of persons requiring this type of care increasing from 2,275 in 2016 to 3,811 by 2031 (Figure 78).

An increase in demand for palliative care in SWS is driven by population growth and ageing, and rising rates of cancer and an increase of chronic and generally incurable illnesses.

Figure 78: Number of SWS residents requiring palliative care by LGAs and gender, 2016 to 2031



7.4.2 Older persons housing

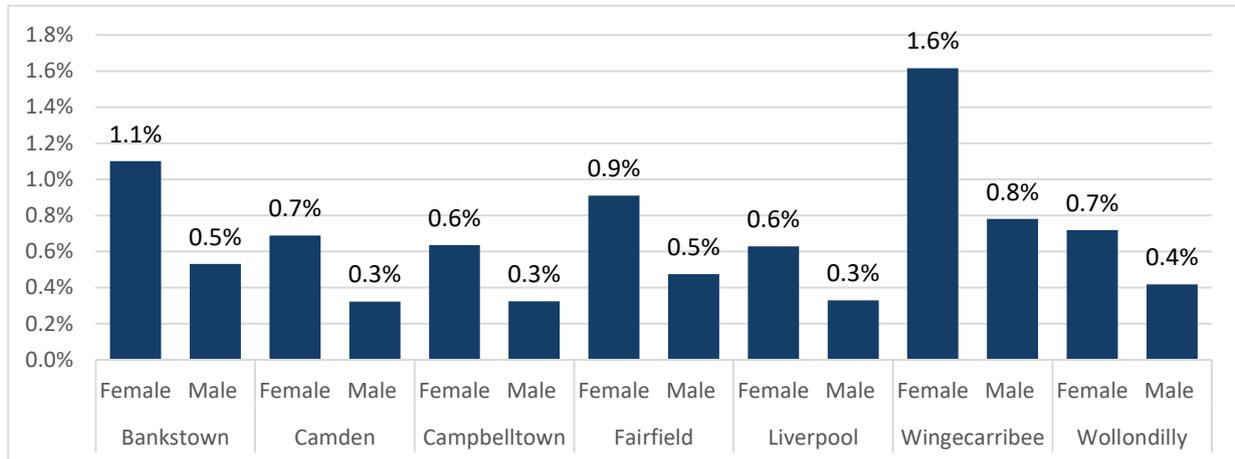
7.4.2.1 Residential aged care

Residential aged care is provided in aged care homes on a permanent or respite basis. Residents receive accommodation, support (cleaning, laundry and meals) and personal care services. Those with greater needs may also receive nursing care, continence aids, basic medical and pharmaceutical supplies and therapy services.

An estimated number of persons that required permanent residential aged care in SWS in 2016 was 5,937 giving a prevalence rate for the region of 0.7%. The prevalence rate ranges from 0.3%

for males in Campbelltown, Liverpool and Camden to 1.6% for females in Wingecarribee (Figure 79).

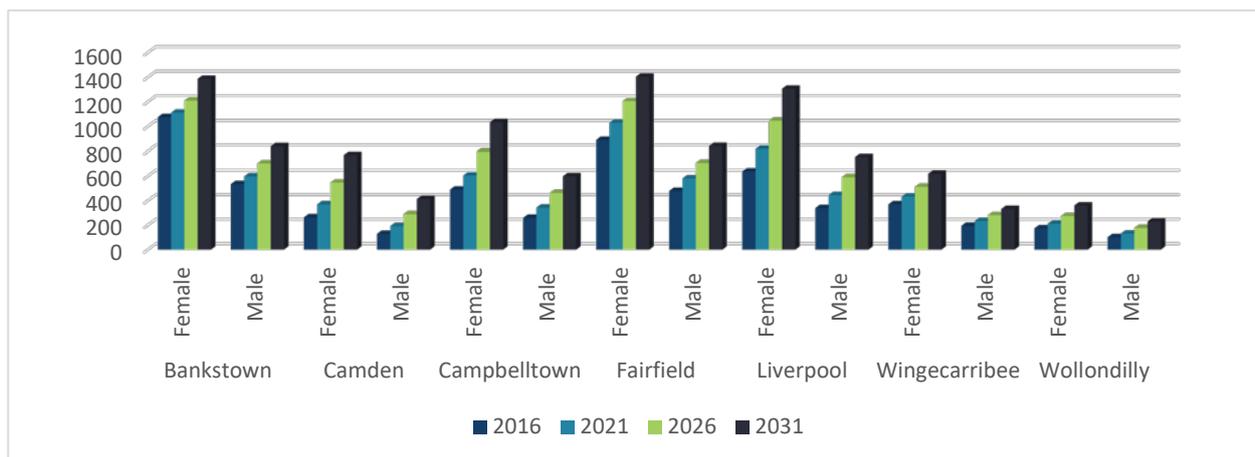
Figure 79: Estimated prevalence rate for residential aged care for SWS by LGAs and gender in 2016



In SWS as at 30 June 2017, there were 65 residential aged care facilities with 6,946 beds. Almost half the facilities are private incorporated body, 21% are charitable, and the rest are community or religious.

The demand for permanent residential aged care is expected to increase significantly in the region with the number of persons requiring this type of care almost doubling in 15 years from 5,937 to 10,894 by 2031 (Figure 80).

Figure 80: Number of persons requiring or in residential aged care for SWS by LGAs and gender, 2016 to 2031



Short-term restorative care is similar to transition care but is provided to people who have had a setback or decline in function without having been in hospital^{vii}. In addition, there is also demand for respite or short term residential aged care facilities to provide a break for informal carers, to support recovery following departure from hospital or other reasons.

In 2016, 236 persons in SWS were estimated to require respite support. This number is expected to increase to 439 persons in 2031. The region has 1 short term restorative care providing 3 beds operated by a charity.

Transition Care assists older people in regaining physical and psychosocial functioning following an episode of inpatient hospital care to help maximise independence and avoid premature entry to residential aged care. In SWS, there are 2 facilities with 112 beds for transition care both of which are operated by the NSW State government.

Drawing on data from the AIHW National Aged Care data Clearinghouse, in 2017, there were 9,216 residential aged care places and 175 transitional care places in South Western Sydney and Southern Highlands aged care planning region (ACPR) (Table 95).

Table 95: Aged Care Planning Region and residential and transitional care

ACPR	Residential Care	Transition Care
SWS	6,946 (98.3%)	112 (1.6%)
Southern Highlands	2,270 (94.6%)	63 (2.6%)
NSW	68,967 (96.2%)	1,378 (1.9%)
Australia	95.7%	1.9%

Source: AIHW GEN aged care data 2017

South Western Sydney ACPR has 69 home support services, 55 home care services and 65 residential care services; and Southern Highlands ACPR has 85 home support services, 30 home care services and 35 residential care services. Not-for-profit providers were dominant in residential care, holding (51.6%) places in Southern Highlands and (40.6%) in South Western Sydney compared to for-profit providers (18.2%) in Southern Highlands and (35.6%) in South Western Sydney.

Southern Highlands ACPR has proportionally more indigenous aged care recipients and those who live alone than South Western Sydney ACPR and NSW and Australia.

South Western Sydney ACPR has a higher proportion of aged care recipients over 50 years of age who need assistance with core activity (15.8%) and significantly higher proportion of recipients born overseas (55.7%) and who preferred other language than English (40.9%) compared with Southern Highlands ACPR and NSW and Australia (Table 96).

Table 96: Characteristics of aged care recipients, by ACPR in SWS, NSW and Australia, 2017

ACPR	Indigenous	Core activity need for assistance (50+)	Lives alone (65+)	Born overseas (65+)	Preferred other language than English (65+)
SWS	1%	15.8%	19.9%	55.7%	40.9%
Southern Highlands	2%	10.3%	25.9%	24%	6.4%
NSW	1.7%	12%	24.9%	34.9%	19%
Australia	1.5%	11.5%	25.5%	35.8%	16.6%

Source: AIHW GEN aged care data 2017

According to the AIHW National Aged Care data, about 46.9% of people using permanent residential aged care in Southern Highlands and 52.9% of those using permanent residential aged care in South Western Sydney had a diagnosis of dementia.

7.4.2.2 Home Care Packages Program

The Home Care Packages Program (HCPP) is a program that supports older Australians with complex needs to remain living at home through a coordinated package of care and services to meet the individual needs of consumers. [93] There are four levels of care ranging from low level care needs (home care package level 1) to high care needs (home care package level 4). Services provided under these packages are tailored to the individual and might include personal care, support services and/or clinical care.[93]

In SWS, there are 55 HCPP providers with one third each that are charitable and private incorporated body followed by community based and religious in equal proportion. There was one facility that was operated by the state government.

7.4.2.3 Retirement Villages

Retirement villages refers to a purpose-built housing complex of multiple dwellings on a single site, designed for people in later life (typically aged 55 and over), who are provided with communal facilities and services but who are independent in the sense that they do not need the level of support provided by residential aged-care facilities.[93] There are 22 retirement villages in South West Sydney region ranging in size from 10 units to campus style 162 units. In the context of an ageing population, there has also been a growth in the number of facilities offering 'ageing-in-place' services, combining retirement-village independent living units, serviced apartment or hostel places and nursing homes in the one facility. More than one-third of all retirement villages had ageing-in-place services, the majority of these being operated by private sector organisations.

7.4.2.4 Manufactured Home Parks (MHP)

Manufactured homes are self-contained dwellings which are manufactured off-site in major sections and transported to a site for installation', and manufactured home parks (MHPs) are a medium density communal type of development which includes some form of community facilities and services in addition to the normal residential services of water, electricity, sewerage and drainage^{viii}. Marketing for these parks have targeted primarily at the seniors' market and in practice age-restricted, usually to the over over-50s. There are 2 MHPs in South West Sydney.[94]

7.4.2.5 Caravan Parks

Caravan parks may provide both temporary accommodation and longer-term or permanent sites where residents rent or own their own caravans or demountable structures. Parks with residential component are the chosen option for many people over retirement age. Retirees form one of three distinct sub-groups of long-term residents in caravan parks. Often they have made a deliberate choice to live in a caravan park and are happy with the lifestyle, including the sense of community and access to communal facilities. In addition, they tend to be more affordable than conventional housing. There are 15 caravan parks in SWS.

7.5 Our mothers and babies

7.5.1 Pregnancy and the Early Years

The number of births in South West Sydney has remained high over the last four years to 2016, and it was the second highest in NSW in 2016.

In 2016 13,876 babies were born to SWS mothers, 14.3% of all babies born in NSW. The fertility rate of women in SWS in 2016 was higher than the state average (2.03 and 1.78, respectively) (Table 97).

Table 97: Number of births, crude birth rate and total fertility rate by SWSLHD and NSW, 2016

	NSW	SWSLHD
Number of livebirths	96,959	13,876
Crude birth rate per 1,000 population	12.51	14.36
Female of childbearing age	1,814,630	233,020
Total fertility rate	1.78	2.03

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

The total fertility rate (TFR) represents the number of children a female would bear during her lifetime if she experienced current age-specific fertility rates at each age of her reproductive life.

Antenatal care

Antenatal care has been found to have a positive effect on the health outcomes for both mother and baby.

Aboriginal mothers compared to non-Aboriginal mothers in SWS are:

- more likely to smoke during pregnancy than non-Aboriginal women
- less likely to present to receive antenatal care before 14 or 20 weeks of gestation
- more likely to have preterm babies compared with non-Indigenous women
- have an infant mortality rate which is almost twice the rate for babies in NSW overall [100]

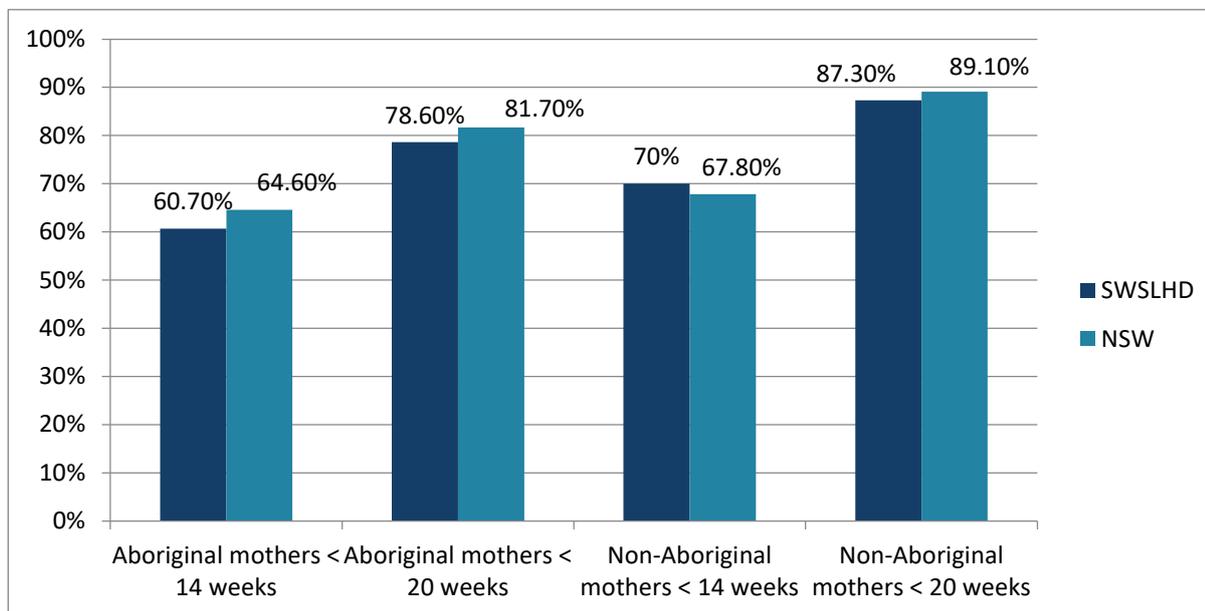
In 2016, 69.8% of pregnant women in SWS reported their first antenatal visit before 14 weeks gestation compared to 67.8% for NSW. The first antenatal visit before 14 weeks gestation in pregnant non - Aboriginal women in SWS reported is 9% higher than the first antenatal presentation for local Aboriginal or Torres Strait Islander pregnant women (70% and 60.7%, respectively) (Figure 81).

A slightly larger proportion of local pregnant non - Aboriginal women reported their first antenatal visit before 14 weeks gestation compared to NSW (60.7% and 64.6%, respectively).

In addition, slightly smaller proportion of local pregnant non - Aboriginal women reported their first antenatal visit before 20 weeks gestation than NSW (87.3% and 89.1%, respectively) compared with a smaller proportion of local Aboriginal women (78.6%). However, in four LGAs in SWS significantly smaller proportion of pregnant women reported their first antenatal visit before 14 and

20 weeks gestation than NSW, including Campbelltown, Canterbury-Bankstown, Fairfield and Wingecarribee LGAs.

Figure 81: First antenatal visit by 14 and 20 weeks for Aboriginal and non-Aboriginal mothers, SWS and NSW, 2016



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

In 2016, a slightly larger proportion of local pregnant non - Aboriginal women reported their first antenatal visit before 14 weeks gestation compared to NSW (70% and 67.8% respectively), which is more than 9% higher than the first antenatal presentation for local Aboriginal or Torres Strait Islander pregnant women.

In addition, slightly smaller proportion of local pregnant non - Aboriginal women reported their first antenatal visit before 20 weeks gestation than NSW (87.3% and 89.1%, respectively) compared with a smaller proportion of local Aboriginal women (78.6%). However, in four LGAs in SWS significantly smaller proportion of pregnant women reported their first antenatal visit before 14 and 20 weeks gestation than NSW, including Campbelltown, Canterbury-Bankstown, Fairfield and Wingecarribee LGAs.

Aboriginal pregnant women in SWS tend to present later for their first antenatal visits compared with the Aboriginal women in the rest of the state. [101]

Aboriginal mothers and babies, those from socioeconomically disadvantaged areas, and some overseas-born mothers and their babies continue to experience worse outcomes than other NSW mothers and babies.

Smoking during pregnancy

There was similar proportion of pregnant women reported smoking during pregnancy in SWS and NSW (8.2% and 8.3%). A smaller proportion of local Aboriginal or Torres Strait Islander women reported smoking in pregnancy (38.1%) compared with (41.3%) for the state. Higher rates of

smoking in pregnancy between 2014 and 2016 were reported in Campbelltown and Wingecarribee LGAs compared with NSW average.[100]

Maternal characteristics

About 2.3% (328) of SWS mothers were reported to be Aboriginal or Torres Strait Islander compared to the rest of NSW (4.2%).

About 42.2% of SWS mothers were born in non-English speaking countries compared to 31.9% for the rest of NSW. Amongst mothers born in non-English speaking countries, the largest groups were mothers born in the Middle East and Africa (14.2%) and in South East Asia (11.5%).

Geographically, a large proportion of mothers in SWS live within boundaries of Campbelltown and Liverpool LGAs.

Table 98: Live births at the SWSLHD Hospitals by statistical area of residence, NSW 2016

Statistical Area Level 3 (SA3)	Number	%
Auburn	15	0.1
Bankstown	2,592	18.7
Bringelly-Green Valley	1,773	12.8
Camden	1,033	7.4
Campbelltown	2,489	17.9
Canterbury	150	1.1
Fairfield	2,271	16.4
Liverpool	1,992	14.4
Merrylands-Guildford	462	3.3
Penrith	85	0.6
Southern Highlands	462	3.3
Wollondilly	542	3.9
Total	13,876	100.0

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

Statistical Area assigned according to the ABS Statistical Geographic Standard.

Geographic boundaries of SA3 occur within two LHDs.

In terms of maternal age, the proportion of women giving birth at less than 20 years of age was 2.2%, the same as for the rest of NSW. Mothers in SWS tend to be younger than the rest of the state. More than one third of SWS mothers were in 20-29 years age group followed by 30-34 age group. There are a range of co-morbidities associated with the increase in maternal age including hypertension and gestational diabetes. Increased morbidity and co-morbidity is also associated with the increasing numbers of women able to participate successfully in in-vitro fertilisation (IVF).

A higher proportion of SWS mothers had diabetes in pregnancy either pre-existing or it was diagnosed in pregnancy, compared to the rest of NSW (16.9% and 13.5%, respectively) (Table 99). In the case of uncontrolled gestational diabetes, the adverse pregnancy outcomes could include pregnancy loss, premature delivery and stillbirth. Complications to the baby might include

excessive birth weight, preterm birth, respiratory distress syndrome, hypoglycemia, jaundice, increased future risk for developing obesity and type 2 diabetes. [59]

Table 99: Maternal medical conditions by SWSLHD and NSW, 2016

Conditions	NSW	SWSLHD
Diabetes (pre-existing and gestational)	13,146 (13.5%)	2,323 (16.9%)
Gestational hypertension	2,860 (2.9%)	249 (1.8%)
Pre-eclampsia	1,557 (1.6%)	135 (1.0%)
Chronic hypertension	716 (0.7%)	89 (0.6%)

Source: NSW Perinatal Data Collection (SAPHaRI). Centre for Epidemiology and Evidence, NSW Ministry of Health. The two categories of "Pre-existing diabetes mellitus" and "Gestational diabetes" have been amalgamated into the single category "Diabetes (pre-existing or gestational)". Chronic hypertension includes essential or secondary hypertension pre-existing to pregnancy. Pre-eclampsia and gestational hypertension were regarded as one condition in the Perinatal Data Collection up to 2006.

Birth

Birth type

SWS had a higher proportion of normal vaginal births and a smaller proportion of instrumental and births by caesarean section compared to the rest of NSW.

Table 100: Type of birth, number and percentage, SWSLHD and NSW, 2016

Type of birth	NSW	SWSLHD
Normal Vaginal birth	53,740 (55.2%)	8,419 (61.2%)
Instrumental	11,524 (11.8%)	1,348 (9.8%)
Elective caesarean section	19,692 (20.2%)	2,547 (18.5%)
Emergency caesarean section	12,321 (12.7%)	1,422 (10.3%)

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

In 2016, in SWS 1,275 or 9.1% of babies were born prematurely (less than 37 week of gestation) compared to 7.5% for NSW. A higher proportion of Aboriginal babies in SWS were born prematurely compared to the state (14.8% and 11.4%, respectively) (Table 101).

Table 101: Pre-term births (number and rate) by mother's Aboriginality, SWSLHD and NSW, 2016

Mother's Aboriginality	NSW	SWSLHD
Aboriginal	474 (11.4%)	48 (14.8%)
Non-Aboriginal	6,884 (7.3%)	1,225 (9%)
Not stated	34 (5.9%)	2 (9.5%)
Total	7,392 (7.5%)	1,275 (9.1%)

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

In 2016, 948 or 6.8% of babies born to SWS mothers were low birth weight (less than 2,500 grams) which was similar to NSW rate (6.5%). For babies born to Aboriginal or Torres Strait Islanders

mothers the proportion of low birth weight babies was almost 10% greater than the rate for non-Aboriginal babies (16.4% and 6.8%). The rate of low birth weight for Aboriginal or Torres Strait Islanders babies in SWS is higher than the rate for Aboriginal mothers in the rest of NSW (10.4%).

Perinatal outcomes

The perinatal mortality rate in 2016 in SWS was 8.4 per 1,000 births higher than 7.5 per 1,000 births in NSW. This rate includes all live births, and stillbirths of at least 400 grams birth weight or at least 20 weeks gestation.

Table 102: Baby discharge status, SWSLHD, NSW, 2016

Discharge Status	NSW	SWSLHD
Discharged	94,802 (96%)	10,903 (96%)
Transferred	2,686 (2.7%)	319 (2.8%)
Stillborn	543 (0.6%)	76 (0.7%)
Died	209 (0.2%)	30 (0.3%)

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

Infant feeding

In 2016, full breastfeeding on discharge from hospital was reported for 8,123 (58.5%) of live born babies in SWS compared to 74.9% for NSW. 11.7% were receiving infant formula only and further 21.1% were being partially breastfed compared to 8.5% and 13.4% for NSW.

7.5.1.1 Childhood development indicators

From conception to the first year of school, a child's cognitive, physical, social and emotional development is in a stage of rapid growth more than any other time in life. Several studies of the Australian Early Development Census (AEDC) data have shown that children who attend early childhood education are more likely to be developmentally on track at school entry. [102]

There are higher levels of developmental vulnerability on two or more domains in 5 year old children from Bankstown (12.1%), Fairfield (13.9%), Campbelltown (11.1%) and Liverpool (10.8%) compared with NSW (9.6%). There was a significant change in the development vulnerability in Wingecarribee, which has increased to 9.3%. Bankstown LGA had significant decreases in the proportion of children with vulnerabilities in 4 of the 5 domains (Table 103).

Table 103: Proportion of children developmentally vulnerable in SWS by LGA, 2015

	Number of children	Percentage of children developmentally vulnerable (%)						
		Physical health and wellbeing†	Social competence	Emotional maturity	Language and cognitive skills (school-based)	Communication skills and general knowledge	Vulnerable on one or more domains of the AEDC	Vulnerable on two or more domains of the AEDC
Bankstown LGA	2,828	9.7	12.8	6.4	5.5	11.8	24.9	12.1
Camden LGA	1161	4.9	6.6	5.0	3.8	4.7	15.0	6.2
Campbelltown LGA	2394	9.9	11.8	8.2	5.8	10.0	24.3	11.1
Fairfield LGA	2687	11.8	11.8	7.0	7.5	15.8	27.6	13.9
Liverpool LGA	3077	8.6	10.4	6.6	6.1	10.7	22.9	10.8
Wingecarribee LGA	526	10.7	9.5	6.5	6.2	8.7	21.4	9.3
Wollondilly LGA	664	6.4	5.6	6.7	3.0	3.9	14.8	6.1
New South Wales	96,156	8.5	9.2	6.8	4.8	8.1	20.2	9.6
Australia	302,003	9.7	9.9	8.4	6.5	8.5	22.0	11.1

Source: AEDC 2015

At the suburb level, the proportion of children vulnerable on 2 or more domains has decreased in Villawood from 17.9% in 2012 to 10.3% in 2015, and in Claymore from 28.7% in 2009 and 14.8% in 2012 to 12.7% in 2015. Decreasing proportion of children vulnerable on 2 or more domains in Claymore could be linked to the changes in the population demographics due to the Renewal Project which transforms previous public housing estates into sustainable mixed-income communities.

Childhood obesity

Overweight and obesity impact children’s physical and mental health, and their social wellbeing. Affected children are more likely to be obese as adults and develop conditions such as diabetes and cardiovascular disease at a younger age. In 2014, 27.5% of SWS’s secondary school students aged 12-17 years were overweight or obese, the second highest region and much higher than the state average of 20.6% (Table 104).

Table 104: Prevalence of obesity in secondary school students (12-17 years), NSW and SWS, 2014

NSW	SWS
• 20.6%	• 27.5%

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

The NSW Premier has announced that tackling childhood obesity is a priority for the NSW government. The target is to reduce overweight and obesity rates of children by 5 per cent over 10 years by 2025.

7.5.2 Immunisation

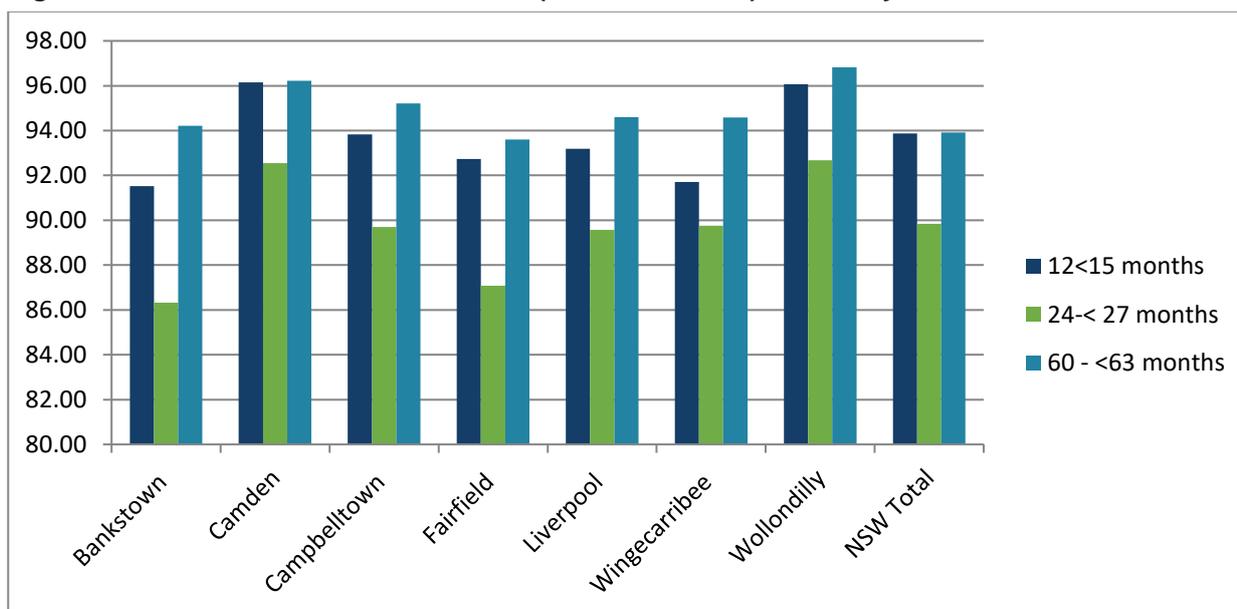
Immunisation is highly effective in reducing morbidity and mortality caused by vaccine-preventable diseases. Since the introduction of childhood vaccinations, deaths from vaccine-preventable diseases have fallen for the general population by 99 %.

Childhood immunisation rates in SWS in 2017 were:

- (93.2%) of 12 to 15 months old children were fully immunised compared with (93.9%) for NSW
- (88.8%) of 2 year olds were fully immunised compared with (89.9%) for NSW
- (94.7%) of 5 year olds were fully immunised compared with (93.9%) for NSW.

There is an increase in the immunisation rates compared with 2015 and 2016 except for the immunisation rate for 2 years old.[103]

Figure 82: Immunisation rate for children (at 12-63 months) in SWS by LGA, 2017



Source: SWSLHD Public Health Unit 2018

There are geographic and age related variations in the childhood immunisation rates across SWS. Camden and Wollondilly LGAs had higher immunisation rates than NSW for all ages, and Bankstown had lower immunisation rates in children aged 1 and 2 years. Immunisation rates targeting 5 year old non-Aboriginal children were higher than NSW for all LGAs except Fairfield LGA. Immunisation rates for 5 years old Aboriginal children in SWS were higher than for non-Aboriginal children (97.1% and 94.6%, respectively).

7.5.2.1 Immunisation of Aboriginal children

In 2017, (93.8%) of 1 year old Aboriginal children in SWS were fully immunised compared with (94.3%) for NSW; (90.6%) of 2 years old children were immunised compared with (90.8%) for NSW, and at 5 years of age, the immunisation rate was (97.1%) the same as the NSW rate (97.0%) [103]. In SWS, Camden had 100% immunisation coverage across all ages and Wollondilly for 5 years old. Fairfield had lower immunisation rates for one and two years old Aboriginal children (88.2% and 88.6%) compared with the SWS rates (93.8% and 90.6%) (Table 105).

Table 105: Immunisation rates for Aboriginal children (at 12- 63 months) in SWS by LGA, 2017

Local Government Area (LGA)	Proportion (%) of 12-<15 months fully vaccinated	Proportion (%) of 24-<27 months fully vaccinated	Proportion (%) of 60-<63 months fully vaccinated
Bankstown	89.5	86.7	96.0
Camden	100.0	100.0	100.0
Campbelltown	95.4	88.2	98.5
Fairfield	88.2	88.6	97.1
Liverpool	93.4	93.1	94.0
Wingecarribee	95.5	87.5	94.1
Wollondilly	88.6	96.2	100.0
SWS Total	93.8	90.6	97.1
NSW Total	94.3	90.8	97.0
Australia Total	92.2	88.2	96.2

Source: SWSLHD Public Health Unit 2018

The vaccination coverage for 2017 showed that universal vaccination programs with highly effective vaccines (eg, measles, mumps, rubella, poliomyelitis, diphtheria and tetanus vaccines) have achieved excellent disease control in Aboriginal population, similar to that in non-Aboriginal population.

8. Appendices

Methodology

This chapter features the prevalence projections to 2031 for chronic diseases/ conditions including diabetes, cardiovascular disease, stroke, kidney disease, chronic obstructive pulmonary disease, asthma, dementia and fall related injury.

The South West Sydney population numbers were extracted from the Australian Bureau of Statistics (ABS) Census 2016 by gender and age breakdown. The population was projected to 2031 using 2016 Department of Planning and Environment NSW State and LGA Population Projections.

Disease prevalence and incidence rates by age and gender were obtained from a number of sources but were predominantly based on the ABS Microdata: National Health Survey (NHS), 2014–15. Two methods were used for the projections:

Method 1 - assumed the prevalence rates were constant across the different forecast years. These rates were applied to the different populations. The base assumption made is that the most recent prevalence rate will be unchanged from 2016 to 2031 unless detailed differently. The prevalence rates were applied to the population for 2016 actual and the projections from 2017 to 2031. These were detailed as constant prevalence and in some instances were broken down by disease type or level of severity.

Method 2 – the prevalence rates for a period of time was taken to determine the number of people with the disease at that period of time. Incidence rates, the rate of new cases of diseases, were either obtained from different sources or determined by the difference in the prevalence rates between years. The number of new cases was obtained from application of the incident rates. All the incidences along with the base period total prevalence were summed to estimate the future total prevalence. It is to be noted that, with the latter method, the incidence rate was assumed to be constant over time and that the rate can only be calculated for the different age groups.

In addition, the prevalence and incidence rates and numbers were then discussed with experts from the Western Sydney University (WSU), SWSLHD health practitioners, and senior health data scientists with the Australian Institute of Health and Welfare (AIHW) and the ABS.

Detailed description of methods applied for each of diseases and risk behaviours is in Appendix 2:

Data Limitations

Projections are by nature, estimates about what might reasonably be expected in the future. A number of statistical modelling approaches have been developed and widely applied. The choice of good modelling approach, based on historical trends and other available information, can generate the best estimates. However, there is no guarantee of their realisation in the future.

Projections: Definition and method

Diabetes	CVD
<p>The ABS National Health Survey (NHS) definition of diabetes is used which refers to persons who reported having been told by a doctor or nurse that they had diabetes, irrespective of whether the person considered their diabetes to be current or long-term^{ix}. There are three main forms of diabetes mellitus: Type 1 diabetes, Type 2 diabetes and gestational diabetes.</p> <p>Method: The prevalence rates for type 1 and type 2 diabetes were obtained from the NHS 2014-15 by gender and age groups. For type 1, this was supplemented by Incidence of Insulin Treated Diabetes in Australia 2015 data tables by the Australian Institute of Health and Welfare (AIHW).</p> <p>Constant prevalence method was used for type 1 and type 2 for 2016, 2021, 2026 and 2031.</p> <p>Data limitations</p> <p>There are several data gaps in relation to the diabetes incidence and prevalence. Currently, there are no national data on the number of new cases of diagnosed type 2 diabetes and no regular collection of biomedical data to better understand diabetes prevalence.</p>	<p>Cardiovascular (or circulatory) diseases (CVD) comprise all diseases of the heart and blood vessels. Commonly, this group of conditions is referred to under the broader term of 'heart disease' or 'cardiovascular disease'. 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, and peripheral vascular disease.</p> <p>Method: Data for prevalence rate of CVD in Australia were obtained from the AIHW analysis of ABS NHS, 2014–15. Age-and gender-specific prevalence rates for a wide range of cardiovascular diseases (including angina, heart attack, other ischaemic heart diseases, stroke and other cerebrovascular diseases, oedema, heart failure, diseases of the arteries, arterioles and capillaries) were used to estimate total prevalence in 2021, 2026 and 2031.</p> <p>Diseases of the circulatory system are defined by the ABS NHS and refers to persons who reported having been told by a doctor or nurse that they had any range of circulatory conditions of heart, stroke and vascular diseases; hypertension, tachycardia or other diseases of the circulatory system.</p>
Stroke	Kidney disease
<p>There are two main types of stroke: a blood clot or other particles blocking a blood vessel causes one type (ischaemic stroke, which is also known as cerebral infarction) and the rupturing and subsequent bleeding of a blood vessel causes the other (haemorrhagic stroke).</p> <p>Method: Data for the prevalence rate of stroke in Australia were obtained from the AIHW analysis of the ABS 2012 Survey of Disability, Ageing and Carers. Rates were provided for different age groups for both males and females, and were used to calculate total prevalence in 2012. The sources of data on incidence were NEMESIS (Thrift et al, 2009), Thrift et al, 2012 and Deloitte Access Economics calculations, 2013. The data were available by both age and gender. Incidence rates were assumed to be constant for projections of total prevalence in 2021, 2026 and 2031.</p>	<p>Kidney disease is a subset of symptoms including: problems or complaints about the kidneys, renal pain and renal colic (kidney stones).</p> <p>Method: Prevalence rates were obtained from ABS NHS 2014-15. Constant prevalence method was used. Separate calculations were made for different time periods using incidence rates for end stage kidney disease from the AIHW Chronic Kidney Disease 2013 report.</p>
COPD	Asthma

<p>Chronic obstructive pulmonary disease (COPD) refers to chronic bronchitis or emphysema, a pair of commonly co-existing diseases of the lungs in which airways become narrowed.</p> <p>Method: The source of data on the prevalence rate of COPD in Australia was the AIHW analysis of NHS 2014–15. The data were available by age and gender. Total prevalence rates in 2021, 2026 and 2031 were forecast using constant prevalence method.</p> <p>Data limitations</p> <p>The prevalence (the number of cases present in the population at a given time) of COPD is difficult to determine from routine health surveys. Since COPD is formally defined in terms of an abnormality of lung function, accurately estimating the prevalence of the disease requires clinical testing.</p>	<p>Asthma is a chronic inflammatory condition of the airways associated with episodes of wheezing, breathlessness and chest tightness^x.</p> <p>Method: The source for the prevalence rate of asthma in Australia was the AIHW analysis of ABS NHS 2014–15. The data were available by age and gender. The prevalence rate was averaged for different age groups to match with the age groups used in the ABS census.</p> <p>Smoking</p> <p>Data on the prevalence of smoking were obtained from the NSW Population health Survey by gender.</p> <p>Method: The indicator shows self-reported data collected through Computer Assisted Telephone Interviewing (CATI). Estimates were weighted to adjust for differences in the probability of selection among respondents and were benchmarked to the estimated residential population using the latest available Australian Bureau of Statistics mid-year population estimates. Adults are defined as persons aged 16 years and over in the NSW Population Health Survey. The sample size included 893 adult residents.</p> <p>In order to address diminishing coverage of the population by landline telephone numbers (<85% since 2010), a mobile phone number sampling frame was introduced into the 2012 survey. LL/UL 95%CI = lower and upper limits of the 95% confidence interval for the point estimate.</p>
<p>Dementia</p> <p>Dementia is a term that describes a syndrome associated with over 100 different diseases; it is not a single specific disease. It is characterised primarily by impairment of brain function across several possible domains, including language, memory, perception, personality and cognitive skills. The most common types of dementia are: Alzheimer disease and vascular dementia.[91]</p> <p>Method: The estimated prevalence of dementia in Australia in 2016 and 2011 were sourced from the AIHW report, which contains calculations made by AIHW using rates based on ADI (2009) and Harvey et al. (2003). Data were available by age and gender. Projections were made using both the constant prevalence and variable prevalence rate methods. Incidence rates were calculated from the actual prevalence rates for 2016 and 2011. These rates were assumed to be constant throughout the forecasting period. If there is no strong evidence of trends in prevalence, the constant prevalence</p>	<p>Alcohol consumption</p> <p>To assist monitoring long-term risk of harm, as defined by Guideline 1 of the 2009 National Health And Medical Research Council Guidelines, this indicator provides information on the proportion of adults who consume more than 2 standard drinks on a day when they consume alcohol.</p> <p>Method: The indicator shows self-reported data collected through Computer Assisted Telephone Interviewing (CATI). The sample size included 908 adult residents. Estimates were weighted to adjust for differences in the probability of selection among respondents and were benchmarked to the estimated residential population using the latest available Australian Bureau of Statistics mid-year population estimates. Adults are defined as persons aged 16 years and over in the NSW Population Health Survey.</p> <p>In order to address diminishing coverage of the population by landline telephone numbers (<85% since 2010), a mobile phone number sampling frame</p>

<p>method is superior to the variable prevalence method.</p>	<p>was introduced into the 2012 survey. LL/UL 95%CI = lower and upper limits of the 95% confidence interval for the point estimate.</p>
<p>Mental Health</p>	<p>Illicit Drug Use</p>
<p>Kessler 10 (K10) is a 10-item questionnaire that measures anxiety, depression, agitation, and psychological fatigue in the most recent 4-week period. Refer to Methods tab for more information.</p> <p>The K10 questions were included in the survey every year between 2002 and 2011. From 2011, the questions were included every second year.</p> <p>Method: The indicator shows self-reported data collected through Computer Assisted Telephone Interviewing (CATI). The sample size included 1,721 adult residents. Estimates were weighted to adjust for differences in the probability of selection among respondents and were benchmarked to the estimated residential population using the latest available Australian Bureau of Statistics mid-year population estimates. Adults are defined as persons aged 16 years and over in the NSW Population Health Survey.</p> <p>In order to address diminishing coverage of the population by landline telephone numbers (<85% since 2010), a mobile phone number sampling frame was introduced into the 2012 survey. LL/UL 95%CI = lower and upper limits of the 95% confidence interval for the point estimate.</p>	<p>Data on the prevalence of use of illicit drugs were obtained from the National Drug Strategy Household Survey report of 2013.</p> <p>Method: Projections for the periods 2021, 2026 and 2031 were made using both constant prevalence rate and variable prevalence rate methods. For the latter method, the incidence / growth rate of prevalence was calculated from data for 2001 and 2013. The incidence rate was averaged for different age groups to match with the age groups used in the ABS census 2011 and 2016.</p> <p>High Blood Pressure</p> <p>A person was defined as having high blood pressure if their systolic/diastolic blood pressure was equal to or greater than 140/90 mmHg. Method: The indicator shows self-reported data collected through Computer Assisted Telephone Interviewing (CATI).</p> <p>The sample size included 1, 078 SWS residents. Estimates were weighted to adjust for differences in the probability of selection among respondents and were benchmarked to the estimated residential population using the latest available Australian Bureau of Statistics mid-year population estimates. Adults are defined as persons aged 16 years and over in the NSW Population Health Survey.</p> <p>In order to address diminishing coverage of the population by landline telephone numbers (<85% since 2010), a mobile phone number sampling frame was introduced into the 2012 survey. LL/UL 95%CI = lower and upper limits of the 95% confidence interval for the point estimate.</p>
<p>Obesity</p>	<p>Cholesterol</p>
<p>2017 NSW Population Health Survey (self-reported using Computer Assisted Telephone Interviewing or CATI).</p> <p>Method: The indicator shows self-reported data collected through Computer Assisted Telephone Interviewing (CATI). The sample size included 850 SWS residents. Estimates were weighted to adjust for differences in the probability of selection among respondents and were benchmarked to the</p>	<p>High blood cholesterol is a major risk factor for ischaemic heart disease (IHD), ischaemic stroke and peripheral vascular disease. Total blood cholesterol levels exceeding 5.5 mmol/L greatly increase the risk of IHD, while levels above 6.5 mmol/L represent extremely high risk.</p>

<p>estimated residential population using the latest available Australian Bureau of Statistics mid-year population estimates. Adults are defined as persons aged 16 years and over in the NSW Population Health Survey.</p> <p>In order to address diminishing coverage of the population by landline telephone numbers (<85% since 2010), a mobile phone number sampling frame was introduced into the 2012 survey. LL/UL 95%CI = lower and upper limits of the 95% confidence interval for the point estimate. Data for some LHDs may not be included individually due to low numbers.</p>	<p>Method: The indicator shows self-reported data collected through Computer Assisted Telephone Interviewing (CATI).</p> <p>The sample size included 1, 071 SWS residents. Estimates were weighted to adjust for differences in the probability of selection among respondents and were benchmarked to the estimated residential population using the latest available Australian Bureau of Statistics mid-year population estimates. Adults are defined as persons aged 16 years and over in the NSW Population Health Survey.</p> <p>In order to address diminishing coverage of the population by landline telephone numbers (<85% since 2010), a mobile phone number sampling frame was introduced into the 2012 survey. LL/UL 95%CI = lower and upper limits of the 95% confidence interval for the point estimate.</p>
<p>Physical activity</p>	<p>Fruit and vegetable intake</p>
<p>The indicator includes those whose level of physical activity was insufficient, sufficient or who did not undertake any moderate physical activity in a typical week. The national guidelines apply different criteria for different age groups. The guidelines relating to physical activity and sedentary behaviour were updated in 2014 and the new definition has been applied to the entire time series shown.</p> <p>Method: The indicator shows self-reported data collected through Computer Assisted Telephone Interviewing (CATI). The sample size included 812 SWS residents. Estimates were weighted to adjust for differences in the probability of selection among respondents and were benchmarked to the estimated residential population using the latest available Australian Bureau of Statistics mid-year population estimates. Adults are defined as persons aged 16 years and over in the NSW Population Health Survey.</p> <p>In order to address diminishing coverage of the population by landline telephone numbers (<85% since 2010), a mobile phone number sampling frame was introduced into the 2012 survey. LL/UL 95%CI = lower and upper limits of the 95% confidence interval for the point estimate.</p>	<p>For fruit, the indicator includes those who consumed 2 or more serves a day (both males and females aged 9 years and over). For children, the recommended intake of fruit is at least 1 serve each day for children aged 2-3 years and 1.5 serves each day for children aged 5-8 years.</p> <p>For vegetables, the indicator includes those males aged 16-18 years who consumed at least 5.5 serves of vegetables a day; males aged 19-50 years who consumed at least 6 or more serves a day; males aged 51-70 who consumed at least 5.5 serves per day; and males aged over 70 and all females aged 16 years and over who consumed at least 5 serves per day.</p> <p>Method: The indicator shows self-reported data collected through Computer Assisted Telephone Interviewing (CATI). The sample size included 860 SWS residents. Estimates were weighted to adjust for differences in the probability of selection among respondents and were benchmarked to the estimated residential population using the latest available Australian Bureau of Statistics mid-year population estimates. Adults are defined as persons aged 16 years and over in the NSW Population Health Survey.</p> <p>In order to address diminishing coverage of the population by landline telephone numbers (<85% since 2010), a mobile phone number sampling frame was introduced into the 2012 survey. LL/UL 95%CI = lower and upper limits of the 95% confidence interval for the point estimate.</p>
<p>Cancer</p>	<p>Musculoskeletal diseases</p>

<p>Method:Based on an understanding of the population growth, current incidence, the population profile and risk factors in the local population, the Cancer Institute NSW has produced projections of cancer incidence for each LHD from 2016 to 2031, by cancer site.</p>	<p>Method:Forecasts of the population with the musculoskeletal diseases including arthritis and back problems were made for all SWS LGAs with data for the prevalence by age sourced from the National Health Survey (NHS), 2014-15 NSW. Data were disaggregated by age and gender for the adult population (18 years and over). The results for the different age groups were averaged to match with the age groups of population used in the ABS Census, 2011 and 2016. The constant prevalence rate method was used to make the projections.</p>
<p>Falls</p>	<p>Palliative Care</p>
<p>Method: Data on the prevalence of fall-related injuries in Australia were obtained from the National Hospital Morbidity Database (NHMD). The data were sourced from the “<i>Trends in hospitalised injury, Australia 1999–00 to 2012–13, AIHW</i>” report. Prevalence data for 2012-13 were used to forecast fall-related injuries in 2021, 2026 and 2031. Prevalence data for 2011-12 and 2012-13 were used to calculate the incidence rate. Both constant prevalence rate and variable prevalence rate methods were used to make the projections. Forecasts were made for age and gender categories for all LGAs in SWS. The variable prevalence method appears to be preferable as it derives the incidence rate more accurately.</p>	<p>Method: Prevalence rates for palliative care in SWS were based on the National Hospital Morbidity Database, AIHW 2011-12.</p> <p>Nationally, hospitalisations for palliative care rose by 28% over the four years to 2015-16, from 57,614 to 73,884 hospitalisations accounting for about 1 in 140 (0.7%) of all hospitalisations. In NSW, a number of hospitalisations for palliative care increased by 26% from 17,701 to 22,281 over the same period.</p>

8.1 Abbreviations

ABS	Australian Bureau of Statistics
AIHW	Australian Institute of Health and Welfare
ATSI	Aboriginal and Torres Strait Islander
ARIA	Accessibility and Remoteness Index of Australia
BOCSAR	Bureau of Crime Statistics and Research
CALD	Culturally and Linguistically Diverse
COPD	Chronic obstructive pulmonary disease
CVD	Cardiovascular diseases
CYP	Children and young people
DPE	Department of Planning and Environment
FACS	Family and Community Services
HCPP	Home Care Packages Program
IRSD	Index of Relative Socioeconomic Disadvantage
LAHC	Land and Housing Corporation
LGA	Local Government Area
LGBTI	Lesbian, Gay, Bisexual, Transgender and Intersex
LHD	Local Health District
LOTE	Languages other than English
MHP	Manufactured home parks
NHS	National Health Survey
NSW	New South Wales
PID	Pelvic inflammatory disease
ROSH	Risk of Significant Harm
SAPHARI	Secure Analytics for Population Health Research and Intelligence
SDH	Social Determinants of Health
SEIFA	Socio-Economic Indexes for Areas
STD	Sexually transmitted diseases
STI	Sexually transmitted infections
SWS	South West Sydney
SWSLHD	South Western Sydney Local Health District
SWS PHN	South Western Sydney Primary Health Network

8.2 Data and Methodology

Age-specific rate: A rate for a specific age group. The numerator and denominator relate to the same age group.

Age-standardisation: A method of removing the influence of age when comparing populations with different age structures. This is usually necessary because the rates of many diseases vary strongly (usually increasing) with age. The age structures of the different populations are converted to the same 'standard' structure; then the disease rates that would have occurred with that structure are calculated and compared.

Incidence refers to the number of new cases (of an illness, disease or event) occurring during a given period. Unlike many infectious diseases such as influenza, most cardiovascular diseases, diabetes and CKD are chronic diseases. This means that they are long-lasting diseases, with persistent effects that may never be cured completely, and requiring long term management. Hence, for CVD, diabetes or CKD, people will generally only receive a diagnosis once, and the year of their diagnosis will represent their 'incident year'.

Prevalence is the number or proportion of cases or instances of a disease or illness present in a population at a given time. This includes new cases occurring during the period of time, existing cases, cases first diagnosed before the start of the period, and people with the condition who have died during the period. The prevalence of a disease is related to both the incidence of the disease and how long people live after developing it (survival).

The National Hospital Morbidity Database (NHMD) is a compilation of episode-level patient records from admitted patient morbidity data collection systems in Australian public and private hospitals. The data supplied are based on the National Minimum Data Set (NMDS) for Admitted Patient Care and include demographic, administrative and length of stay data and data on the diagnoses of the patients, the procedures they underwent in hospital and external causes of injury and poisoning.

Data for the former Bankstown LGA

The Bankstown LGA merged with Canterbury LGA to form the Canterbury-Bankstown LGA in 2016. As a result, data from the 2016 Census are not available for Bankstown LGA. In order to get some demographic data for the former Bankstown LGA: the Bankstown data available by SA3 are multiplied by a factor 1.158 to produce estimates of demographic and possibly other statistics for Bankstown LGA. The factor is equal to the 2016 population of the former 2011 Bankstown LGA divided by the 2016 population of the Bankstown SA3. This method of population weighted interpolation of spatially misaligned data is commonly used and provides reasonable estimates (Hallisey E, Tai E, Berens A, Wilt G, Peipins L, Lewis B, Graham S, Flanagan B, Lunsford NB. *Transforming geographic scale: a comparison of combined population and areal weighting to other interpolation methods*. International Journal of Health Geographics. 2017 Aug 7;16(1):29).

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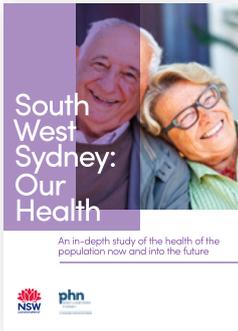
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