FEBRUARY 2017

Health Needs Assessment

Brisbane North PHN and Metro North Hospital and Health Service | 2016-17

phn BRISBANE NORTH
An Australian Government Initiative

Queensland Government

Acknowledgements

- Brisbane North PHN
- Metro North Hospital and Health Service

Abbreviations and Terminology

ABS	Australian Bureau of Statistics
AEDC	Australian Early Development Census
ASR	Age-standardised rate
ATS	Australasian Triage Scale
CABH	Caboolture Hospital
COPD	Chronic Obstructive Pulmonary Disease
DWS	District of Workforce Shortage
FTE	Full time equivalent
GP	General Practitioner
HHS	Hospital and Health Service
ICD	International Classification of Disease
IDR	Insufficient data recorded
IRSD	Index of Relative Socioeconomic Disadvantage
LGA	Local Government Area
LGBTI	Lesbian, Gay, Bisexual, Transgender and Intersex people
MBS	Medicare Benefits Schedule
PHN	Primary Health Network
OBD	Occupied Bed Day
QLD	Queensland
RBWH	Royal Brisbane and Women's Hospital
REDH	Redcliffe Hospital
SA3	Statistical Area Level Three
SRG	Service Related Group
STI	Sexually Transmitted Infections
TAFE	Technical and Further Education
TPCH	The Prince Charles Hospital

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Executive Summary

Context

Brisbane North PHN (the PHN) and Metro North Hospital and Health Service (the HHS) both serve the same geographical catchment. They are also both working to achieve complementary objectives to ensure quality healthcare is available for the people living in the North Brisbane and Moreton Bay region (the region).

Brisbane North PHN

The PHN's vision is a community where good health is available for everyone. The PHN supports primary healthcare clinicians and communities in Brisbane's northern suburbs, Moreton Bay Regional Council and parts of the Somerset Regional Council. The objectives of the PHN are to work with others to:

- reorient the health system toward care in the community
- achieve a health and community care system responsive to need
- direct resources to best meet health and community care needs for the region.

Metro North Hospital and Health Service

The HHS's vision is to change the face of healthcare through compassion, commitment, innovation and connection. The purpose of the HHS is to create, connect and apply knowledge to deliver high quality health services. The HHS is the largest and most diverse Hospital and Health Service in Queensland. It governs five (state-based) hospitals. The objectives of the HHS are to:

- always put people first
- improve health equity, access, quality, safety and health outcomes
- deliver value-based health services through a culture of research, education, learning and innovation.

Purpose

The *Health Needs Assessment* (HNA) is a planning tool that outlines the broad health and service needs existing within the region, allowing for effective planning.

The key objectives of this *Health Needs Assessment* (HNA) are to:

- assess the health needs in the region to enable effective health planning and intervention
- inform the planning and evaluation processes across both primary and secondary health sectors
- provide a sound evidence base to enable the investment of resources to best meet the health and community care needs of our community.

Methodology

The PHN and the HHS have partnered to develop this joint HNA.

This HNA builds on previous work by the PHN and the HHS in undertaking health service planning and health needs assessments in the region.

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Information was sourced from:

- discussions with key stakeholders from the PHN and the HHS
- Commonwealth Department of Health
- Australian Bureau of Statistics
- Queensland Government Statistician's Office
- Public Health Information Development Unit
- Australian Institute of Health and Welfare
- Queensland Department of Health.

Other strategic documents that should be read in conjunction to this document are as follows:

- Comprehensive Health Needs Assessment (Brisbane North PHN, 2016)
- Mental Health and Suicide Prevention Needs Assessment (Brisbane North PHN, 2016)
- Methamphetamine, Alcohol and other Drugs Needs Assessment (Brisbane North PHN, 2016)
- Metro North Health Strategy 2015-2020 (Metro North Hospital and Health Service, 2014)
- Health of Queenslanders 2016. Report of the Chief Health Officer, Queensland. (Queensland Government, 2016).

Our region

The Brisbane North region (the region) is the geographical catchment shared by the Brisbane North PHN and the Metro North Hospital and Health Service. The region covers areas north of the Brisbane River including parts of the Brisbane City and Moreton Bay Local Government Area as well as parts of the Somerset Local Government Area (Kilcoy). For the purpose of this Health Needs Assessment the region has been divided into to six planning sub regions, relevant to their natural communities and primary catchment areas:

- Brisbane Inner City (RBWH)
- Brisbane North (TPCH)
- Redcliffe – North Lakes (Redcliffe Hospital)
- Brisbane West (RBWH)
- Pine Rivers (TPCH)
- Moreton Bay North (Caboolture Hospital)

The region is home to almost 960,000 residents and is projected to increase to over 1,200,000 residents by 2036 with high growth expected in Moreton Bay North, Brisbane Inner City and Redcliffe – North Lakes. The region is one of the most diverse in Queensland with:

- one in five (22.1 per cent, 189,128 people) residents being **born overseas**, which is a slightly higher rate than the Queensland figure (20.5 per cent)
- more than 87,000 (10.2 per cent) people residing in the region speak a **first language other than English** compared to the Queensland rate of 9.5 per cent
- the **median age** of 35.6 years, which is lower than the Queensland median age of 36.8 years
- the region is aging with 23.9 per cent **population growth** between the years 2010 and 2015 in the 65-74 years age group
- over 14,000 people of **Aboriginal and Torres Strait Islander** descent live in the region, representing 1.7 per cent of the region's total population as at 2011
- The Aboriginal and Torres Strait Islander population in the region is a younger population compared to the general population, with more than half (55.6 per cent) aged less than 25 years.

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The region generally experiences low rates of socioeconomic disadvantage, with almost two in five people (27.6 per cent) residing in areas considered to be least disadvantaged. However:

- one in eight people in the region (12.2 per cent) reside in areas considered **most disadvantaged**
- the northern areas of the region had the highest rates of **socioeconomic disadvantage**, particularly in Redcliffe - North Lakes and Moreton Bay North.

Health risk

While there are certain sub regions and populations that demonstrate higher rates of health risk factors, however as a region health risk factors are on par or compare favourably to Queensland levels

- Across the region an estimated one in five adults are classified as **obese** (22.9 per cent) compared to 30.4 per cent in Queensland. The Redcliffe – North Lakes, Moreton Bay North and Pine Rivers sub regions have the highest rates of obesity and being overweight
- in the region 16.9 per cent of adults are current **smokers** compared to 19.2 per cent in Queensland
- the rate of women who reported **smoking during pregnancy** is 10.1 per cent, lower than Queensland rate of 12.9 per cent. However, this varied from 3.2 per cent in Brisbane Inner City to 20.8 per cent in Moreton Bay North
- in the region five per cent of adults consume **alcohol** at levels of high risk compared to Queensland at 5.3 per cent. Redcliffe- North Lakes and Moreton Bay North sub regions are on par or slightly exceed the Queensland rate at 5.3 and 5.4 percent respectively
- fruit and vegetable consumption is comparable to the state reported consumption.

Aboriginal and Torres Strait Islanders experience higher rates of a number of risk factors compared to the non-Indigenous population including:

- **obesity** rates at 27.6 per cent compared to 22.1 for non-Indigenous peoples in the region
- **smoking** rates 2.7 times the rate of non-Indigenous with over one third (35.4 per cent) of Aboriginal and Torres Strait Islander adults in the region smoking daily
- over 41 per cent of Aboriginal and Torres Strait Islander women smoked during their pregnancy
- while the specific rates of lifetime risky **alcohol** consumption among Aboriginal and Torres Strait Islander people in the region are not able to be determined, estimates for Queensland indicate that, consumption rates are 1.3 times higher the non-Indigenous rate.

Childhood immunisation rates for the region are:

- 94.2 per cent for children aged 12 to 15 months
- 92.8 per cent for children aged 24 to 27 months
- 92.5 per cent for children aged 60 to 63 months.

The region childhood immunisation rates are above the target of 91.5 per cent. Immunisation rates are 90.3 per cent for Aboriginal and Torres Strait Islander children aged12 to 15 months, 89.5 per cent for 24 to 27 months and 93.6 per cent for 60 to 63 months.

In the region, 97.2 per cent of women had five or more antenatal visits during pregnancy, which is higher than the Queensland rate of 94.8 per cent. However, for Aboriginal and Torres Strait Islander women the rate who attended five or more antenatal visits was only 90 percent in 2014-15.

The number of antenatal visits during pregnancy can be linked with socioeconomic status. Women living in areas of higher socioeconomic disadvantage are less likely to attend five or more antenatal visits during their pregnancy and are also more likely to smoke during pregnancy, resulting in a higher proportion of babies who are born underweight.

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Heath status

The region is comparable to the Queensland population across a range of population health status indicators. The region's **life expectancy** is longer than the Queensland life expectancy at 80.7 years for males and 84.5 years for females compared to 79.9 years and 84.2 years respectively for Queensland.

The **infant mortality** rate in the region is lower than the Queensland rate at 4.1 deaths per 1,000 live births compared to 4.6 deaths per 1,000 live births. The rate of babies with low birth weights was consistent with the State; however, 10.1 per cent of Aboriginal and Torres Strait Islander babies were born underweight.

The region's **potentially avoidable deaths** were consistent with the national average of 106.7 deaths per 100,000 people. While the rate of potentially avoidable deaths in the region increased from 103.6 deaths per 100,000 people in 2012 to 108 deaths per 100,000 people in 2013, five-year trends between 2009 and 2013 indicate that the rate of potentially avoidable deaths in the region is decreasing.

In general, the **self-assessed health** of our residents varies with residents of the Redcliffe – North Lakes and Moreton Bay North sub regions more likely to rate their health as 'fair' or 'poor' than the rest of Queensland.

Almost half of the adult population suffer from a **chronic condition**, with a five per cent increase in the number of adults who had a **chronic condition** between 2011-12 and 2012-13. The prevalence of chronic conditions in the region is on par with the Queensland rate, except for **high blood cholesterol,** which is slightly above the Queensland rate (30.9 per cent to 30.7 per cent respectively). Moreton Bay North reported the highest prevalence of seven of the eight reported **chronic conditions** in the region. Residents of Redcliffe-North Lakes also experience high rates of premature mortality. The proportion of people living with a **disability** is highest in Moreton Bay North at 5.6 per cent, followed by Redcliffe-North Lakes at 5.5 per cent compared to the regional rate of 4.1 per cent.

Mental disorders, diabetes mellitus and nervous system and sense organ disorders are the largest **non-fatal burden of disease** areas within the region compared to cardiovascular disease, cancer and unintentional injuries as the **largest fatal burden of disease**.

Aboriginal and Torres Strait Islander health

The health status of **Aboriginal and Torres Strait Islander** residents is significantly poorer than non-Indigenous residents in the region. Aboriginal and Torres Strait Islander people have poorer self-assessed health, a higher prevalence of long term conditions and an increased burden of disease, when compared to the non-Indigenous population.

- The region's rate of Aboriginal and Torres Strait Islander people with one long term health conditions was 25 per cent and 51.2 per cent are living with two long term health conditions. This is higher than the national rate of 20.9 per cent and 46.9 per cent respectively and is 1.7 times greater than the non-Indigenous population of the region
- Aboriginal and Torres Strait Islander people in the region with long term health conditions were younger than the non- Indigenous population, with 37.2 percent aged less than 25 years compared to 17.9 per cent
- the largest burden of disease among the Aboriginal and Torres Strait Islander population in the region was attributable to mental disorders at 28.6 per cent of the disease burden.

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Communicable diseases

Notifications for Hepatitis C have been increasing in the region with 411 notifications in 2015 from a low in 2012 of 366 notifications. In 2014 and 2015, the number of gastro intestinal communicable disease notifications increased and was particularly prevalent in the statistical areas of Brisbane Inner - North and Hills District. **Vaccine preventable disease** notifications have increased for influenza and varicella. The Hills District had the highest number of vaccine preventable disease notifications in the region, with 1163 notifications in 2015. Sexually transmitted infection notifications have continued to increase, with chlamydia one of the most commonly notified of all communicable diseases. The Brisbane Inner statistical area had the largest number of notifications for all notifiable sexually transmitted infections in 2015, with 906 notifications.

Mental health

The prevalence of **mental health** issues has increased over the last five years, particularly among younger residents of the region. Rates of **psychological distress** and estimated mental and behavioural disorders are highest in Moreton Bay North and Redcliffe-North Lakes.

Deaths from suicide in the region are higher than the Australian average, particularly among males. The rate of deaths from suicide in parts of the Moreton Bay North, Redcliffe – North Lakes and Brisbane Inner City sub regions is of considerable concern.

Health services

Health services in the region include, but are not limited to general practice, public and private hospitals, allied health, private specialists, pharmacies, community health services and Aboriginal and Torres Strait Islander health services. There is also a range of community health providers and non-government organisations in the region who deliver health care to the population.

Health care is generally divided into three main types, primary health care, secondary care and hospital care, which includes emergency care.

Primary care

There are 304 **general practices** that provide the majority of primary healthcare services in the region and they are distributed similarly to the region's population; however, there are service gaps particularly in Moreton Bay North. General Practitioners (GPs) in Moreton Bay North tend work longer hours than the regions average and are often required to care for patients with more complex needs due to the health status and risk factors for these sub regions.

The full time equivalent (FTE) rate for general practitioners in the region is 116.8 FTE per 100,000 people, which is higher than the Australian rate of 110.6 FTE per 100,000 people. Across the region:

- on average, residents **visited** a GP just under six times in 2014-15, an increase from 5.3 visits in 2011-12
- the number of visits to a GP ranges from 4.3 attendances at the Sherwood – Indooroopilly and Brisbane Inner – West statistical areas to 7.2 attendances in the Bribie – Beachmere statistical area
- the average number of **after-hours** GP attendances 2013-14 was 0.35 per person (age standardised)
- an estimated 11 per cent of the population are frequent or very high GP attenders, accounting for approximately 41 per cent of non-hospital Medicare expenditure in 2012-13
- between 2012-13 and 2014-15, approximately six per cent of the population commenced a GP chronic disease management plan and four per cent were on a GP mental health treatment plan
- in 2014-15 there were 6202 **Aboriginal and Torres Strait Islander health assessments** delivered in the region. This was an increase of 12.1 per cent from 2011-12, with the greatest percentage increase of 85.8 per cent in the Strathpine statistical area.

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In 2014-15, 78.4 per cent of GP attendances were **bulk billed** in the region, less than the national average of 84.3 per cent, however:

- bulk billing rates increased in line with the national increase of 4.3 per cent since 2011-12
- bulk billing rates varied 35 per cent across the region with Brisbane Inner – West at 58.2 per cent compared to Bribie – Beachmere and Caboolture at 93.2 per cent.

Hospital and emergency care

Emergency care

In 2015-16, there were approximately 280,000 **emergency department presentations** at the regions public hospitals:

- approximately 40 per cent of all emergency department presentations occurred after hours
- over one third of presentations were identified as potentially preventable
- mid-morning between 9am and 11 am and early evening between 5pm and 8 pm were the most common hours of category four and five non admitted emergency presentations
- the major age group represented in the category four and five non admitted presentations are the 15-24 years, 25-34 years and 5-14 years with 19.4, 16.8 and 14.5 per cent respectively
- the most common diagnosis for category four and five non admitted presentations pertained to an injury, poisoning and certain other consequence of external causes including burns.

Hospital usage

The region has a number of quaternary, tertiary and secondary public and private hospitals. In 2014-15 of the over 420,000 hospital separations (discharges) 86.7 per cent of these separations were for residents who live in the region:

- over the past five years' hospital separations for residents increased by 23.7 per cent, with 26 per cent growth in public hospitals and 21.7 per cent in private hospitals
- the region's residents attend private hospitals marginally more than public hospitals with 51.5 and 48.5 per cent respectively
- Gastrointestinal services (11 per cent), renal services (9.5 per cent), orthopaedics (7.2 per cent) and cancer services (7.1 per cent) had the highest volume of hospital services for our residents
- the fastest growing services for residents admitted to hospital from 2010-11 to 2014-15 were rehabilitation (59.3 per cent), neurology (55.9 per cent), endocrinology (54.3 per cent) and geriatric management (52.3 per cent).

Residents of the region were more likely to use hospital services than the Queensland average utilisation rate (100) with an overall **relative utilisation** rate of 103.2. Private hospital relative utilisation and public hospital relative utilisation differed across the region with an average relative utilisation rate for private hospitals at 116.9 and 93.3 for public hospitals.

- Moreton Bay North and Redcliffe – North Lakes had higher rates of public hospital relative utilisation, with rates of 125.7 and 123.3 respectively
- Geriatric management, rehabilitation, and mental health services had the highest total relative utilisation rates in the region with 164.1, 150.3 and 145.9 respectively
- Maxillofacial surgery, palliative and general surgery, had the lowest total relative utilisation in the region with 73.2, 86.7 and 88 respectively.

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Potentially preventable hospitalisations for chronic conditions and acute/ vaccine preventable conditions accounted for six per cent of all hospital admissions within the region in 2013-14:

- the top three preventable conditions were cellulitis, chronic obstructive pulmonary disease (COPD) and dental conditions
- chronic conditions accounted for more than 10,800 potentially preventable hospitalisations
- acute/vaccine preventable hospitalisations accounted for 13,000 hospitalisations.

In 2015-16, 953 individuals were identified as **frequent presenters** (more than five overnight hospitalisations within a financial year). These individuals generated 6209 separations and occupied 34,900 bed days:

- the most common reasons for admission was for respiratory and cardiac conditions
- approximately 70 per cent of frequent presenters were aged 50 years and over, with one in three over aged 70 years and over
- Redcliffe Hospital had the highest number of frequent presenters with 2563 separations.

Each sub region is aligned to a specific hospital catchment with differing self-sufficiency levels. The region's residents have access to most hospital services locally, with 87.9 per cent of residents receiving their hospital care within the region. Self-sufficiency rates differ for adults and children with public self-sufficiency rates of 54.6 per cent for children, reflecting the flows of children to Children's Health Queensland services, compared to 91.2 per cent for adults.

- 74.8 per cent of Brisbane Inner City and 71.0 per cent of Brisbane West residents received their public hospital care at RBWH
- 41.8 per cent of Brisbane North residents and 39.1 per cent of Pine Rivers residents received their public hospital care at TPCH with 46.9 per cent and 44.7 per cent of residents respectively traveling to the RBWH to receive care
- for Redcliffe – North Lakes residents 51.1 per cent of adults and 49.4 per cent of children received their public hospital care at Redcliffe Hospital
- for Moreton Bay North residents 42.8 per cent of adults and 52.4 per cent of children received their public hospital care at Caboolture Hospital.

Non-admitted hospital care

In 2015-16, there were approximately 1,370,000 public non-admitted occasions of service, a 27 per cent increase from 2013-14 across the Metro North Hospital and Health Service:

- medical specialist consultations accounted for 33.5 per cent of non-admitted occasions of service and allied health and nursing clinics accounted for 32.4 per cent of non-admitted service events in the region's hospitals
- the RBWH provided 47.4 per cent of all non-admitted service events in 2015-16.

Secondary care

Specialists

In 2014-15, there were 0.84 specialist attendances per person in the region, which is comparable to the national average of 0.86 specialist attendance per person. In the region, specialist attendances per person varied from 0.5 in the Caboolture Hinterland to 1.1 in the Brisbane Inner – West area. The specialist workforce is mal-distributed throughout the region with the majority located within the inner metropolitan sub regions.

Aged Care

There were 21 **home care places** per 1000 people aged 65 years and over in the region, consistent with national rate of 20 home care places per 1000 people aged 65 years and over. Within the region, the number of home care places varied from zero places in the Hills District to 360 places in the Caboolture statistical area.

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Residential aged care places are more common than home care packages with 2.7 residential aged care places to every home care place in the region:

- the regional average of 58 residential aged care places per 1000 is slightly more than the national rate of 54
- the distribution of residential care places is varied across the region with 145 places per 1000 people in the Brisbane Inner area compared to Bribie-Beachmere of 18 places per 1000 people
- there were over 280,000 GP services delivered in a residential aged care in the region between 2012 and 2015.
- In the region, the proportion of the population aged 65 years and over who have unmet needs for one to four activities ranges from 1.5 per cent of the population in the Kenmore – Brookfield - Moggill statistical area to 3.3 per cent of the population in the Sandgate and Caboolture statistical areas.

Health workforce

The registered health workforce in the region was estimated to be 23,547 people in 2014, with the most common profession (registered nurses) comprising 45.5 per cent of the total registered health workforce:

- 57.5 per cent of all registered health practitioners are located in the Brisbane North and Brisbane Inner City, with 28.8 and 28.7 per cent respectively
- in the region, there was an average of 445.6 full time equivalent medical practitioners per 100,000 people, which is higher than the Australian rate of 370.3 FTE per 100,000
- in general, allied health professions FTE rates per 100,000 people were generally higher than the national FTE rate, with the exception of osteopaths
- the Brisbane Inner statistical area has the highest allied FTE rates per 100,000 people
- nurse and midwife FTE rates are consistent with the national FTE rates at 1095.4 FTE per 100,000 people to the national average of 1012.3 FTE per 100,000 people.

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Table 1: Summary by sub region

Chapter	Brisbane Inner City	Brisbane North	Brisbane West	Pine Rivers	Redcliffe – North Lakes	Moreton Bay North	The region
Population	181,413 people	211,598 people	133,656 people	126,123 people	151,366 people	153,443 people	**957,599 people**
Hospital catchment	Royal Brisbane and Women's Hospital	The Prince Charles Hospital	Royal Brisbane and Women's Hospital	The Prince Charles Hospital	Redcliffe Hospital	Caboolture Hospital	
Health risk	Rates of health risk comparable or better than the region and state	Rates of health risk comparable or better than the region and state	Experiences the lowest rates of obesity, smoking and alcohol consumption in the region	Experiences the highest rates of overweight in the region	Experiences the second highest rates of obesity, smoking and alcohol consumption in the region	Experiences the highest rates of obesity, smoking and alcohol consumption for the region	**As a region health risk factors are on par or compare favourably to the state**
Health status	Prevalence of health conditions and burden of disease comparable or better than the region	Prevalence of health conditions and burden of disease comparable to the region	Low prevalence of health conditions and burden of disease. Mortality is low in Kenmore-Brookfield-Moggill, and Sherwood Indooroopilly	Low prevalence of health conditions, burden of disease Mortality is low in the Hills District but high in Strathpine	High prevalence of health conditions, burden of disease and mortality	High prevalence of health conditions, burden of disease and mortality	**Across a range of health status indicators, in general the region is comparable to the Queensland population**

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Chapter		Brisbane Inner City	Brisbane North	Brisbane West	Pine Rivers	Redcliffe – North Lakes	Moreton Bay North	The region
Service use	Primary	Low service rates compared to the region and lowest bulk billing rates	Service use and bulk billing comparable to the regional average	Lowest rates of service use and among the lowest local areas for bulk billing	Higher rates than the region for service use and bulk billing	High service use and likelihood of bulk billing	Highest service use and likelihood of bulk billing in the region	**6% growth in GP attendances per person from 2011-12 to 2014-15** **Bulk billing rates increasing but still less than the national rates**
	Acute – Public	Relative utilisation rate was among the lowest of local areas and less than state admission rates for adults and children	Relative utilisation rate for adults and children were on par to the state admission rate	Relative utilisation rate was the lowest of local areas and less than state admission rates	Relative utilisation rate was less than state admission rate for adults and equivalent to state for children	Relative utilisation rate was the second highest in the region for adults and children and is above state rate	Highest relative utilisation rate for this region and above state rate for adults and children	**Overall relative utilisation rate compare favourably to the state**
	Acute - Private	Relative utilisation rate was greater than state rate and amongst the highest of local areas with highest rate for children	Relative utilisation rate for adults and children were above state rate	Relative utilisation rate was the highest of local areas and above state	Relative utilisation rate for adults and children were above state rate	Relative utilisation rate was the second lowest in the region for adults and children and is below state rate	Lowest relative utilisation rate for this region and below State rate for adults and children	**Overall relative utilisation rate compare above state admission rate**

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Structure

This report is structured as follows:

1. Our region: Details the population characteristics including geographical catchment, demographics and social determinants
2. Health risk: Describes the health behaviours of the region including diet and exercise, smoking and alcohol consumption
3. Health status: Includes measures of functioning, physical illness, and mental wellbeing
4. Service use: Describes the healthcare services accessed and used by residents.

Figure 1: Report structure

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Our region

The geographical catchment shared by the PHN and HHS covers areas north of the Brisbane River including parts of the Brisbane City Local Government Area, Moreton Bay Local Government Area and parts of the Somerset Local Government Area (Kilcoy).

The region is home to over 960,000 residents and is projected to increase to over 1,200,000 residents by 2036. Over 14,000 people of Aboriginal or Torres Strait Islander descent live in the region, representing 1.7 per cent of the region's total population as at 2011. In the region, one in five (20.1 per cent) residents were born overseas (189,128 people).

While there are pockets of social disadvantage across the entire region, the sub regions of Pine Rivers, Moreton Bay North and Redcliffe - North Lakes demonstrate significantly higher levels of socioeconomic disadvantage, poorer health outcomes and more limited access to health services when compared to the other sub regions.

Education, employment, income and housing influence an individual's health and the health of communities. The unemployment rate is 5.2 per cent across the region and almost one in four children (23.7 per cent) are developmentally vulnerable.

The median household income per annum in the region is nearly $90,000 however; there is significant variation across the sub regions, with Moreton Bay North having the lowest median household income per annum. Brisbane Inner City has the highest median income ($124,052), which is nearly double that of Moreton Bay North ($66,908).

One third of low income householders[1] in the PHN region experience either rental or mortgage stress, with the highest rate in the Moreton Bay North sub region. Approximately 2730 people are homeless in the region with this number concentrated in Brisbane Inner City sub region (1229 people).

Further details of these indicators are provided in this chapter.

Sub regions

To facilitate effective planning for the PHN and the HHS, six geographic sub regions have been determined. These sub regions draw on both hospital catchment areas, and PHN planning regions based on the Statistical Areas level three (SA3) which are the Australian Statistical Geography Standard (ASGS) developed by the Australian Bureau of Statistics (ABS).

The six sub regions are[2]:

1. **Brisbane Inner City - Population: 181,413 people (Royal Brisbane and Women's Hospital catchment)**

The Brisbane Inner City sub region is located in the Brisbane City Council and bordered by Alderley in the north, Ascot in the east to Auchenflower in the west. The Brisbane Inner City sub region is serviced by the Royal Brisbane and Women's Hospital.

[1] Low income households are defined as within the lowest 40 per cent of the income distribution
[2] All sub region population are sourced from ABS 2016

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Brisbane Inner City comprises of the following statistical areas (SA3):

- Brisbane Inner – North
- Brisbane Inner – West
- Brisbane Inner[3].

2. Brisbane North – Population: 211,589 people (The Prince Charles Hospital catchment)

The Brisbane North sub region is located in the Brisbane City Council stretching from Brighton in the north, Virginia in the east and Everton Park in the west. Residents of this region are serviced by The Prince Charles Hospital.

Brisbane North comprises of the following statistical areas (SA3):

- Sandgate
- Bald Hills – Everton Park
- Chermside
- Nundah.

3. Brisbane West – Population: 133,656 people (Royal Brisbane and Women's Hospital catchment)

The Brisbane West sub region is in the Brisbane City Council ranging from St Lucia to Moggill in the west, and to Upper Kedron and Ferny Grove in the north.

Residents of this region are serviced by the Royal Brisbane and Women's Hospital.

Brisbane West comprises of the following statistical areas (SA3):

- The Gap – Enoggera,
- Sherwood – Indooroopilly[4]
- Kenmore – Brookfield – Moggill.

4. **Pine Rivers – Population: 126,123 people (The Prince Charles Hospital catchment)**

The Pine Rivers sub region is in the Moreton Bay Regional Council ranging from Dakabin in the north, Strathpine in the east and the Hills District in the west. Residents of this region are serviced by The Prince Charles Hospital.

Pine Rivers comprises of the following statistical areas (SA3):

- Strathpine
- Hills District.

5. Redcliffe – North Lakes – Population: 151,366 people (Redcliffe Hospital catchment)

The Redcliffe – North Lakes sub region is also within the Moreton Bay Regional Council. Residents of this region area serviced by the Redcliffe Hospital.

Redcliffe – North Lakes comprises the following statistical areas (SA3):

- Redcliffe
- North Lakes
- Narangba-Burpengary (38 per cent) [5].

[3] Parts of the Brisbane Inner SA3 falls outside of the region. A population based concordance split has been applied to this area where appropriate.

[4] Parts of the Sherwood – Indooroopilly SA3 fall outside of the region. A population based concordance split has been applied to this area where appropriate.

[5] Deception Bay SA2 aligned to Redcliffe – North Lakes with remained areas of Narangba – Burpengary SA3 aligned to Moreton Bay North.

6. **Moreton Bay North – Population: 153,443 people (Caboolture Hospital and Kilcoy Hospital catchment)**

The Moreton Bay North sub region is located in the Moreton Bay Regional Council and includes a small part of the Somerset local government area (LGA). It encompasses Kilcoy in the north and Bribie Island in the east. Residents of this region are serviced by the Caboolture Hospital and Kilcoy Hospital.

Moreton Bay North comprises the following statistical areas (SA3):

- Caboolture Hinterland
- Caboolture
- Bribie - Beachmere
- Narangba – Burpengary (62 per cent).

The sub regions and hospital catchments are depicted in the following maps. A map for the statistical areas level three used in this report is located in the appendix.

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Figure 2: PHN sub regions

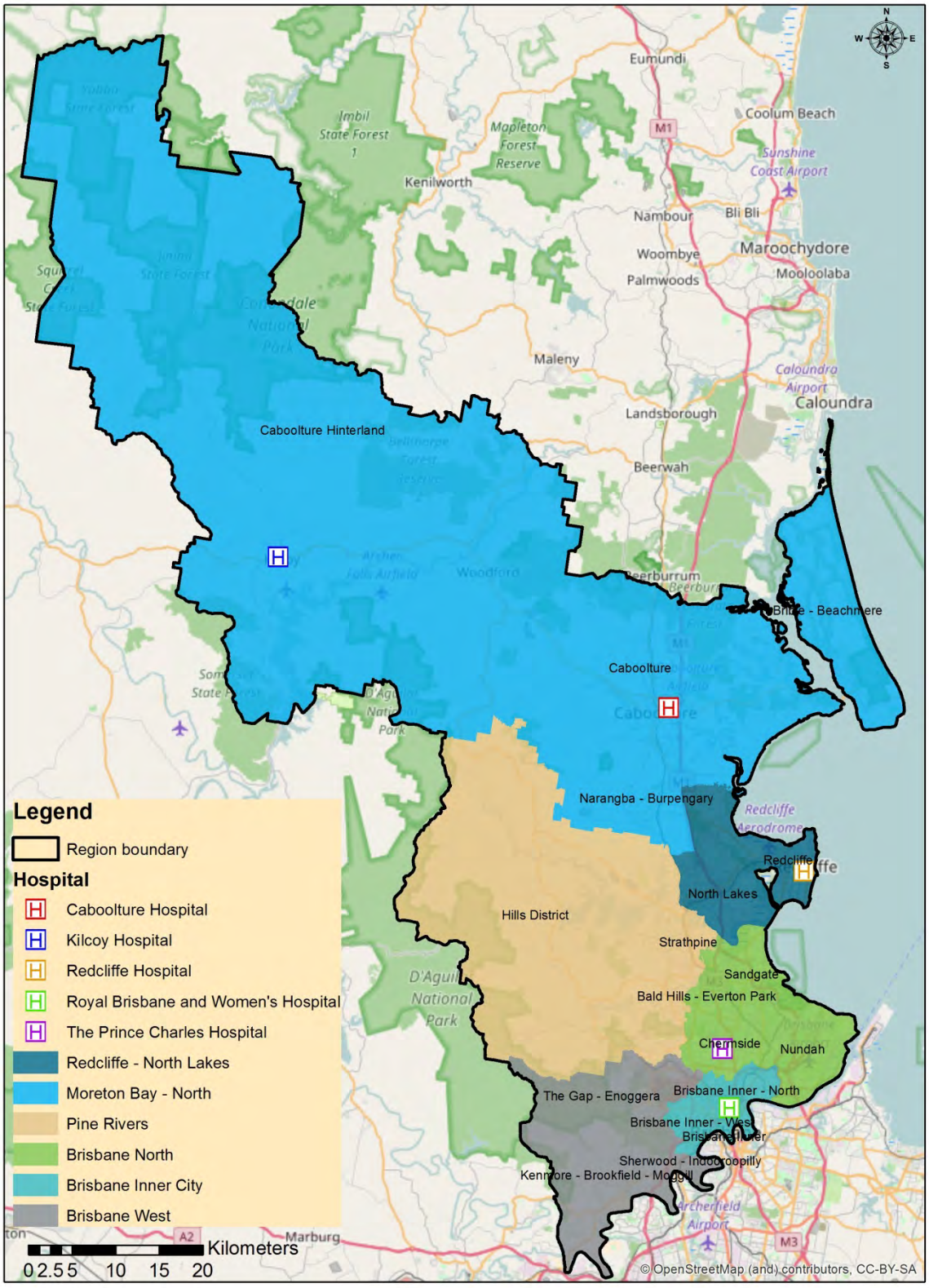

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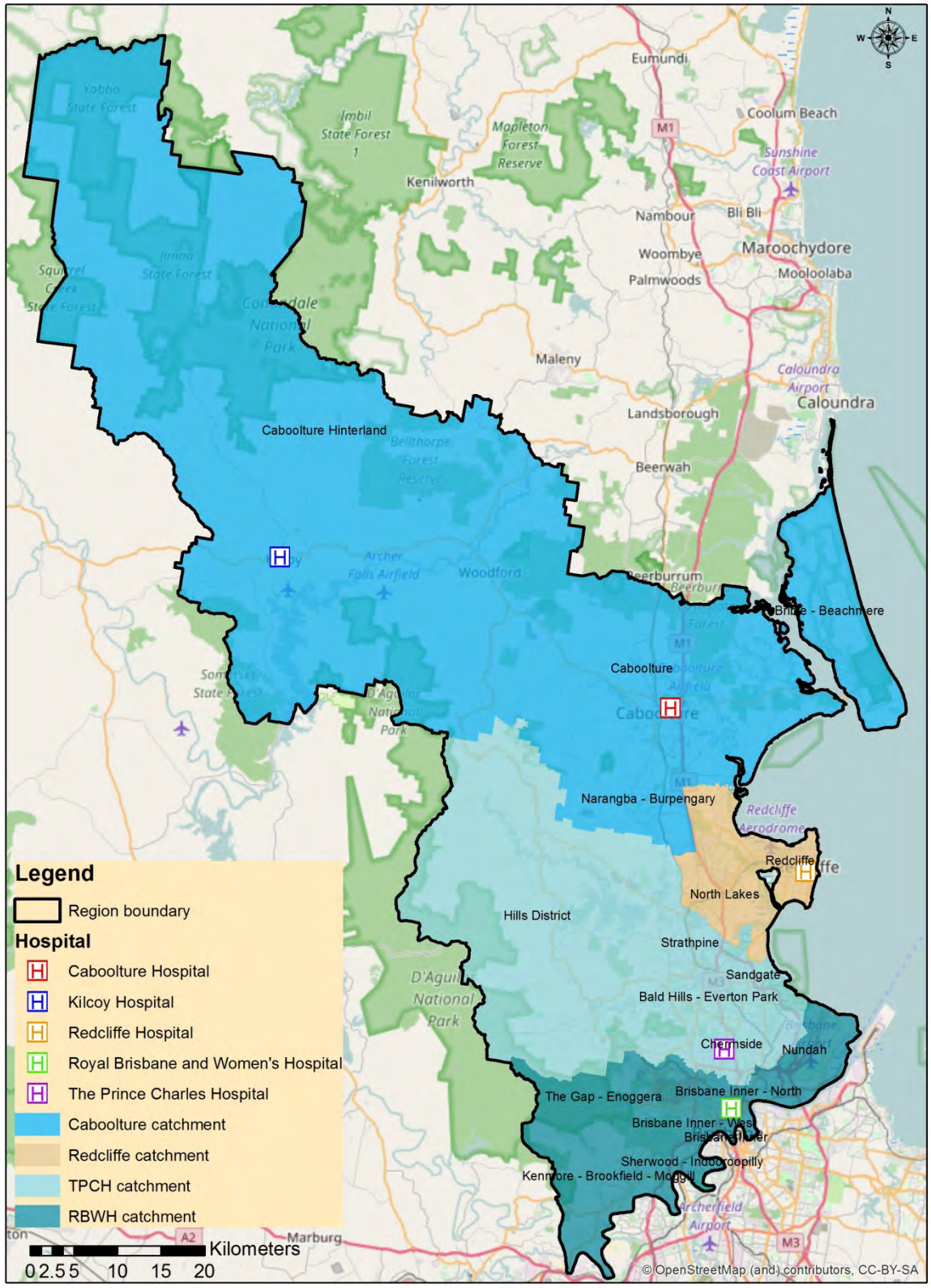
Figure 3: Hospital catchments



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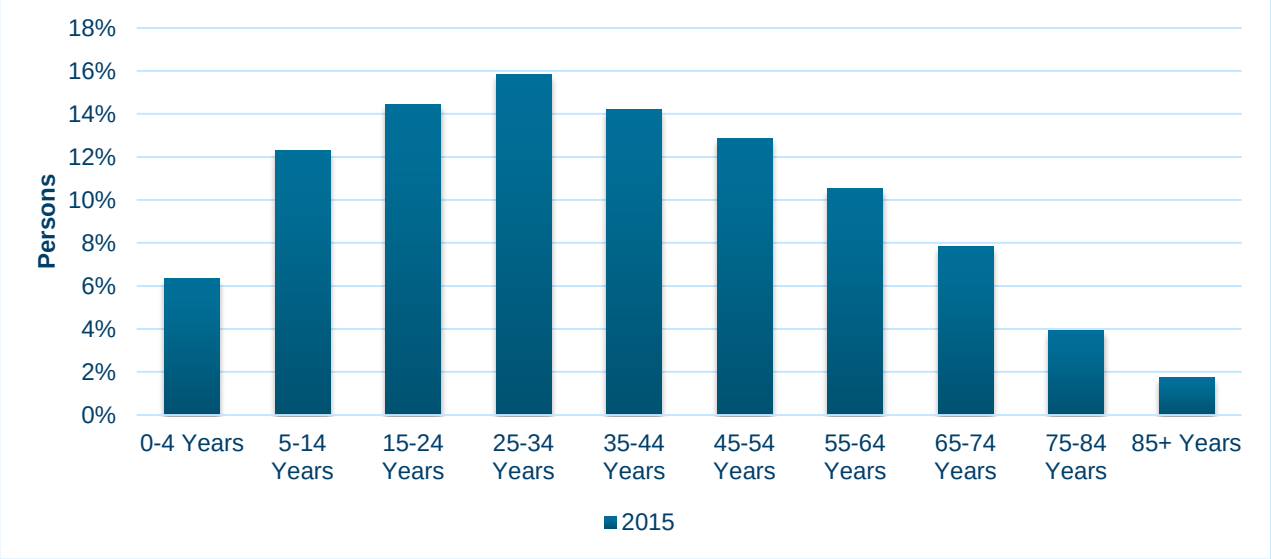
Demographics

Population

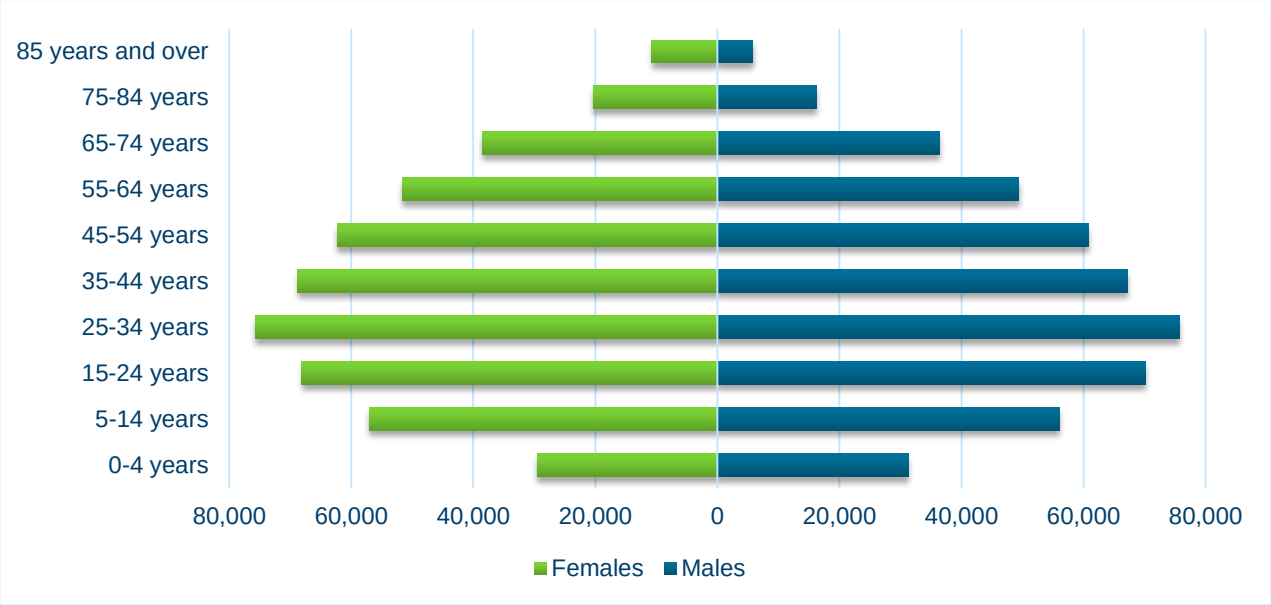
As of 30 June 2015, the estimated resident population for the region was 957,590 people. The largest age group within the region was aged 25 to 34 years (151,491 or 15.8 per cent). Almost a third (33.1 per cent or 316,999 people) were aged 24 years or below, as shown in Figure 4. The population of the region is ageing, with a higher proportion of people aged 65 years and older living in the region in 2015 when compared to 2010.

Figure 4: Distribution of persons by age group, 2015



There are slightly more females than males living in our region (483,040 females compared to 474,550 males as shown in Figure 5.

Figure 5: Age-sex distribution, 2015



Source: Australian Bureau of Statistics, 2016

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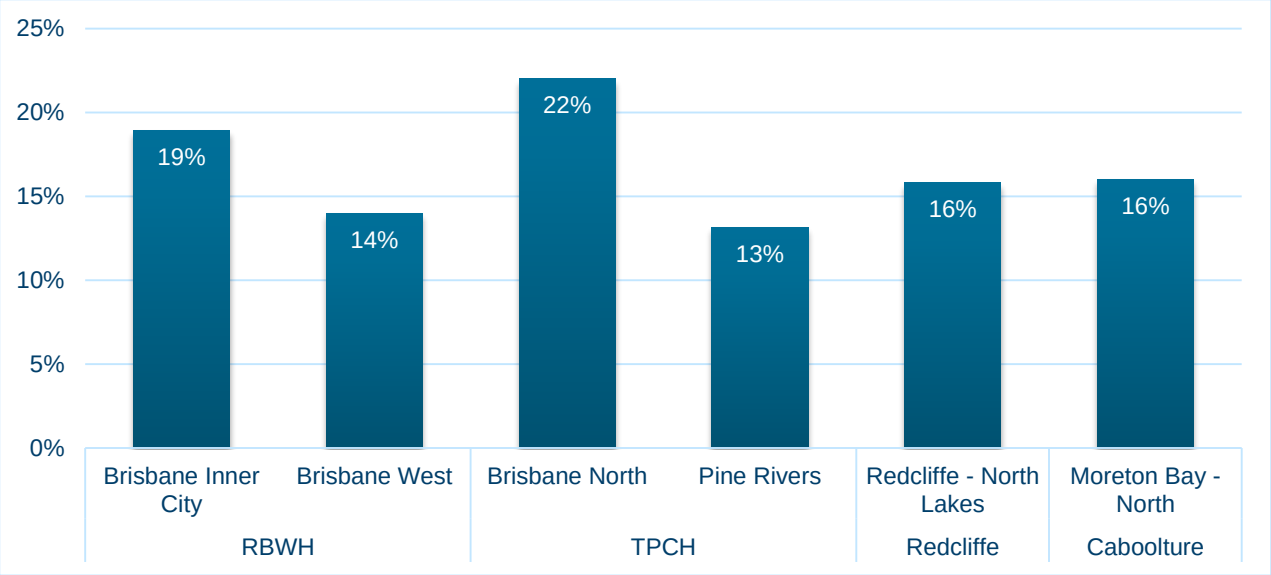
Brisbane North is the most populous sub region with a population of 211,589 people or 22 per cent of the total population, followed by Brisbane Inner City (181,413 people or 19 per cent).The Pine Rivers sub region(126,123 people or 13 per cent) and Brisbane West (133,656 people or 14 per cent) are the smallest sub regions. Figure 6 reports the population distribution for the six sub regions in 2015.

Figure 6: Population distribution by sub regions and hospital catchment, 2015



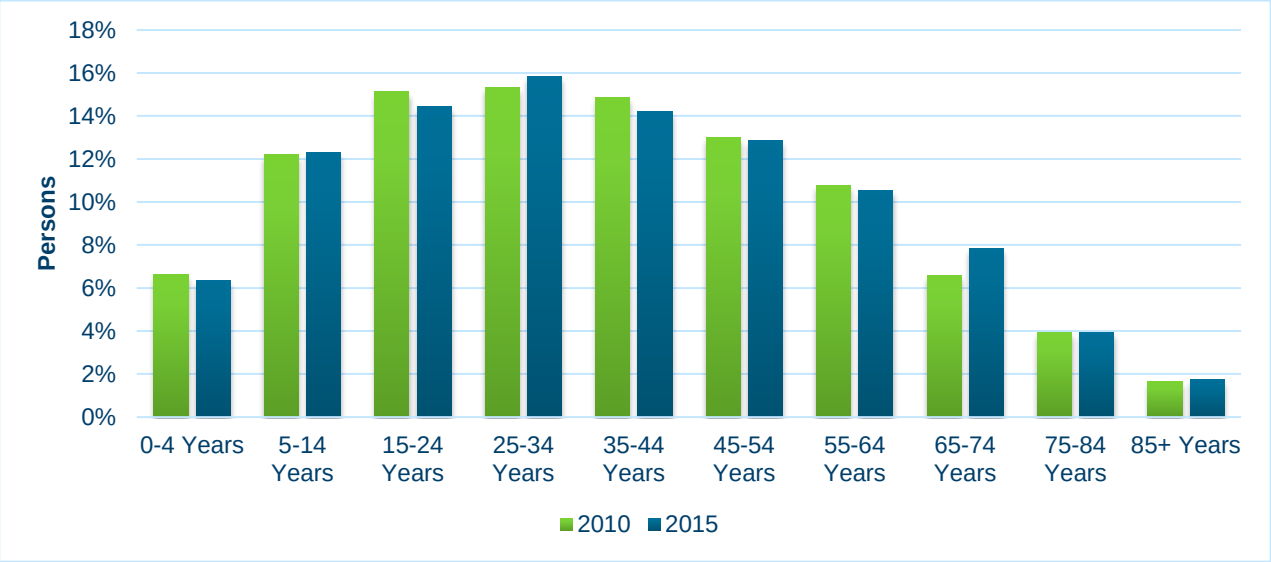
Source: Australian Bureau of Statistics, 2016

Historical growth from 2011 to 2015

Between 2011 and 2015 the region experienced a 7.6 per cent growth in population (67,384 people), from 890,206 people in 2011 to 957,590 people in 2015. The region's historical growth rate was higher than the Queensland growth rate of 6.7 per cent in the same period.

The age groups that experienced growth at the fastest growth rates were the 65 to 74 years age group (23.9 per cent, 14,372 people) and the 85 years and over age group (11.5 per cent, 1712 people). As seen in Figure 7 the population of the region is an ageing population, with a higher proportion of people aged 65 years and older living in the region in 2015 when compared to 2010.

Figure 7: Distribution of persons by age group, 2010 and 2015



Source: Australian Bureau of Statistics, 2016

Table 2 shows the historical growth rates from 2011 to 2015 and the percentage change for the region. Redcliffe – North Lakes experienced both the highest volume increase (17,497 people) and the highest

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percentage change in population in the region (13.13 per cent) from 2011 to 2015. This percentage change is above the rate for the region and Queensland at 6.75 per cent and 7.57 per cent respectively. While Moreton Bay North also experienced a rate that was above the region and Queensland averages, Brisbane Inner City experienced a growth rate of 7.23 per cent which was higher than that of the region between 2011 and 2015.

Table 2: Historical growth and percentage change 2011 to 2015

Hospital catchment	Sub region	2011	2015	change	Percentage change
RBWH	Brisbane Inner City	169,183	181,413	12,230	7.23%
RBWH	Brisbane West	127,484	133,656	6,172	4.84%
TPCH	Brisbane North	198,482	211,589	13,107	6.60%
TPCH	Pine Rivers	119,938	126,123	6,185	5.16%
Caboolture	Moreton Bay North	141,818	154,011	12,193	8.60%
Redcliffe	Redcliffe - North Lakes	133,301	150,798	17,497	13.13%
Queensland		**4,476,778**	**4,778,854**	**302,076**	**6.75%**
Region		**890,206**	**957,590**	**67,384**	**7.57%**

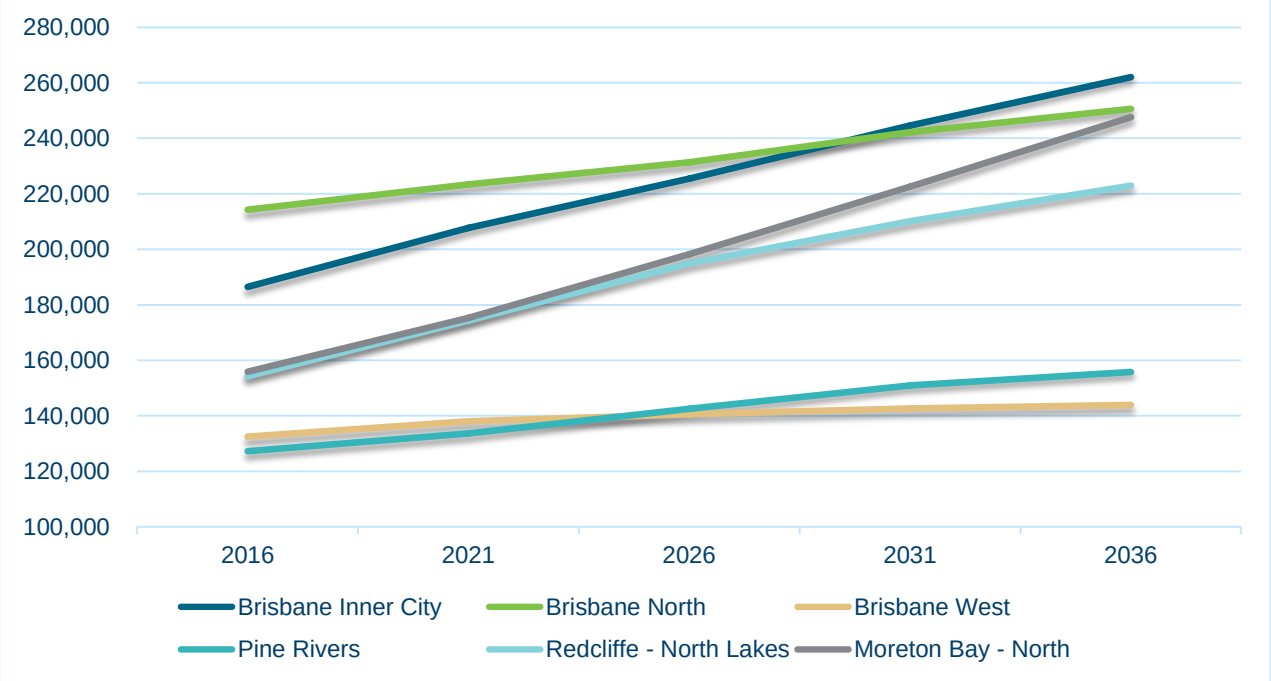
Source: Australian Bureau of Statistics, 2016

Population projection from 2016 to 2036

From 2016 to 2036, the population for the region is projected to increase from 970,971 people to 1,283,087 people. This is a 32 per cent increase (312,116 people) (Queensland Government Statistician's Office, 2015).

The projected population growth for the sub regions is shown in Figure 8.

Figure 8: Projected population growth from 2016 to 2036



Source: Queensland Government Statistician's Office 2016

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Table 3 shows the projected growth rates from 2016 to 2036 and the percentage change for the region.

Table 3: Projected population and percentage change 2016 to 2036

Sub region	2016	2036	Change	Percentage change
Moreton Bay North	155,951	247,628	91,677	58.8%
Brisbane Inner City	186,517	262,048	75,531	40.5%
Redcliffe - North Lakes	154,307	222,969	68,662	44.5%
Brisbane North	214,317	250,695	36,378	17.0%
Pine Rivers	127,321	155,823	28,502	22.4%
Brisbane West	134,476	143,924	11,366	8.6%
Queensland	**4,853,048**	**6,763,153**	**1,910,105**	**39.4%**
Region	**972,889**	**1,283,087**	**312,116**	**32.1%**

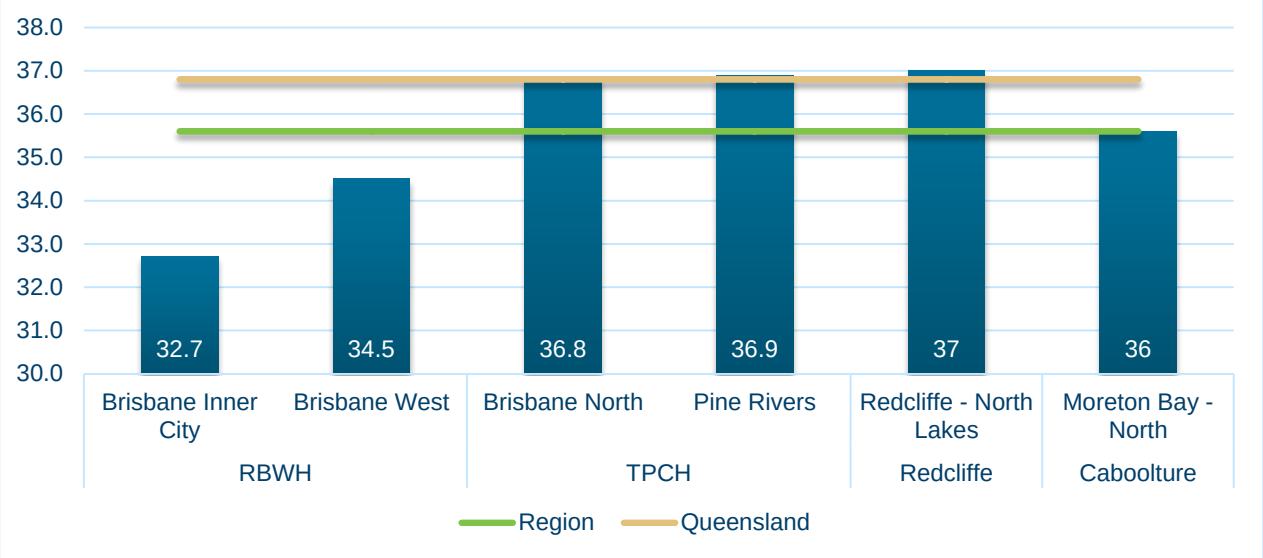
Source: Queensland Government Statistician's Office 2016

Moreton Bay North is expected to have the both the highest volume increase (91,677 people) and highest percentage change in population in the region (58.8 per cent) from 2016 to 2036. This percentage change is above the rate for the region and Queensland. Brisbane Inner City and Redcliffe – North Lakes also have rates above the region and Queensland at 40.5 per cent and 44.5 per cent respectively.

Median age

The median age of the population residing in the region is 35.6 years compared to Queensland at 36.8 years. A younger population resides in the Brisbane Inner City (32.7 years), with an older population residing in the northern sub regions as shown in Figure 9**.**

Figure 9: Median age of persons by sub region and hospital catchment, 2014



Please note that the y-axis starts at 30 years of age.

Source: Queensland Government Statistician's Office 2016

Within each sub region there is great variation in median age with Sherwood - Indooroopilly having the youngest median age (29.2 years) and Bribie - Beachmere having the oldest median age (52.8 years). The differences in median age are a reflection of the location of the universities where a predominant student population lives (Sherwood - Indooroopilly) and an area that is traditionally associated with retirees (Bribie - Beachmere) (Figure 10).

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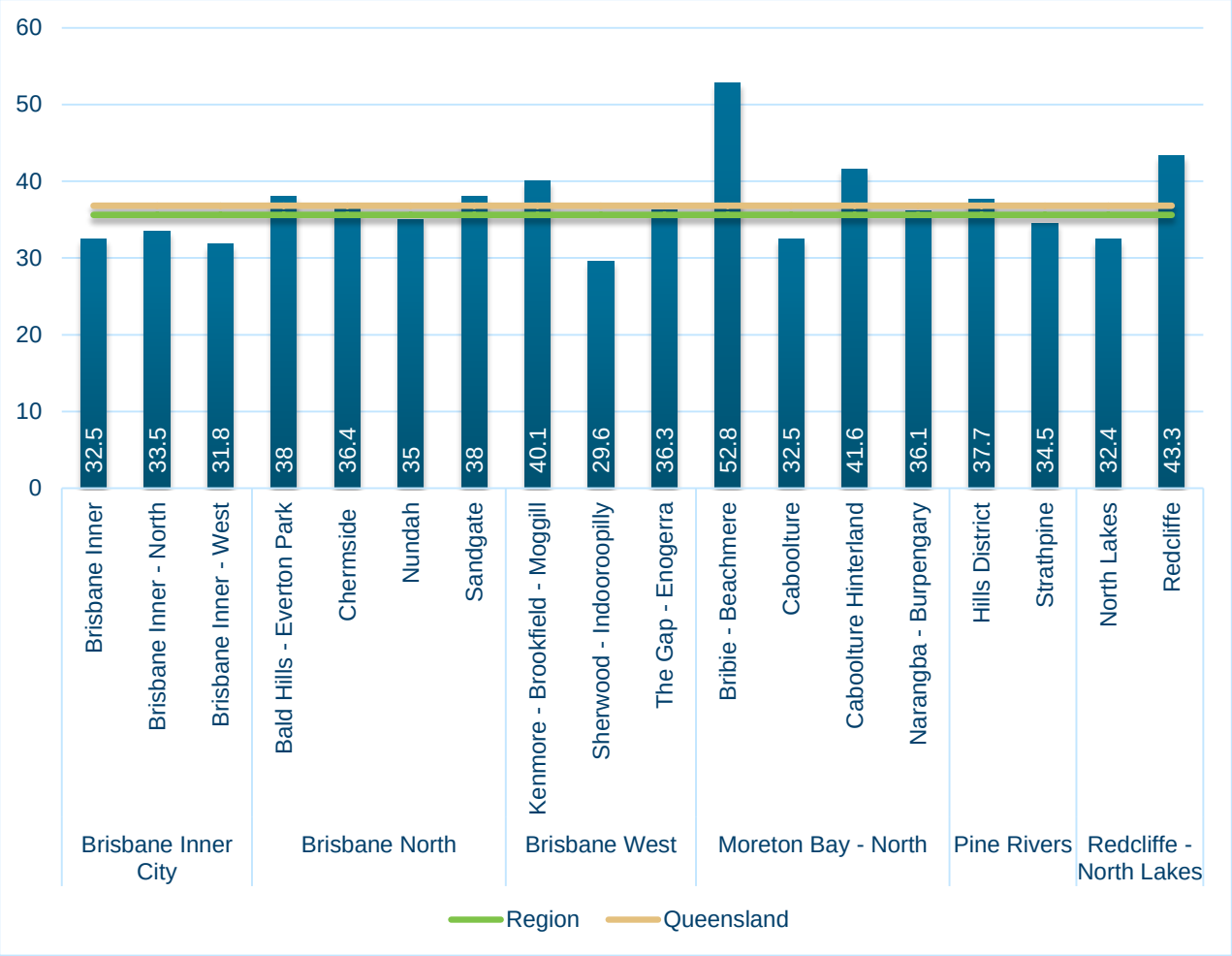
Figure 10: Median age of persons by statistical area level three, 2014



Source: Queensland Government Statistician's Office 2016

Aboriginal and Torres Strait Islander population

As of 2011, there were 14,611 people of Aboriginal and Torres Strait Islander descent in the region. This represents 1.7 per cent of the region's population. The Aboriginal and Torres Strait Islander population is largely concentrated in the northern area of the region, particularly in the Caboolture, Morayfield and Deception Bay areas. There are also population clusters within the North Lakes and Brisbane North statistical areas.

The Aboriginal and Torres Strait Islander population in the region is a younger population when compared to the general population, with more than half (55.6 per cent) aged less than 25 years. This is highlighted in Figure 11.

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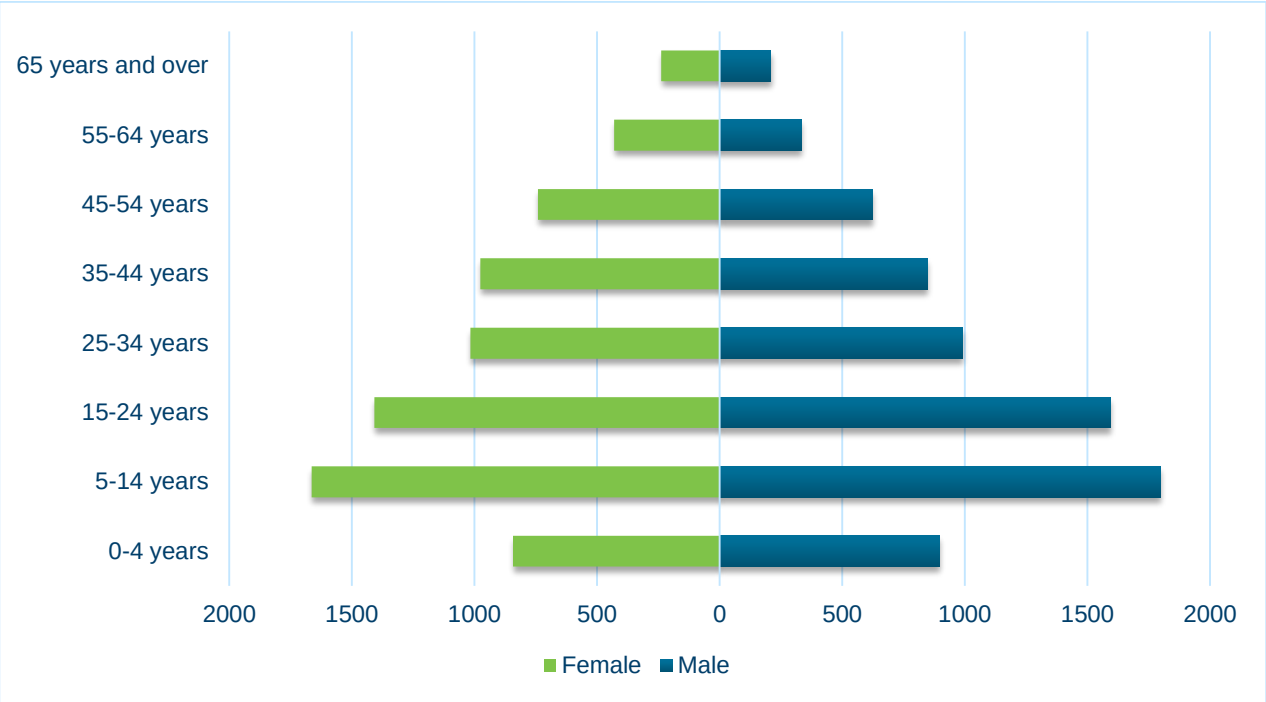
Figure 11: Aboriginal and Torres Strait Islander population, region, 2011



Source: Australian Bureau of Statistics, 2011

Culturally and linguistically diverse population

Country of birth

As of the 2011 Census, more than one in five people residing in the region were born overseas (189,128 people or 22.1 per cent) and this was a slightly higher rate than the Queensland figure (20.5 per cent) as at 2011. Previous research undertaken by the PHN has shown that, those from culturally and linguistically diverse populations and who speak a first language other than English, typically experience problems accessing and navigating health services which can negatively impact upon their health and wellbeing.

In 2011, more than 87,000 (10.2 per cent) people residing in the region spoke a first language other than English. This is higher than the Queensland rate of 9.5 per cent.

In the region, the largest population groups born overseas came from the United Kingdom (47,548 people) and New Zealand (35,080 people). While these population cohorts were evenly spread across the region, the highest number of people born in the United Kingdom and New Zealand reside in the Redcliffe – North Lakes sub region, as indicated in figure 12 below.

Within the region, the Brisbane North and Brisbane Inner City sub regions have a high number of residents who were born in a country where English is not the first language. People born in India most commonly resided in the Brisbane North sub region, followed by Brisbane Inner City, with a large number of people born in China also residing in the Brisbane Inner City, Brisbane West and Brisbane North sub regions. Figure 12 also indicates that the Brisbane North sub region is also home to a large number of people born in the Philippines.

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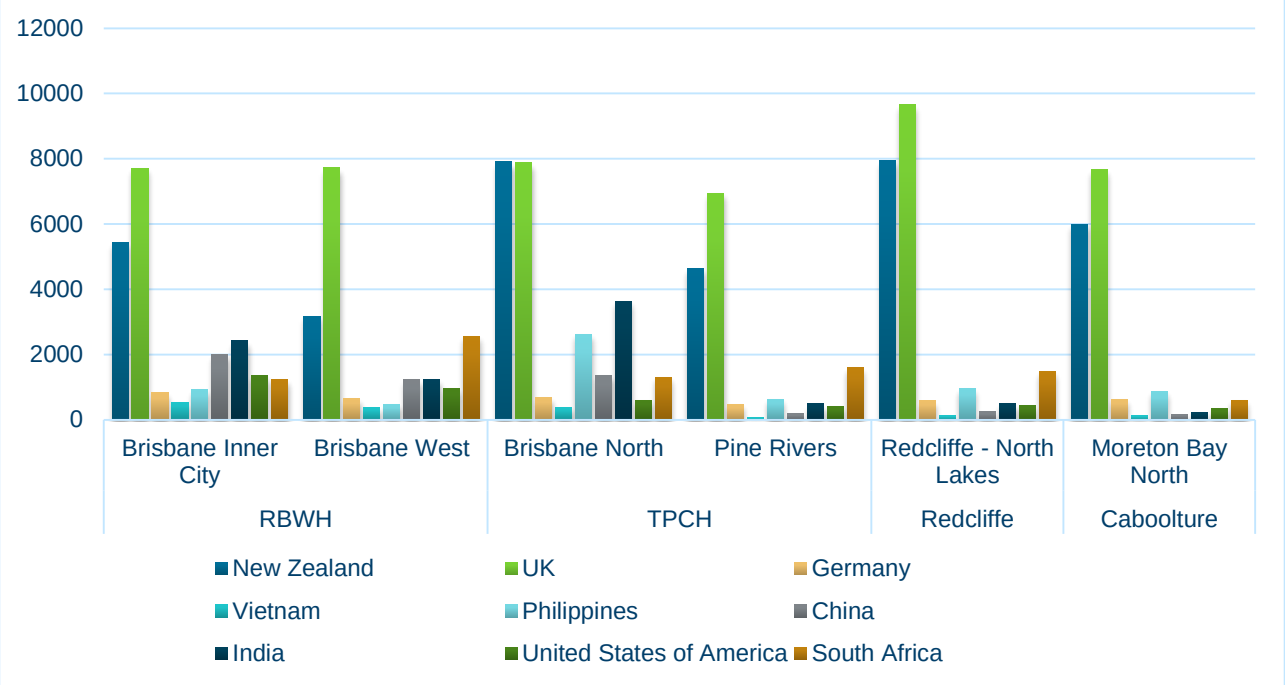
Figure 12: Country of birth, selected countries by sub region and hospital catchment, 2011



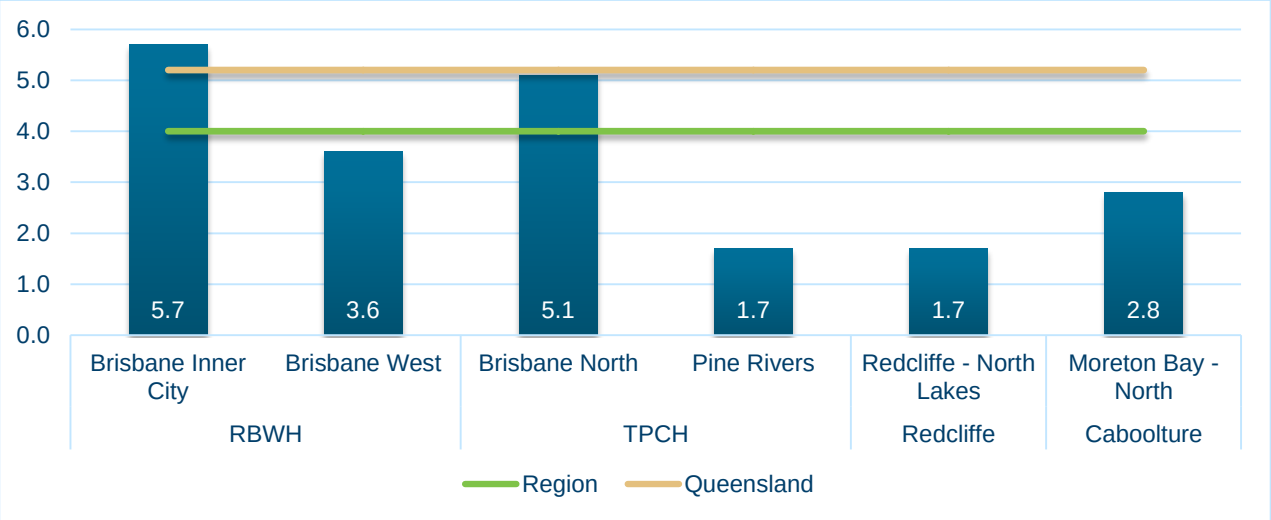
Source: Australian Bureau of Statistics, 2011

Proficiency in spoken English

In the region as of the 2011 Census, approximately one in three people who were born overseas (35.2 per cent or 66,618 people) said they spoke a language other than English at home, including 7152 (3.8 per cent) who said they spoke English 'not well or not at all'. This is similar to Queensland with 36 per cent of residents born overseas speaking another language at home and 5.2 per cent stating that they spoke English 'not well or not at all'.

Figure 13 highlights the distribution of the population who do not speak English well.

Figure 13: Speaks English 'not well or not at all' by respondents who are born overseas and speak a first language other than English by sub region and hospital catchment, 2011



Source: Australian Bureau of Statistics, 2011

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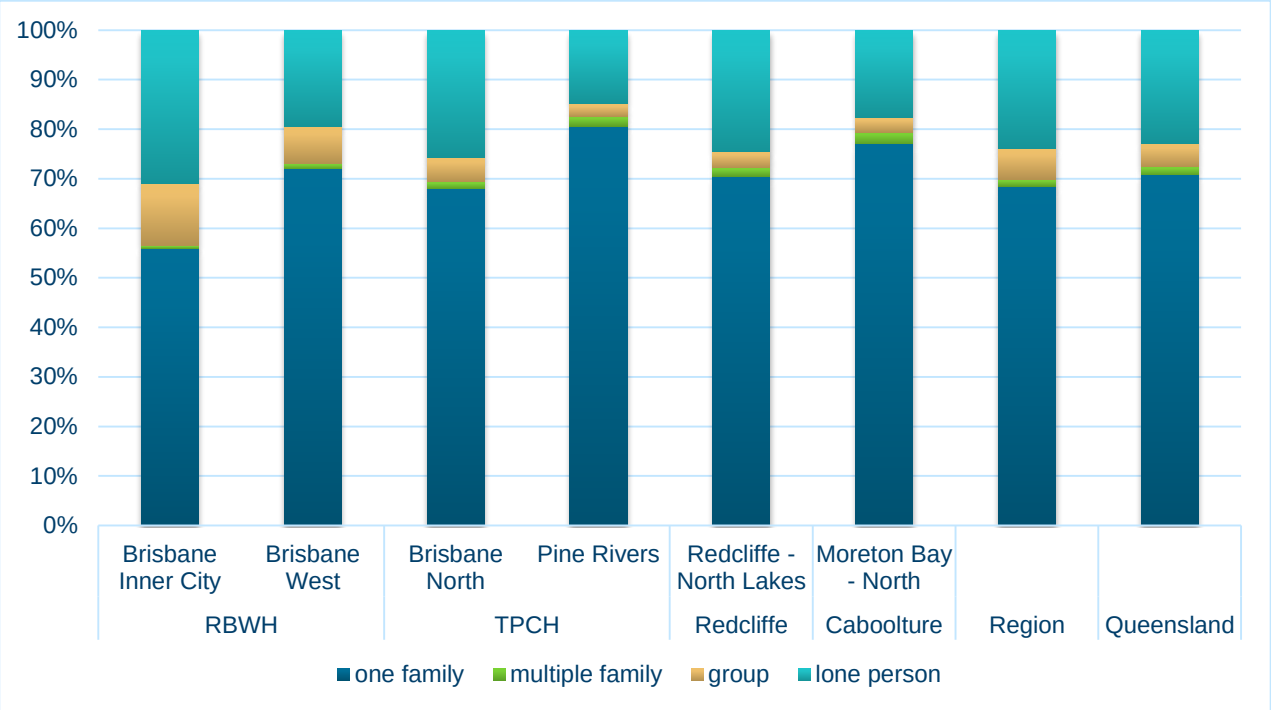
Household composition

The term ‘household’ refers to one or more person residing in the same private dwelling (Australian Bureau of Statistics, 2011). Family composition refers to two or more related people who usually live together.

In the region, there are 313,616 households with 69 per cent of households being ‘one family households’. Variation in household composition is shown in Figure 14 by region.

The largest proportion of one family household are located in the Pine Rivers sub region (81 per cent). There are more ‘group households’ (13 per cent) and ‘lone person households’ (31 per cent) in Brisbane Inner City.

Figure 14: Household composition by sub region and hospital catchment, 2011



Source: Queensland Government Statistician’s Office, 2015

Aboriginal and Torres Strait Islander household composition

Almost one quarter (24.7 per cent) of single family Aboriginal and Torres Strait Islander households in the PHN region are classified as one parent families, compared to one in ten (9.5 per cent) non-Indigenous households. Figure 15 highlights the household composition of single family households in the region. Aboriginal and Torres Strait Islander people in the PHN region are also more likely to reside in multiple family or group households (3.8 per cent multiple family and 8.3 per cent group households) when compared to the non-Indigenous population (1.4 per cent multiple family and 6.1 per cent group households). Fewer Aboriginal and Torres Strait Islander people reside in lone person households (12.4 per cent) compared to the general population (24.1 per cent).

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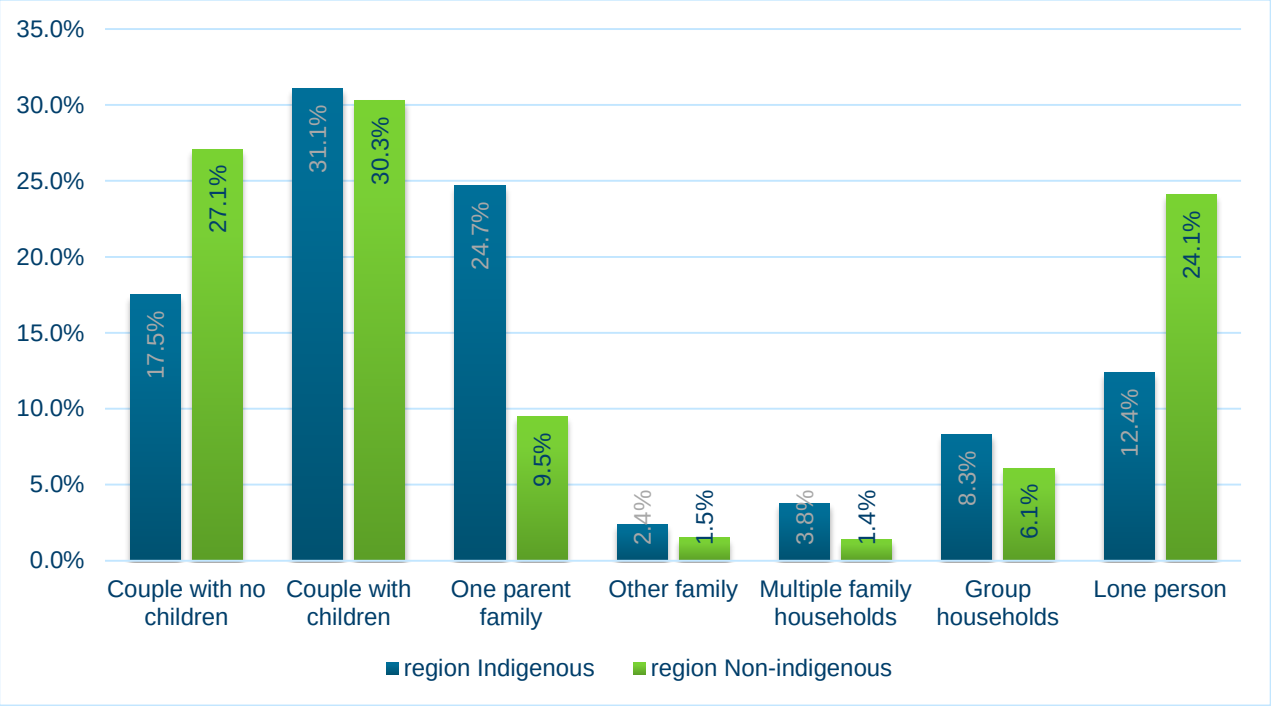
Figure 15: Household composition by Indigenous status, region, 2011



Source: Queensland Government Statistician's Office, 2016

Aboriginal and Torres Strait Islander people are also more likely to be living in unfavourable housing conditions, with 11.3 per cent of the Aboriginal and Torres Strait Islander households considered to be overcrowded, compared to 4.3 per cent of non-Indigenous households in the region (Queensland Government Statistician's Office, 2016).

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Social determinants of health

The social determinants of health recognise that factors including a person's income, occupation, education, social support networks and housing status can affect their health and contribute to the health status of communities (Australian Institute of Health and Welfare, 2014a). The World Health Organization (WHO) describes these social determinants as being responsible for health inequality.

Index of Relative Socioeconomic Disadvantage

The Index of Relative Socioeconomic Disadvantage (IRSD) is a general socioeconomic index that summarises a range of information about the economic and social conditions of people and households within an area. The IRSD includes the following variables:

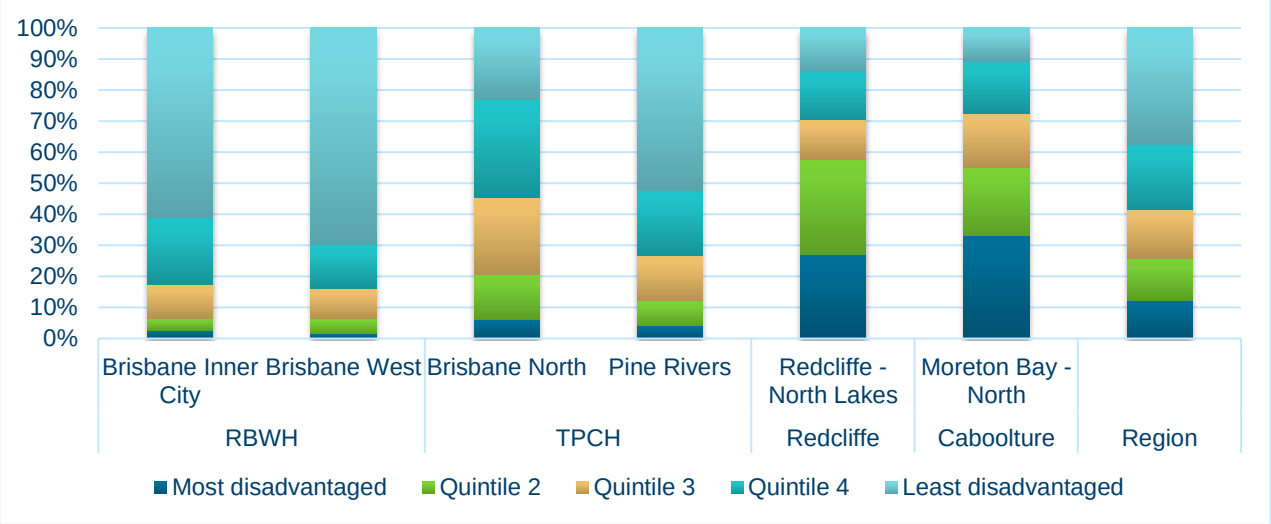
- educational attainment
- unemployment
- low incomes
- overcrowded living arrangements
- poor proficiency in English.

The IRSD is comprised of five quintiles with a low score indicating relatively greater disadvantage whilst a high score indicates a relative lack of disadvantage. The IRSD is a useful tool to assist in the assessment of the social determinants of health.

The region generally experiences low rates of socioeconomic disadvantage, with almost two in five people (37.6 per cent) residing in areas considered least disadvantaged. However, one in eight people in the region (12.2 per cent) reside in areas considered as most disadvantaged and these areas are not evenly distributed across the region. There are high rates of socioeconomic disadvantage present in the northern areas of the region, particularly in Redcliffe - North Lakes and Moreton Bay North planning areas.

One third of people (33.1 per cent) in Moreton Bay North live in areas considered most disadvantaged, along with 27 per cent of people in the Redcliffe - North Lakes sub region. Compared to these rates the other sub regions have low rates of people living in areas considered most disadvantaged with the next highest being Brisbane North at 6.3 per cent and Pine Rivers at 4.1 per cent. Rates of socioeconomic disadvantage for the region are shown in Figure 16.

Figure 16: Index of Relative Socioeconomic Disadvantage by sub region and hospital catchment, 2011



Source: Australian Bureau of Statistics, 2011

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Within the sub regions, there are five statistical areas where over one quarter of the population live in areas considered most disadvantaged:

- Bribie – Beachmere (48 per cent)
- Caboolture (47 per cent)
- Caboolture Hinterland (35 per cent)
- Redcliffe (30 per cent)
- Narangba – Burpengary (29 per cent).

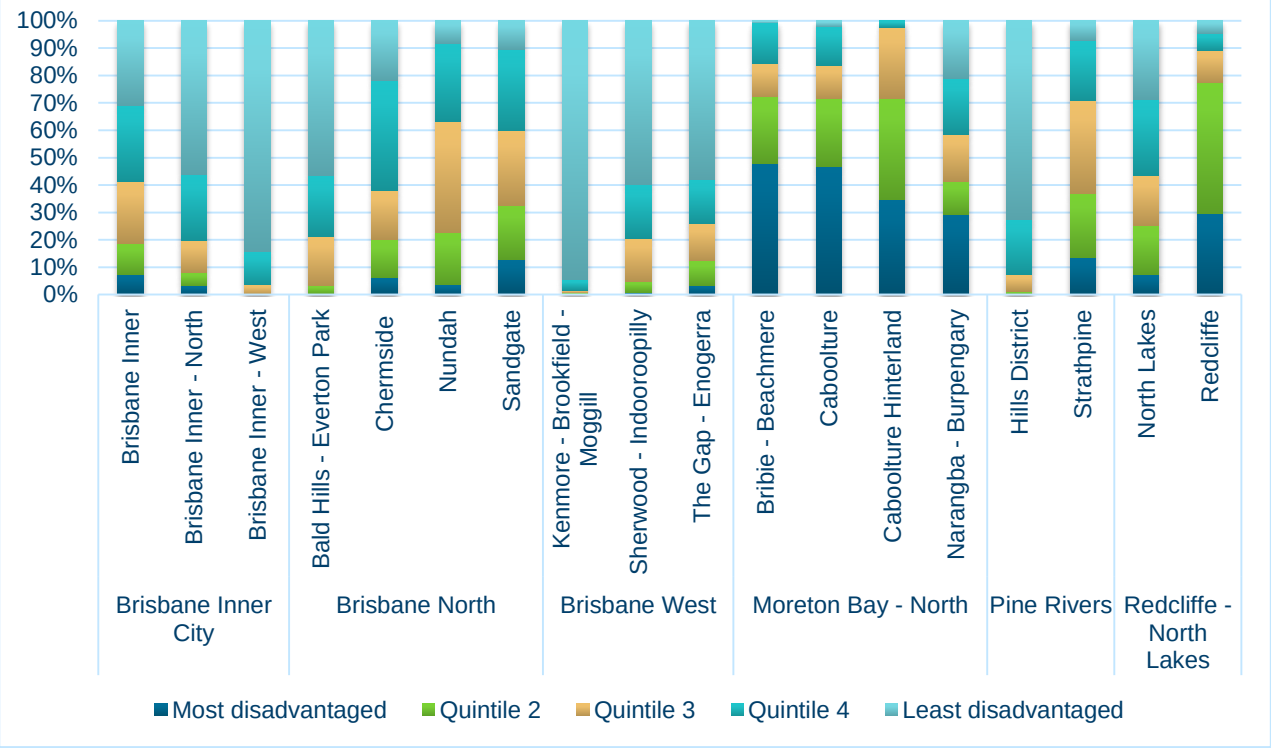
Conversely, there are seven statistical areas where 50 per cent or more residents are considered least disadvantaged.

- Brisbane Inner – North (56 per cent)
- Bald Hills – Everton Park (57 per cent)
- The Gap – Enoggera (58 per cent)
- Sherwood - Indooroopilly (60 per cent)
- Hills District (72 per cent)
- Brisbane Inner – West (84 per cent)
- Kenmore - Brookfield - Moggill (95 per cent).

More detail on IRSD by statistical areas can be seen in Figure 17.

Within these areas it is important to recognise that socioeconomic status is not evenly distributed and as a result, not all residents will reflect the assigned socioeconomic status of the area.

Figure 17: Index of Relative Socioeconomic Disadvantage by statistical area level three and sub region, 2011



Source: Australian Bureau of Statistics, 2011

Figure 18 overleaf shows the distribution of socioeconomic status throughout the region, using the socioeconomic index for areas (SEIFA). A SEIFA score is derived from the weighted combination of variables that comprise the IRSD, and averaged to one thousand (Australian Bureau of Statistics, 2013). A score of less than one thousand may indicate higher levels of socioeconomic disadvantage, whereas a score of more than one thousand may indicate lower levels of socioeconomic disadvantage.

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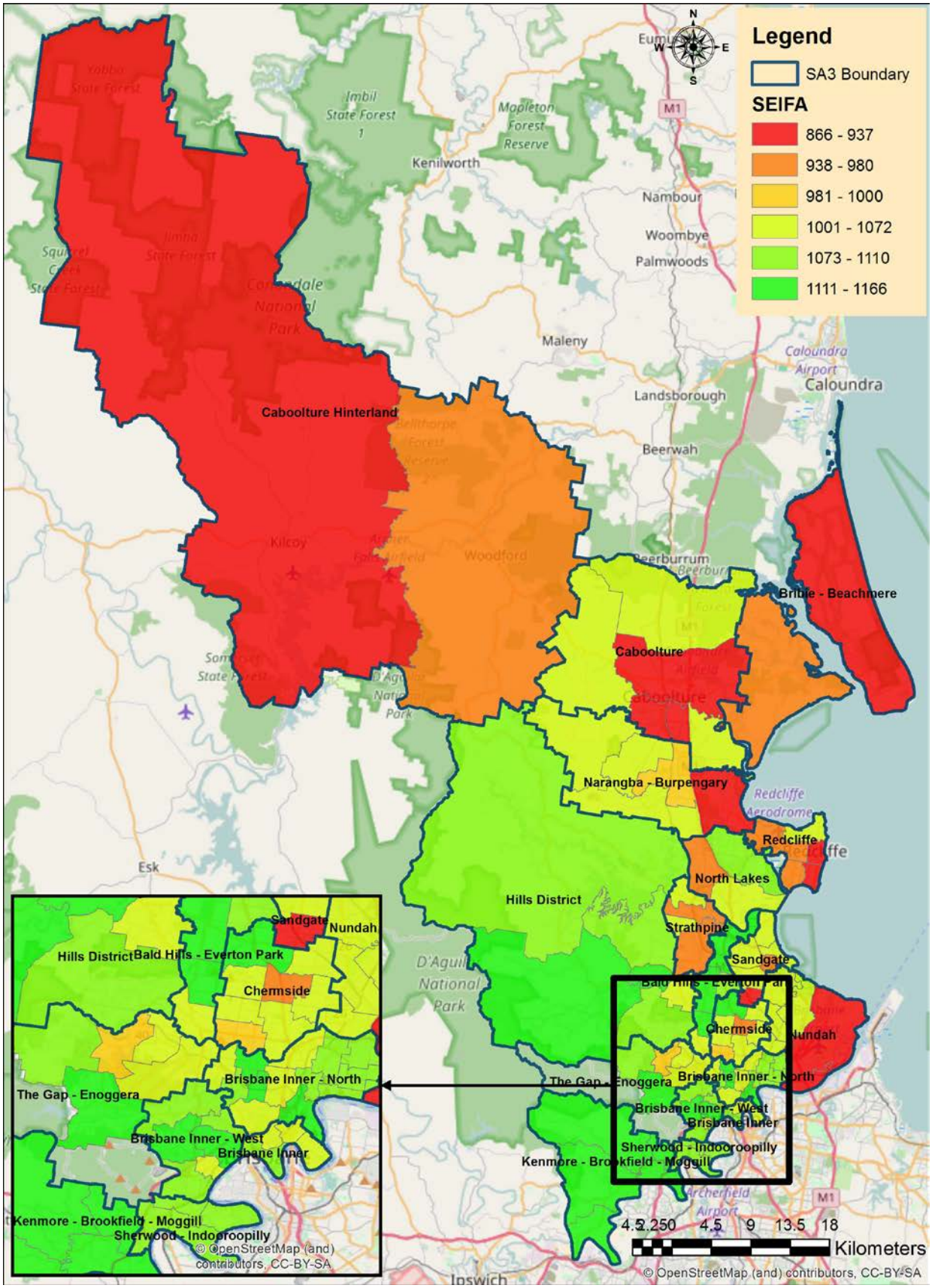
Figure 18: Socioeconomic Index for Areas by statistical area level two



Source: Australian Bureau of Statistics, 2011

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Education

Education is an important determinant of health. Education can positively affect levels of social engagement, which is important in generating a safer, healthier and more cohesive society. Higher levels of education are associated with better health outcomes (Marmot 2015, Commission of the Social Determinants of Health 2008), due in part to increased opportunity and reduced inequality. Education also helps to promote and sustain health lifestyles and positive choices, supporting and nurturing human development, relationships and personal, family and community wellbeing (Feinstein et al, 2006).

Childhood development

The Australian Early Development Census (AEDC) is an Australian Government initiative based on the Canadian Early Development Instrument. As a child enters their first year of full-time school, their teacher uses the Early Development Instrument to take a snapshot of the child's development. The AEDC instrument measures five domains of early childhood development which are predictors of a child's health, education and social outcomes. The five domains are:

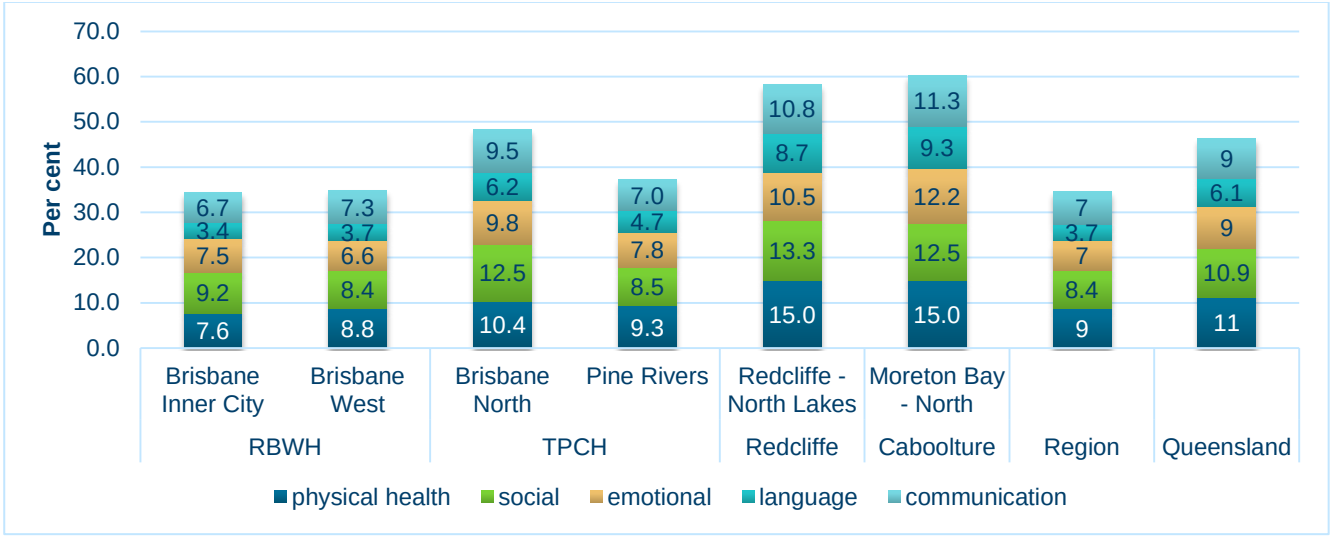
- physical health and wellbeing
- social competence
- emotional maturity
- language and cognitive skills
- communication skills and general knowledge.

Source: Australian Early Development Census, 2015

In the region, almost one in four children (23.7 per cent) are developmentally vulnerable across one or more of the domains and a further 12 per cent are developmentally vulnerable across two or more domains. These rates are slightly lower than the Queensland rates 26.2 per cent and 14 per cent respectively.

A high proportion of children in the Moreton Bay North (28.9 per cent) and Redcliffe - North Lakes (28 per cent) sub regions are developmentally vulnerable in one or more domains, particularly when compared to the region average. Children in the Moreton Bay North and Redcliffe - North Lakes sub regions also experience higher rates of developmental vulnerability in the physical health, emotional, language and communication domains when compared to the rest of the region. By contrast, children residing in the Brisbane West (19.7 per cent) and Brisbane Inner City (19.3 per cent) sub regions are less likely to be developmentally vulnerable in one or more domains. This trend is consistent across all domains and is highlighted in Figure 19.

Figure 19: Proportion of children who are developmentally vulnerable by domain by sub region and hospital catchment, 2015



Source: Queensland Government Statistician's Office, 2016

In the region, an estimated 42.1 per cent of Aboriginal and Torres Strait Islander children were developmentally vulnerable in one or more domains, with an estimated one quarter (25.1 per cent) of all

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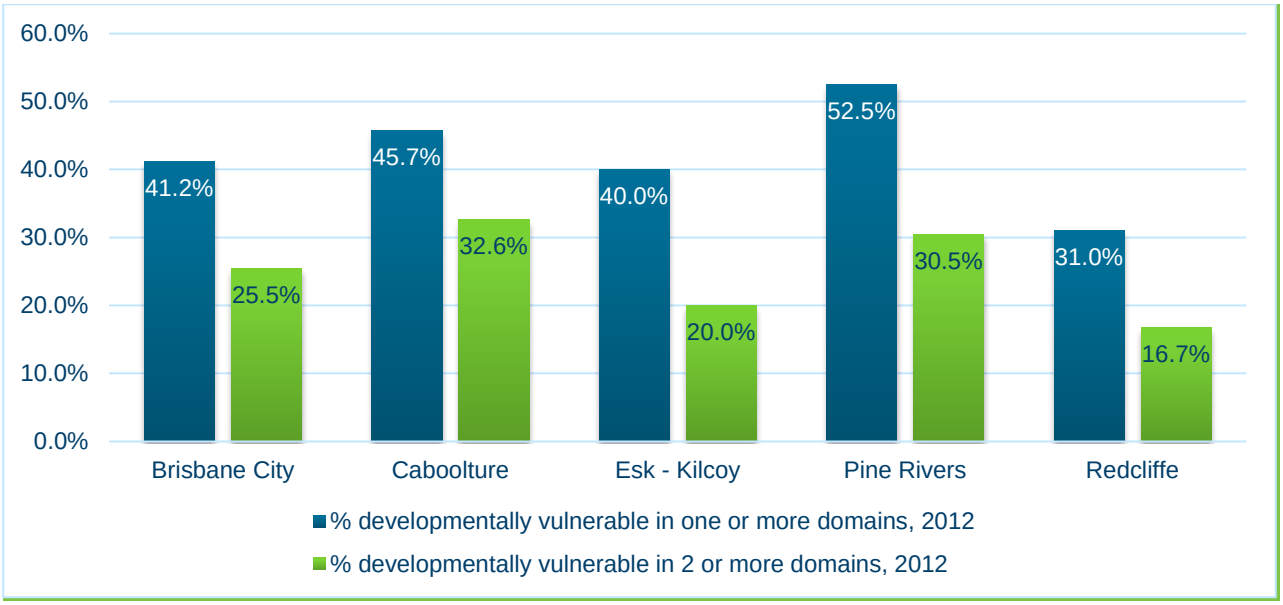
Aboriginal and Torres Strait Islander children in the region assessed as developmentally vulnerable in two or more domains (Public Health Information Development Unit, 2016). This is a much higher rate when compared to the general region rates of 19.3 per cent and 9 per cent respectively. Figure 20 shows the proportion of developmentally vulnerable Aboriginal and Torres Strait Islander children by Indigenous Area[6].

Figure 20: Developmental vulnerability, Aboriginal and Torres Strait Islander children by Indigenous Area, 2012



Source: Public Health Information Development Unit, 2016

The highest proportion of developmentally vulnerable Aboriginal and Torres Strait Islander children in one domain reside in the Pine Rivers area. Estimates of developmental vulnerability for all children in the Pine Rivers region indicates that Aboriginal and Torres Strait Islander children are 2.6 times more likely to be developmentally vulnerable in one or more domain when compared to the general population. Almost one third (32.6 per cent) of Aboriginal and Torres Strait Islander children residing in Caboolture have been assessed as developmentally vulnerable in two or more domains, compared to one in six children (16.9 per cent) among the general population in the same area.

Educational attainment

In the region, 666,585 people aged 15 years and older stated on the 2011 census that their highest level of schooling was:

- 5.2 per cent (34,817 people) did not go to school or have a Year 8 or below equivalent education,
- 24.1 per cent (160,385 people) have a Year 9 or Year 10 or equivalent education and
- 63.4 per cent (422,525 people) have a Year 11 or Year 12 or equivalent education.

Note: non-reporting means that this indicator does not total 100 per cent.

Overall, the region has a higher rate of educational attainment for Year 11 or Year 12 or equivalent than the Queensland rate (64 per cent compared to 55.3 per cent).

Moreton Bay North and Redcliffe - North Lakes have the highest proportion of the population who did not go to school or have a Year 8 or below education level, at 7.1 per cent.

Brisbane West (78 per cent) and Brisbane Inner City (77.6 per cent) have a higher proportion of residents who have a Year 11 or 12 or equivalent education. This is detailed further in Figure 21.

[6] Indigenous Areas are comprised of regions where there is an Aboriginal and Torres Strait Islander population of more than 90 people. The region has five Indigenous Areas.

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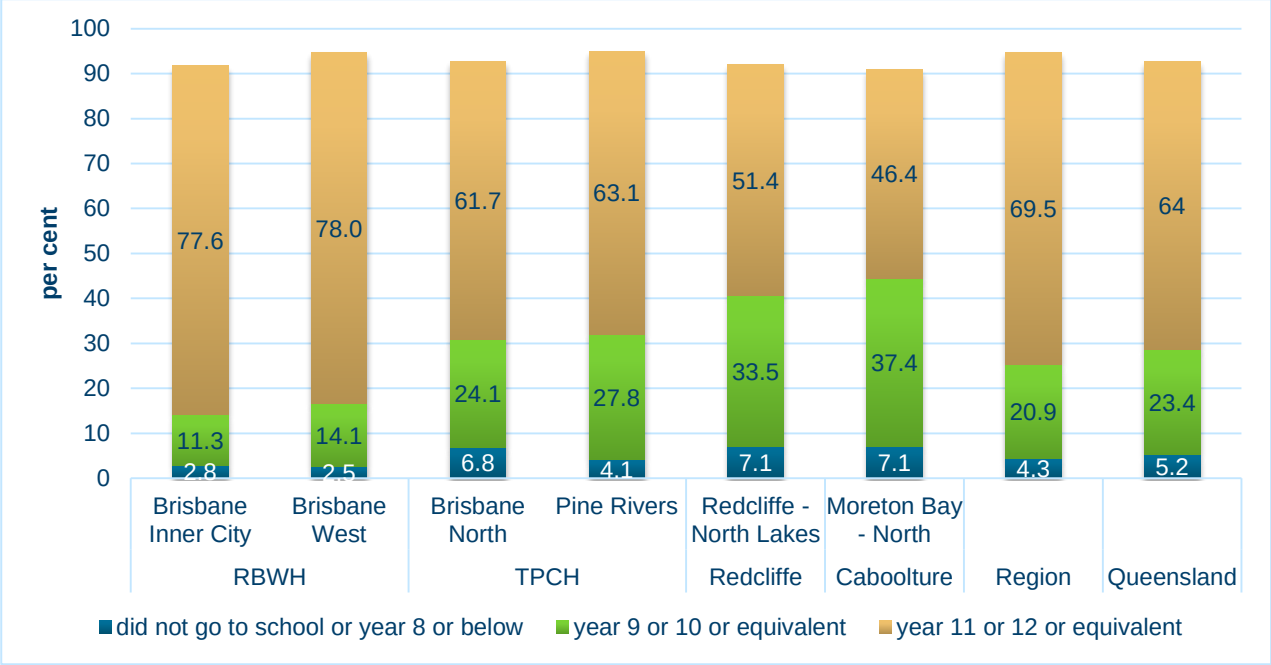
Figure 21: Highest level of schooling (15 years and over) by sub region and hospital catchment, 2011



Source: Queensland Government Statistician's Office, 2016

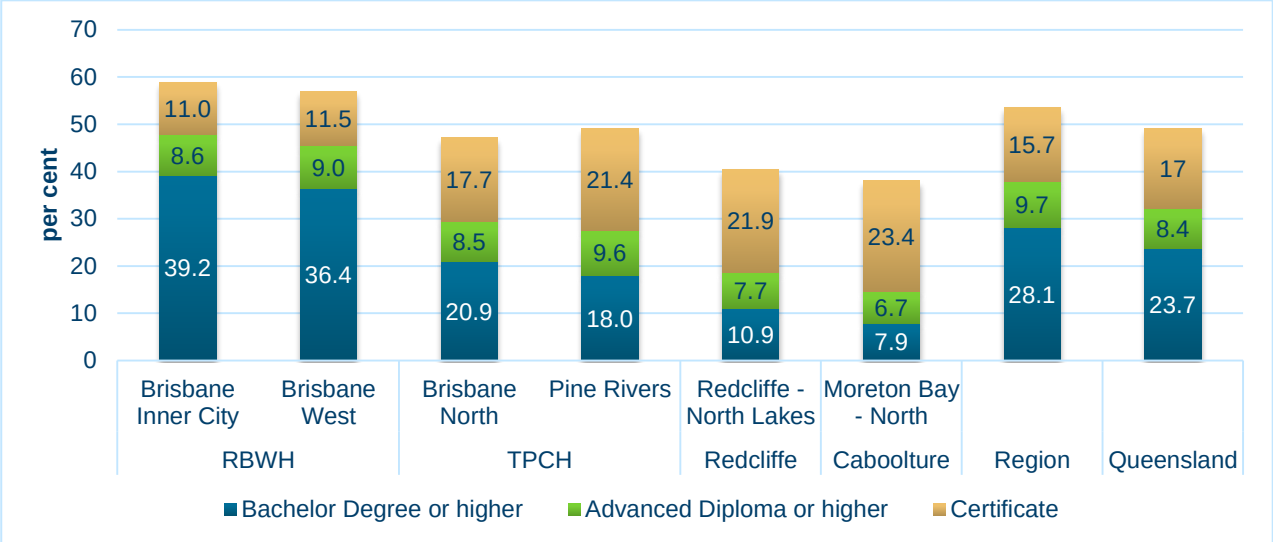
Post-secondary qualifications

Residents of the region as a whole possess higher levels of post-secondary qualifications compared to Queensland, with 58.7 per cent of residents over the age of 15 possessing a post-secondary qualification, compared to 54.2 per cent. Nearly one in four people (23.7 per cent) in the region have a Bachelor Degree or higher which is 1.5 times the Queensland rate of 15.9 per cent.

However, post-secondary education levels vary across the region, with people residing in the Brisbane Inner City sub region 1.4 times more likely to have a post-secondary qualification compared to the Moreton Bay North sub region (68.6 per cent compared to 49.4 per cent). A person residing in Brisbane Inner City is also five times more likely to possess a Bachelor Degree compared a person residing in Moreton Bay North. This indicates a significant gap in education levels within the region. This is highlighted in Figure 22.

Geographically, the closer the sub region is to the city, the higher the proportion of residents who have a Bachelor Degree or higher.

Figure 22: Proportion of residents with a post-school qualification by sub region and hospital catchment, 2011



Source: Queensland Government Statistician's Office, 2015

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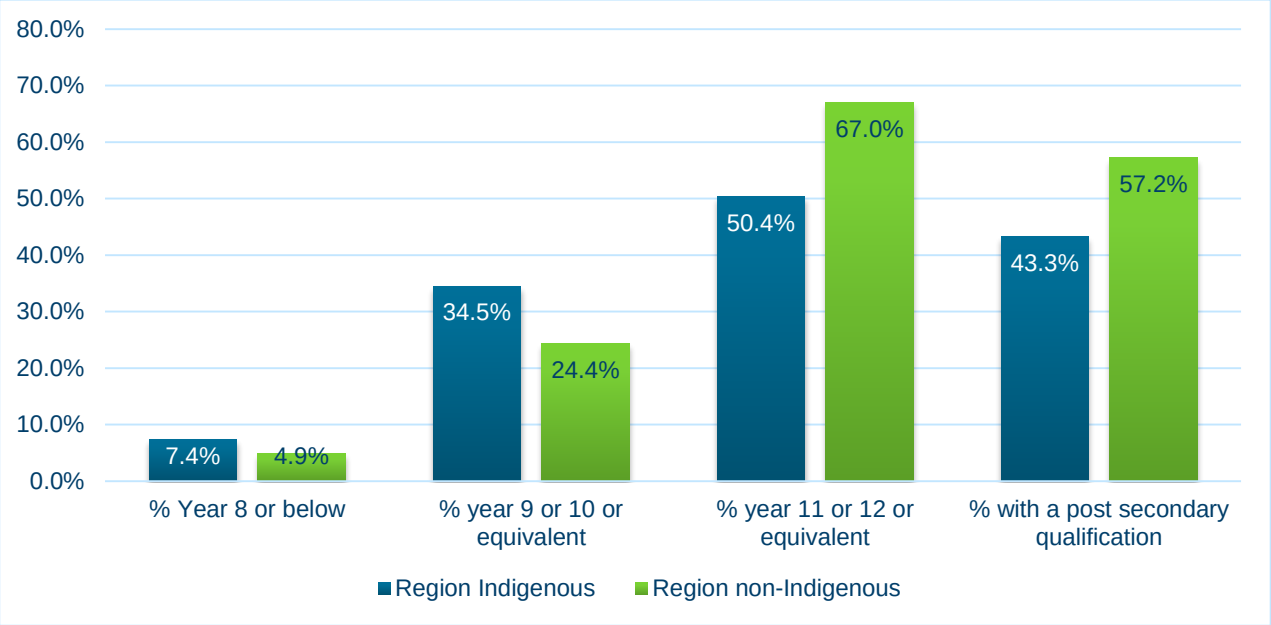
Educational attainment - Aboriginal and Torres Strait islanders

In the region, the Aboriginal and Torres Strait Islander population have lower levels of education when compared to the non-Indigenous population. Just over one half (50.4 per cent) of the Aboriginal and Torres Strait population have completed year 11, 12 or equivalent, compared to two-thirds of the non-Indigenous population. The proportion of Aboriginal and Torres Strait Islander people in the region with a post-secondary qualification is 13.9 percentage points lower than the non-Indigenous population (43.3 per cent compared to 57.2 per cent). This is highlighted in Figure 23.

Figure 23: Education outcomes, Indigenous and non-Indigenous population, region, 2011



Source: Queensland Government Statistician's Office, 2016

Employment

Employment is an important social determinant of health. Marmot (2015) highlights that employment increases a sense of self-worth provided the individual is well paid and has agency in their employment. Higher levels of unemployment can lead to social isolation and poorer health outcomes among households, particularly households with children where no parent is employed (Commission for the Social Determinants of Health 2008, Marmot 2015).

Unemployment

To be considered unemployed, the person must meet all of the following criteria:

- without work: total lack of work - not paid employment or self-employment
- actively seeking work: at least one active step to seek work has been taken during the period
- currently available for work: they must be available to start work during the given period – also known as ‘ready for work’ (e.g. without illness or family responsibilities).

In the region, 5.2 per cent of residents were unemployed in the March quarter 2016. This is lower than the Queensland rate of 6.2 per cent. The rate of unemployment is highest in Moreton Bay North at 6.5 per cent and lowest in Brisbane Inner City sub region at 4.1 per cent.

In 2011, over one in ten families (10.4 per cent) in the region were families with children where no parent was employed. As highlighted in

Figure 24, the Moreton Bay North sub region has the highest proportion of families with children where no parent was employed, with over one in six families (17.2 per cent or 935 families). This is followed by Redcliffe - North Lakes (14.6 per cent or 1946 families). These sub regions also have the highest rates of unemployment.

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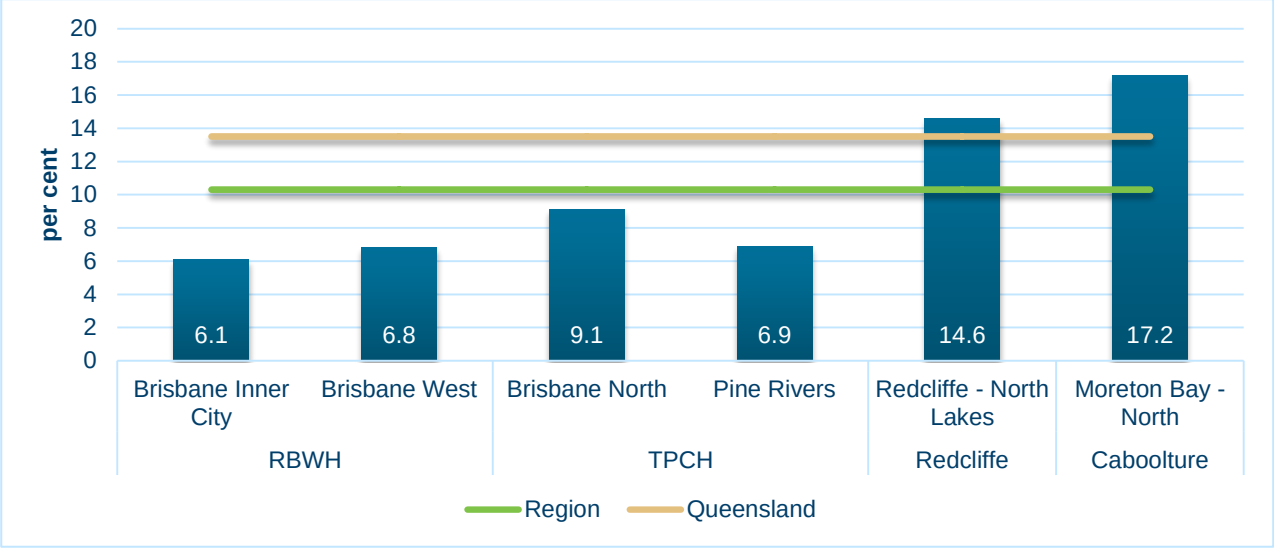
Figure 24: Families with children where no parent is employed by sub region and hospital catchment, 2011



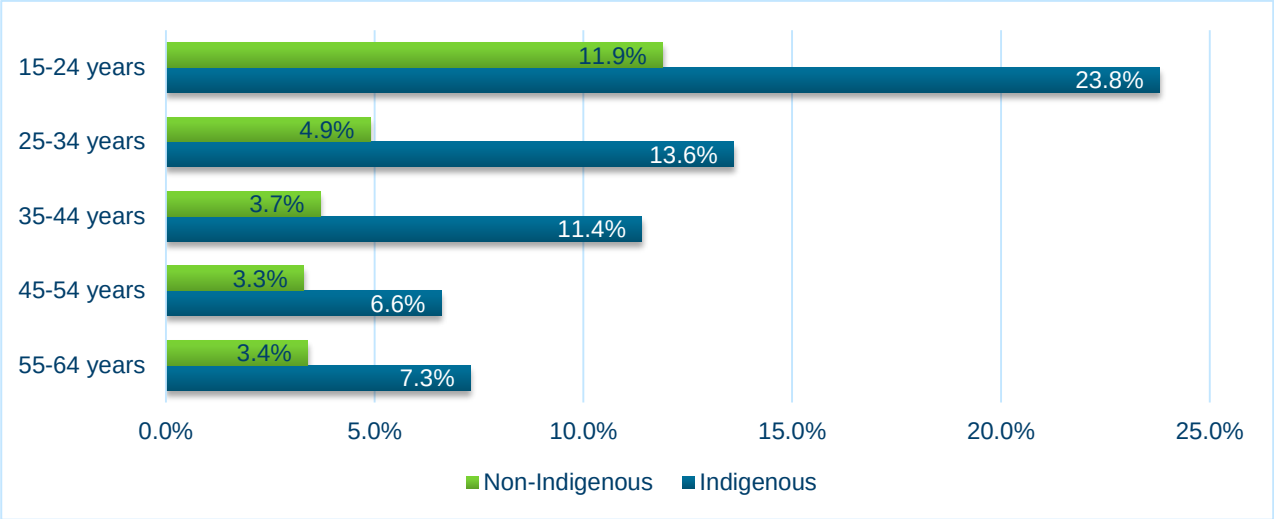
Source: Queensland Government Statistician's Office, 2016

Employment – Aboriginal and Torres Strait Islanders

In 2011, the unemployment rate among Aboriginal and Torres Strait Islander people in the region was 14.7 per cent, compared to the total region rate of 5.4 per cent[7]. Unemployment was not evenly distributed by age, with almost one quarter (23.8 per cent) of Aboriginal and Torres Strait Islander people aged between 15-24 years of age unemployed, compared to an unemployment rate of 11.9 per cent among non-Indigenous people aged 15-24 in the region.

Figure 25 indicates that the unemployment rate among Aboriginal and Torres Strait Islander people in the region is consistently higher than the non-Indigenous population.

Figure 25: Unemployment rate by age and Indigenous status, region, 2011



Source: Queensland Government Statistician's Office, 2016

Almost one third (31.8 per cent) of Aboriginal and Torres Strait Islander families with children in the region are households with no parent employed. This is 3.1 times the regional rate of 10.4 per cent of households. This is highlighted in Figure 26.

[7] More up to date data will become available with the release of 2016 census results.

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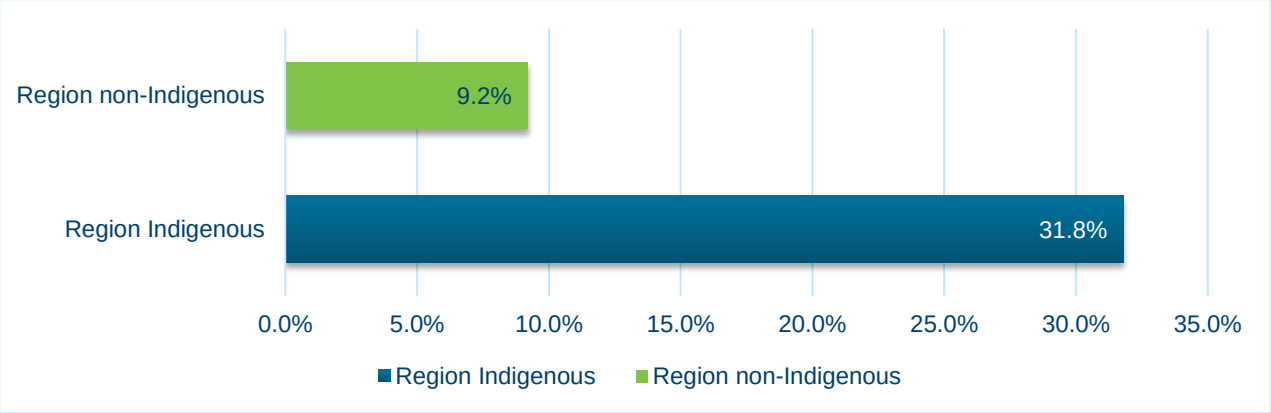
Figure 26: Families with children with no parent employed by Indigenous status, region



Source: Queensland Government Statistician's Office, 2016

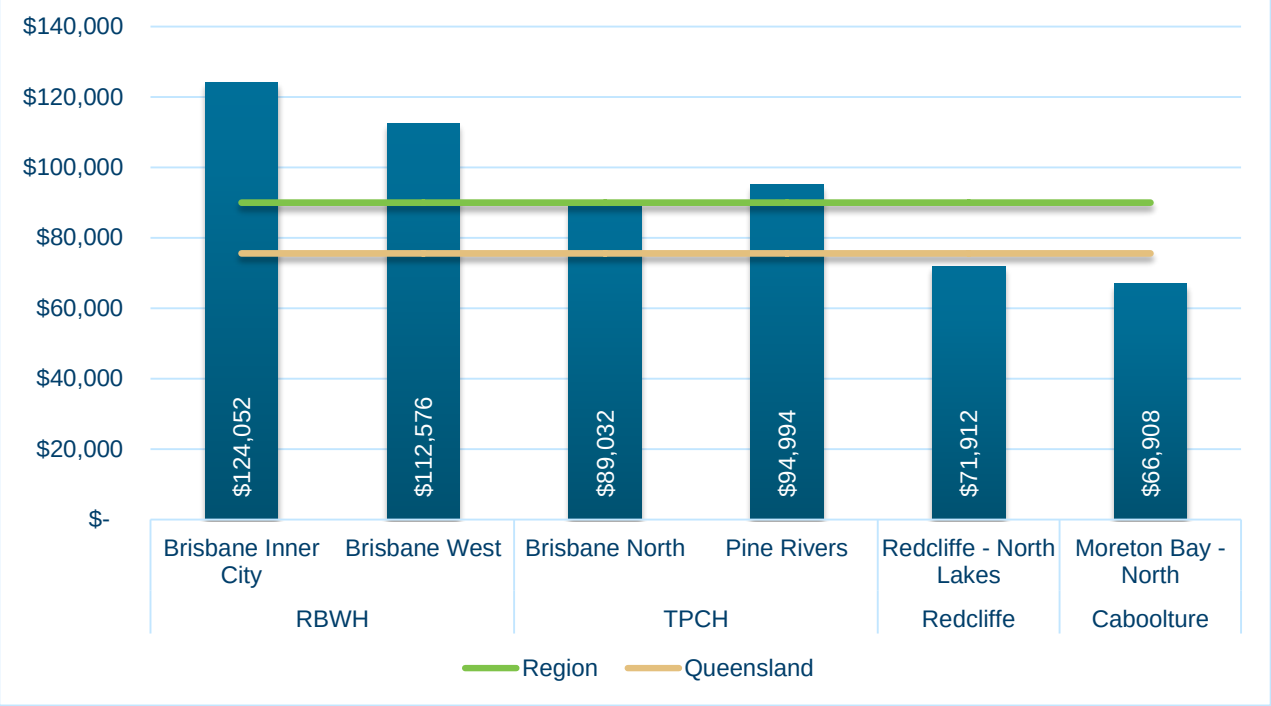
Income

Median household income

The median household income per annum in the region is nearly $90,000 and is more than the Queensland rate of just above $75,550.

The Brisbane sub regions have considerably higher median household incomes than the people residing in the northern parts of the region. Moreton Bay North has the lowest median household income per annum at just $66,908, which is $23,000 less than the overall region's rate. When comparing Moreton Bay North to Brisbane Inner City (the highest), median income is nearly double ($57,144 difference) as shown in Figure 27.

Figure 27: Median household income per annum by sub region and hospital catchment, 2011



Source: Queensland Government Statistician's Office, 2016

Personal income by income quartile

Personal income by quartile measures the distribution of income among the population. This is useful in determining income inequality across the region and identifying low income areas that may be at risk of poorer health outcomes.

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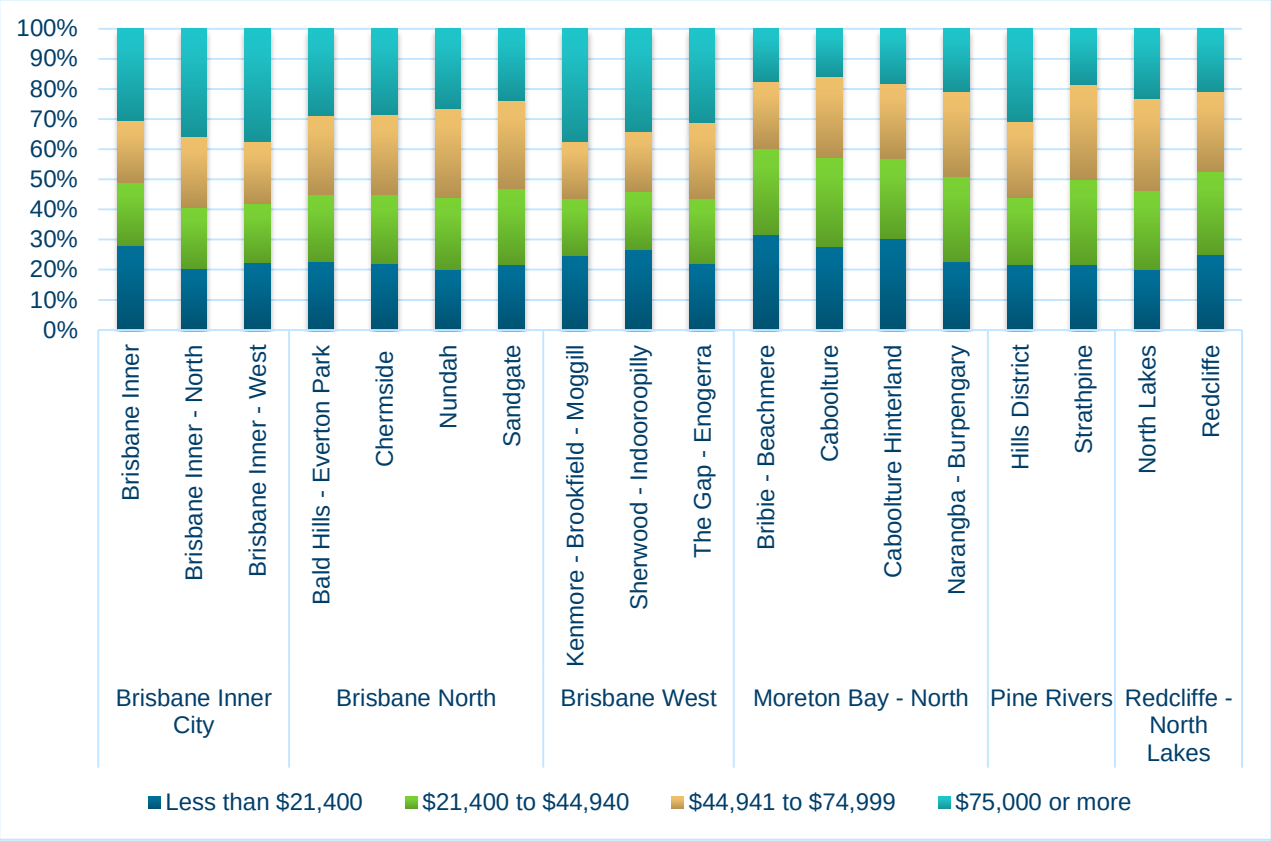
While there is a larger proportion of people in the region earning more than $75,000 per annum compared to Queensland (26.7 per cent compared to 24.3 per cent), indicating higher incomes, there is significant variation within the region. Almost one-third of residents in the Bribie – Beachmere area (31.3 per cent) earn less than $21,400 per annum, with a high proportion of people residing in Caboolture Hinterland, Brisbane Inner and Caboolture also earning less than $21,400 per annum, as indicated in Figure 28.

In addition whilst a large proportion of people in the Brisbane Inner area also earn less than $21,400 per annum, over 30 per cent of residents in same area earn more than $75,000 per annum, indicating a level of income inequality among residents of this area.

Figure 28: Personal income by quartile by statistical area level three and sub region, 2012-13



Source: Australian Bureau of Statistics, 2016

Financial stress (rental or mortgage)

Rental or mortgage stress occurs when the household is in the bottom 40 per cent of the income distribution (those with less than 80 per cent of median equivalised income) and spending more than 30 per cent of their income on mortgage repayments or rent (Public Health Information Development Unit, 2015). More than half of Australians identify finances as the cause of stress, which is also linked to unemployment rates (Australian Psychological Society, 2013).

Within the region, more than one-third of low-income households (35.4 per cent) experience rental or mortgage financial stress. It is significantly higher in Brisbane Inner City with nearly half of all low income households (6610 or 47.3 per cent) experiencing rental or mortgage financial stress. Brisbane North households have a lower rate but it is still quite high at nearly one-third (29.5 per cent) as evidenced in Figure 29.

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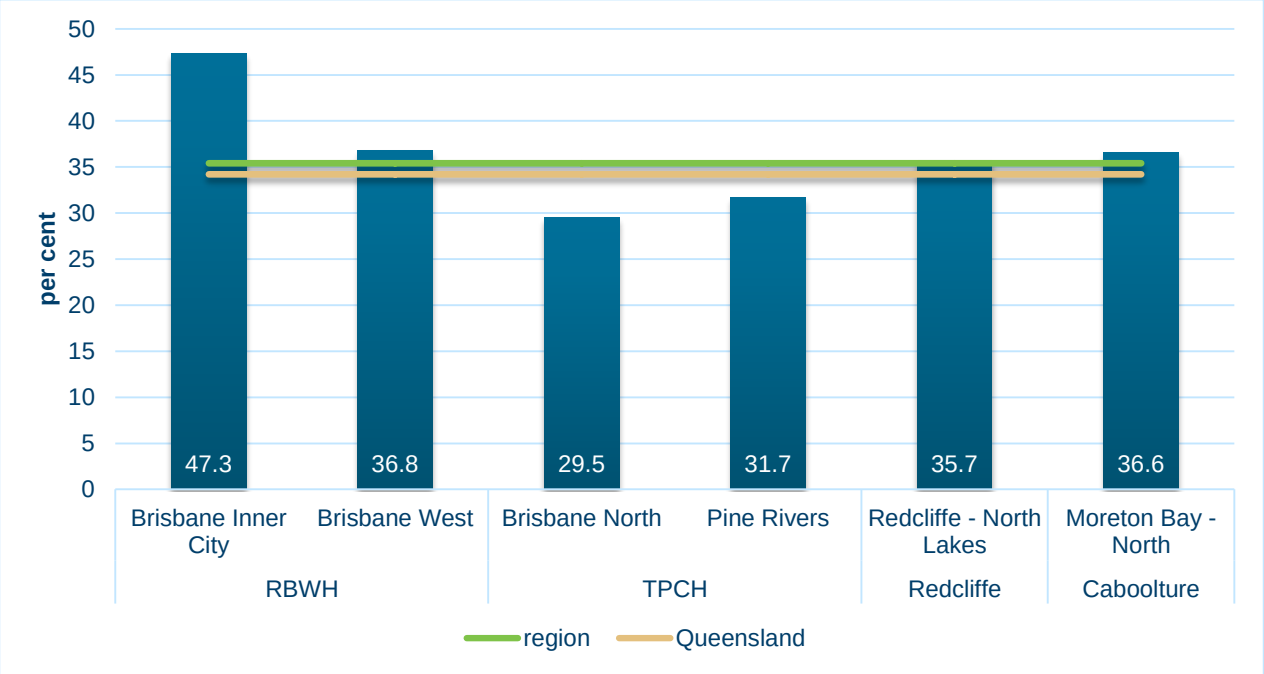
Figure 29: Proportion of low-income households experiencing financial stress (rental or mortgage) by sub region and hospital catchment, 2011 – 2012



Source: Public Health Information Development Unit, 2016

Supported assistance to aged care

In May 2015, the Department of Social Services and Australian Bureau of Statistics estimated the proportion of the population aged 65 years and older, who required assistance with a range of activities and did not have these needs met[8].These activities are:

- mobility
- self-care
- communication
- cognition/emotion
- healthcare
- household chores
- meal preparation
- property maintenance
- reading/writing
- private transport.

The reasons that people considered their needs to be unmet included:

- a service or services were not available
- the person was unable to arrange the service
- the service costs too much
- the service does not provide sufficient hours.

8 These estimates have been based on the Survey of Disability and Carers 2012 and these estimates may have changed with recent reforms to aged care. The population referred to in these estimates is all people aged 65 years and over living in households.

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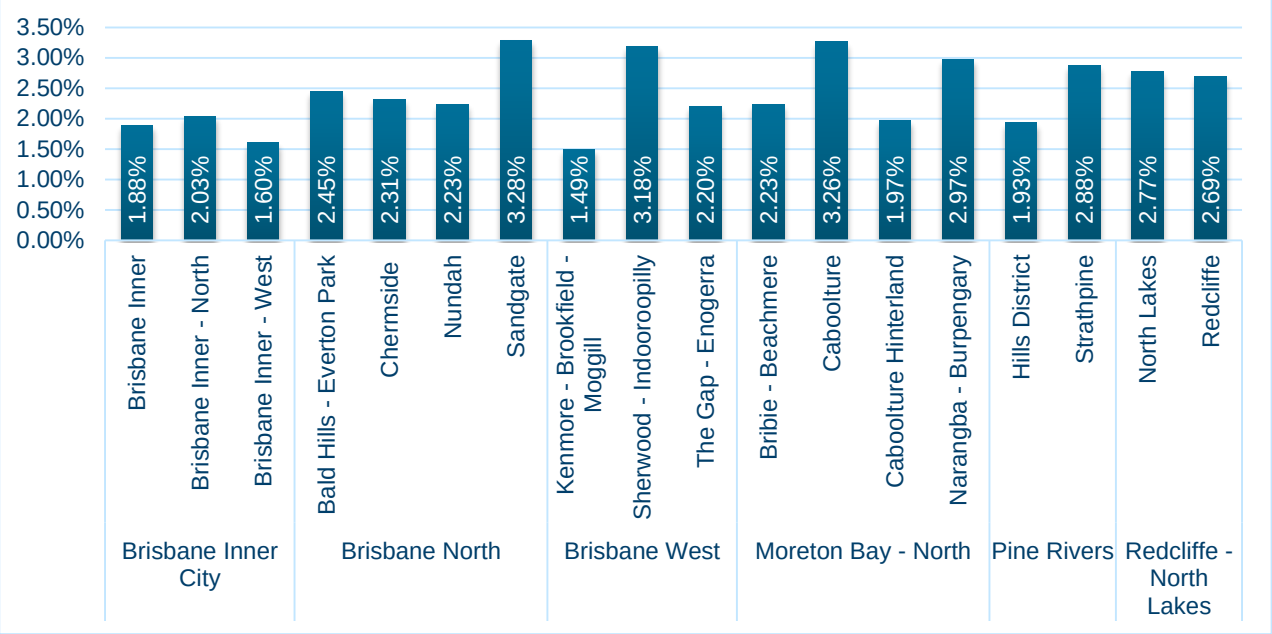
In the region, the proportion of the population aged 65 years and over who have unmet needs for one to four activities ranges from 1.5 per cent of the population in the Kenmore – Brookfield - Moggill statistical area to 3.3 per cent of the population in the Sandgate and Caboolture statistical areas. This is highlighted in Figure 30.

Figure 30: Estimates of unmet need for assistance for 1-4 activities, people aged 65 years and over, statistical area level three and sub region



Source: Department of Social Services and Australian Bureau of Statistics, 2015

The highest proportion of people who have unmet needs for assistance reside in the northern areas of the region, particularly in the Moreton Bay North and Redcliffe – North Lakes sub regions. This may be linked to a lower number of services and a large population aged 65 years and over. Lower incomes of people who require assistance in areas, including Caboolture, Redcliffe and Narangba – Burpengary, may be also contributing to unmet needs due to lack of affordable services in these areas.

Within the region, there is also a proportion of people who require assistance for five or more activities, who have not had their needs met. This ranges from just under one per cent of the population aged 65 years and over residing in the Strathpine statistical area (0.83 per cent) to 1.3 per cent of the population aged 65 years and over residing in the Nundah statistical area, as illustrated in Figure 31.

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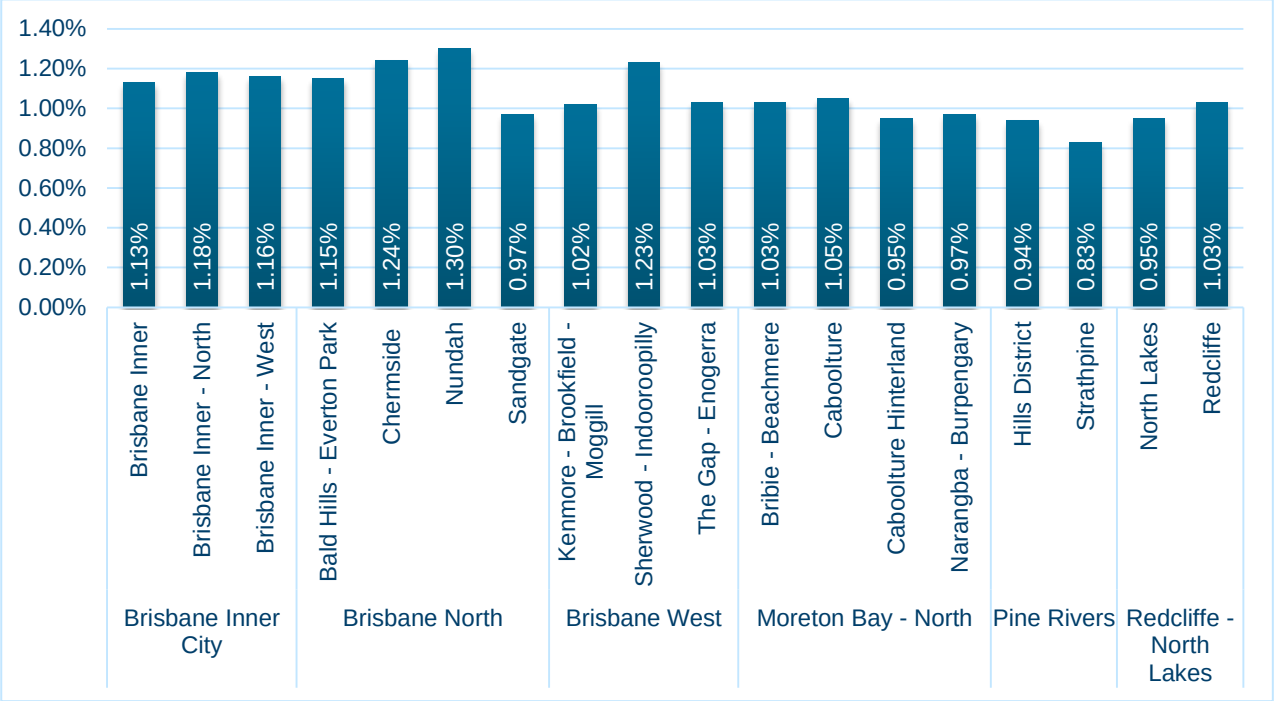
Figure 31: Estimates of unmet need for assistance for five or more activities, people aged 65 years and over, statistical area level three and sub region



Source: Department of Social Services and Australian Bureau of Statistics, 2015

While the overall proportion of people aged 65 years and over requiring assistance with five or more activities with unmet needs is quite low, overall estimates of unmet needs indicate that almost five per cent of the population aged 65 years and over in Caboolture and Sherwood - Indooroopilly have unmet needs for assistance.

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Health risk

Health risk factors can affect an individual's quality of life and can signify an increased risk of developing a chronic condition.

Across the region, almost one third of adults are overweight (29.2 per cent) and 22.9 per cent are obese. Smoking remains prevalent in the region with 16.9 per cent of adults currently smoking with the proportion of current smokers being greatest in Moreton Bay North at 21.9 per cent of adults.

Five per cent of the region's population are high-risk alcohol consumers with rates ranging from 4.5 per cent in Brisbane West to 5.4 per cent in Moreton Bay North.

Further details on these indicators is provided in this chapter.

Diet and exercise

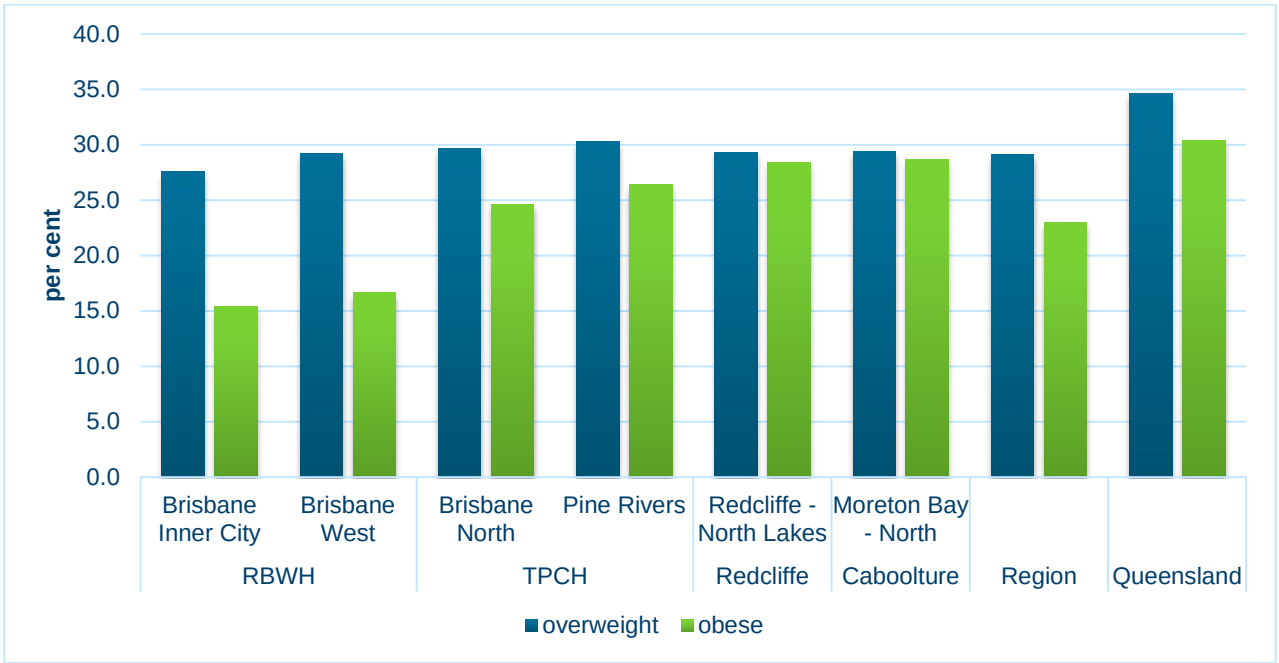
A person's health behaviours including physical activity and fruit and vegetable consumption have an impact on their health. Being obese has been associated with mature onset diabetes and heart disease whilst a poor diet poses a threat to the overall health of the individual (World Health Organization, 2015b).

Overweight or obese

In the region, nearly one in three people aged 18 years and over are overweight (29.2 per cent). This is below the Queensland rate (34.6 per cent). The rates range from 27.5 per cent in Brisbane Inner City to 36 per cent in Pine Rivers.

Similarly, by sub regions, there is considerable difference with obesity rates ranging from 15.4 per cent in Brisbane Inner City to 28.7 per cent in Redcliffe -North Lakes as shown in Figure 32. Across the region an estimated one in five people are classified as obese (22.9 per cent) compared to 30.4 per cent in Queensland.

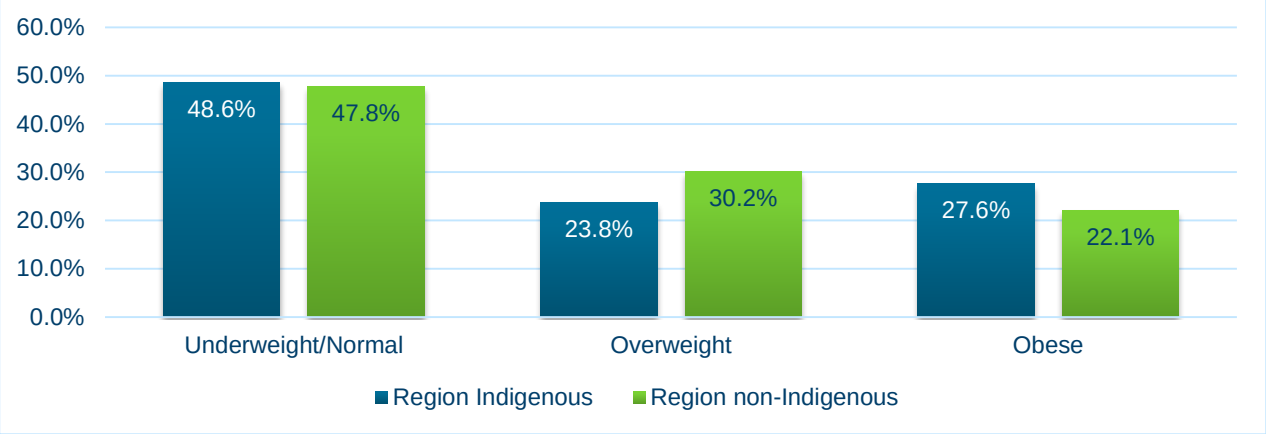
Figure 32: Proportion of people who are overweight or obese by sub region and hospital catchment, 2011-13



Source: Public Health Information Development Unit, 2016

Aboriginal and Torres Strait Islander people in the region are more likely to be obese than the non-Indigenous population, with 27.6 per cent of the Aboriginal and Torres Strait Islander population in the region reported as being obese, compared to 22.1 per cent of the non-Indigenous population. While Aboriginal and Torres Strait Islander people in the region are more likely to be obese, they are less likely to be overweight and more likely to be within a normal weight range when compared to the non-Indigenous population, as shown in Figure 33.

Figure 33: Overweight and obesity by Indigenous status, region, 2012-13



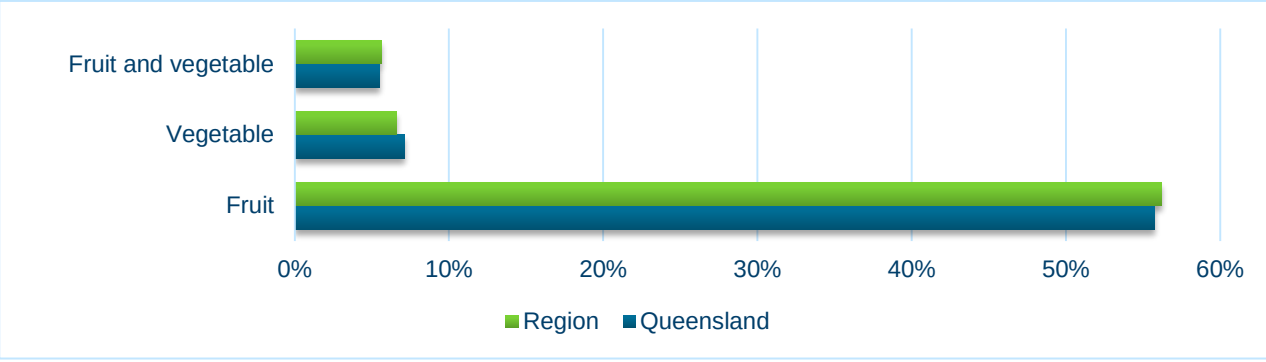
Source: Australian Bureau of Statistics, 2015

Nutrition

A balanced diet, including sufficient fruit and vegetables, reduces a person's risk of developing conditions such as heart disease and diabetes. Fruit and vegetable consumption in the region is comparable to Queensland as shown in Figure 34. In the region:

- 56.2 per cent of adults are consuming the required daily fruit intake
- 6.6 per cent are consuming the required daily vegetable intake
- 5.6 per cent of adults in the region reach the recommended daily targets for both fruit and vegetable consumption.

Figure 34: Proportion of adults who eat the recommended fruit and vegetable consumption



Source: Queensland Health, 2013

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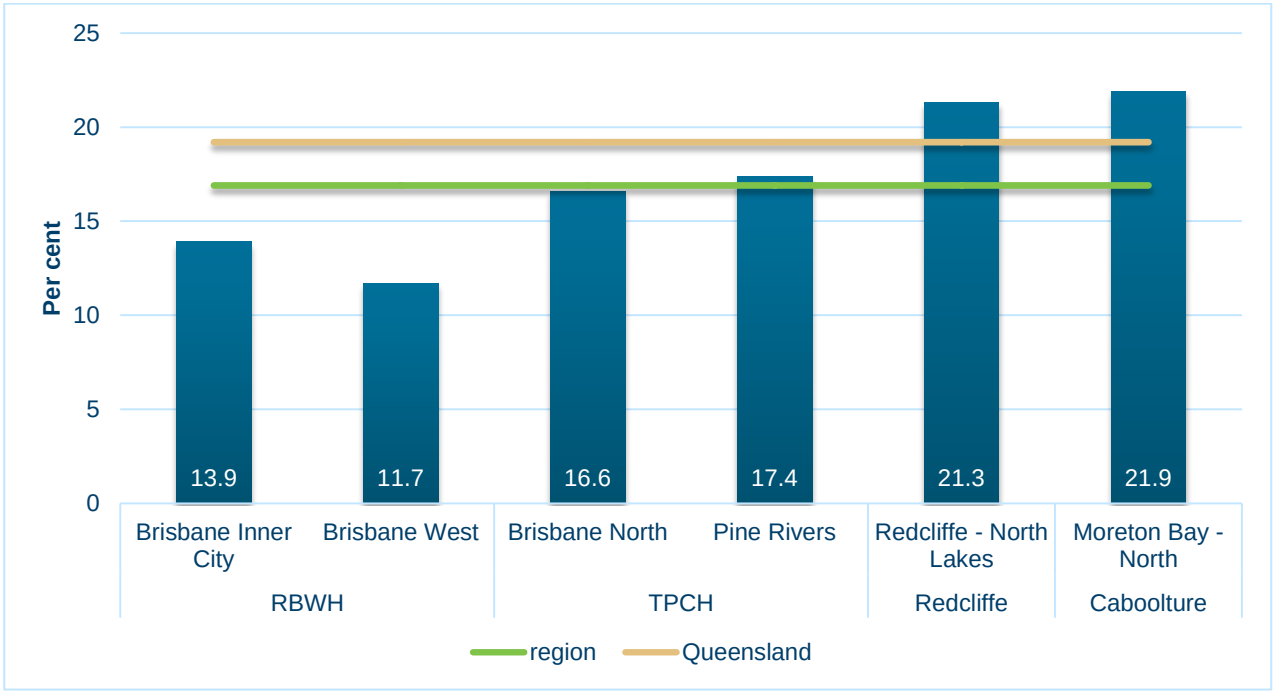
Smoking

Based on modelled data an estimated 16.9 per cent of people aged 18 years and over in the region are current smokers as at 2013. This is lower than Queensland (19.2 per cent) as shown in Figure 35. The proportion of current smokers is highest in Moreton Bay North with 21.9 per cent of people aged 18 years and over current smokers. Brisbane West sub region has the lowest proportion of current smokers (11.7 per cent).

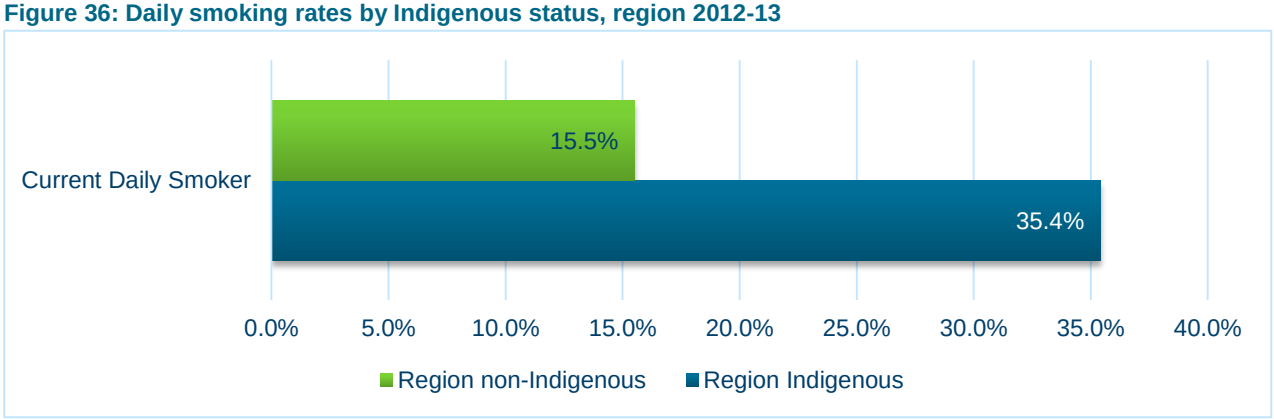
Figure 35: Proportion of the population who are current smokers by sub region and hospital catchment, 2013



Source: Public Health Information Development Unit, 2016

Based on data from the ABS, over one third (35.4 per cent) of Aboriginal and Torres Strait Islander adults are daily smokers, compared to one in six adults in the non-Indigenous population as at 2012-13 in the region. Smoking rates among Aboriginal and Torres Strait Islander adults in the region are 2.7 times the regional rate, as highlighted in Figure 36.

Figure 36: Daily smoking rates by Indigenous status, region 2012-13



Source: Australian Bureau of Statistics, 2015

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Alcohol consumption

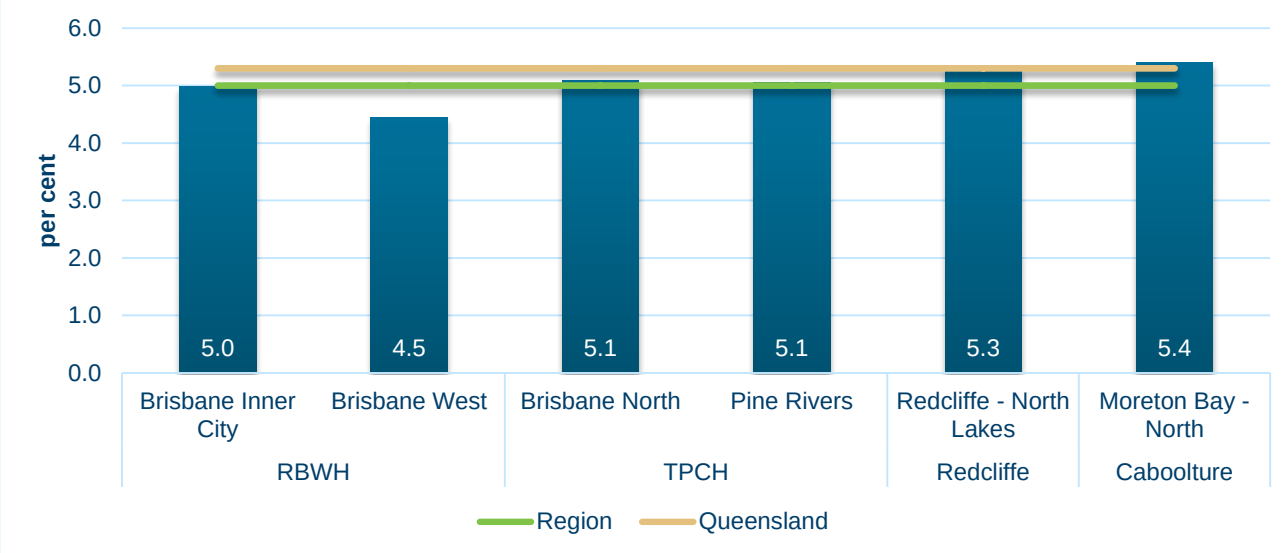
Alcohol consumption at risky levels poses a number of challenges to the health and wellbeing of the population. Excessive alcohol consumption is a major risk factor for morbidity and mortality in Australia. Examples of the conditions and incidents contributed to by harmful alcohol consumption are:

- cirrhosis of the liver
- breast, oral, liver and colorectal cancers
- stroke, inflammatory heart disease and hypertension
- road traffic accidents
- memory lapse
- falls, suicide, and drowning.

Source: National Health and Medical Research Council, 2009

Under the National Health and Medical Research Council (NHMRC) guidelines, consumption of a daily average of seven or more standard drinks for males and five or more standard drinks for females is considered to be a high risk to health (Public Health Information Development Unit, 2016). In the region, an estimated five per cent of the population consume alcohol at levels of high risk to health, which is similar to the Queensland rate (5.3 per cent). There is little difference by sub regions with rates ranging from 4.5 per cent (Brisbane West) to 5.4 per cent (Moreton Bay North). Refer to Figure 37.

Figure 37: Proportion of the population with high-risk alcohol consumption by sub region and hospital catchment, 2013



Source: Public Health Information Development Unit, 2016

The specific rate of high risk alcohol consumption[9] among Aboriginal and Torres Strait Islander people in the region in not able to be determined, however estimates for Australia indicate that 6.3 per cent Aboriginal and Torres Strait Islander adults consume alcohol at lifetime risky levels (Australian Institute of Health and Welfare, 2014). While the proportion of Aboriginal and Torres Strait Islander people consuming alcohol at lifetime risky levels decreased between 2010 and 2013, consumption rates are still 1.3 times the non-Indigenous rate.

[9] Measured through the NHMRC 2001 guidelines of seven or more standard drinks per day.

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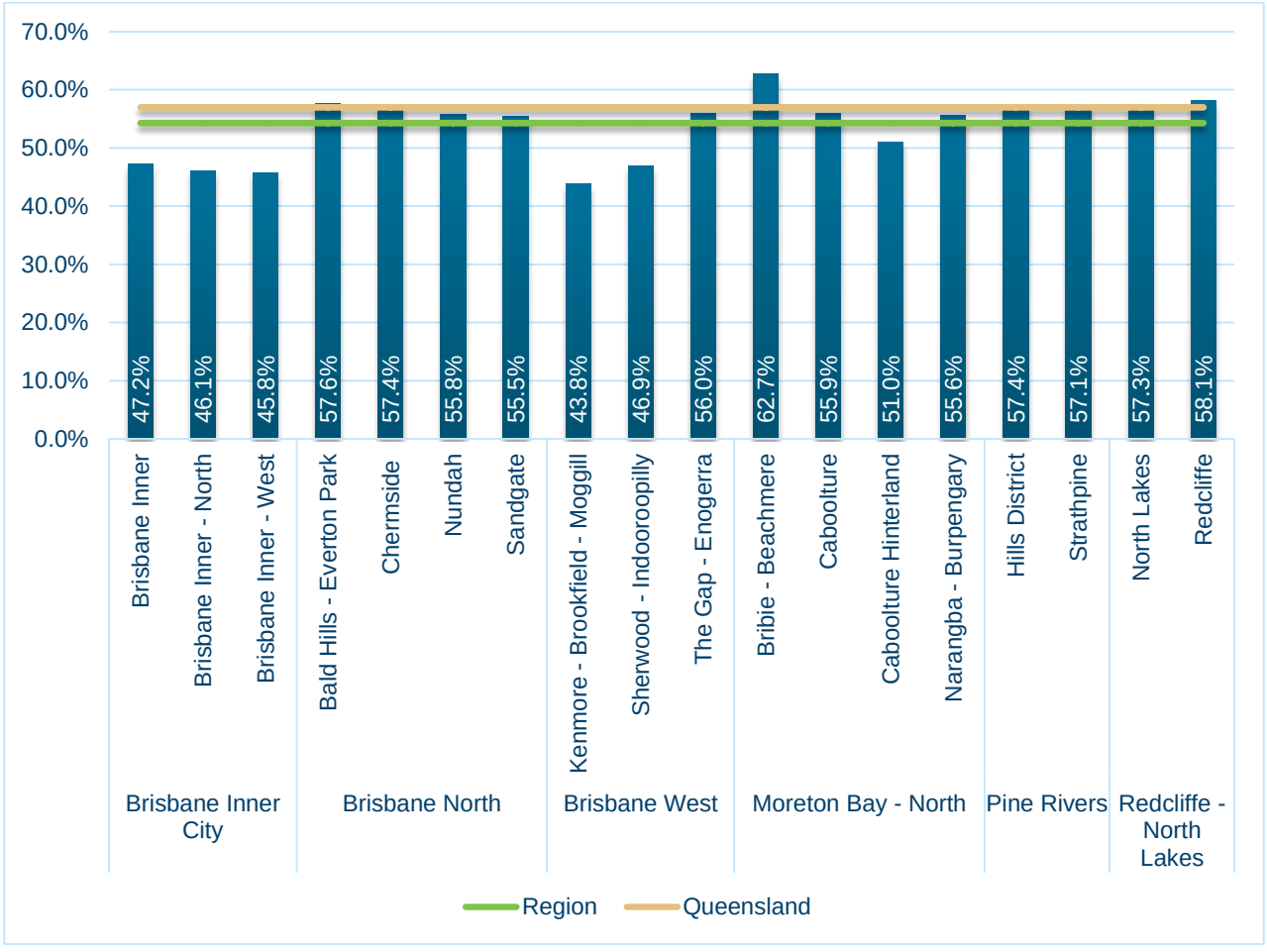
Cancer screening

Cancer screening programs aim to reduce illness and death resulting from cancer through an organised approach to screening. Australia has three targeted screening programs:

- BreastScreen Australia: targets women aged 50-74 years for biennial mammograms
- National Cervical Screening Program: targets women aged 18-69 years who have been sexually active to have a Pap test every two years
- National Bowel Cancer Screening Program: targeted at people aged 50-74 years with program expansion occurring to include biennial screening.

Breast cancer screening rates in the region were 54.3 per cent between January 2014 and December 2015, 2.7 per cent lower than the Queensland rate of 57 per cent. Within the region, breast cancer screening rates varied from 43.8 per cent in the Kenmore – Brookfield – Moggill statistical area to 62.7 per cent in the Bribie – Beachmere statistical area. Breast cancer screening rates were low in the Brisbane Inner City sub region and most of the Brisbane West sub region, as highlighted in Figure 38.

Figure 38: BreastScreen Australia Cancer screening rates, statistical area level three and sub region, Jan 2014 – Dec 2015



Source: Australian Institute of Health and Welfare, 2016

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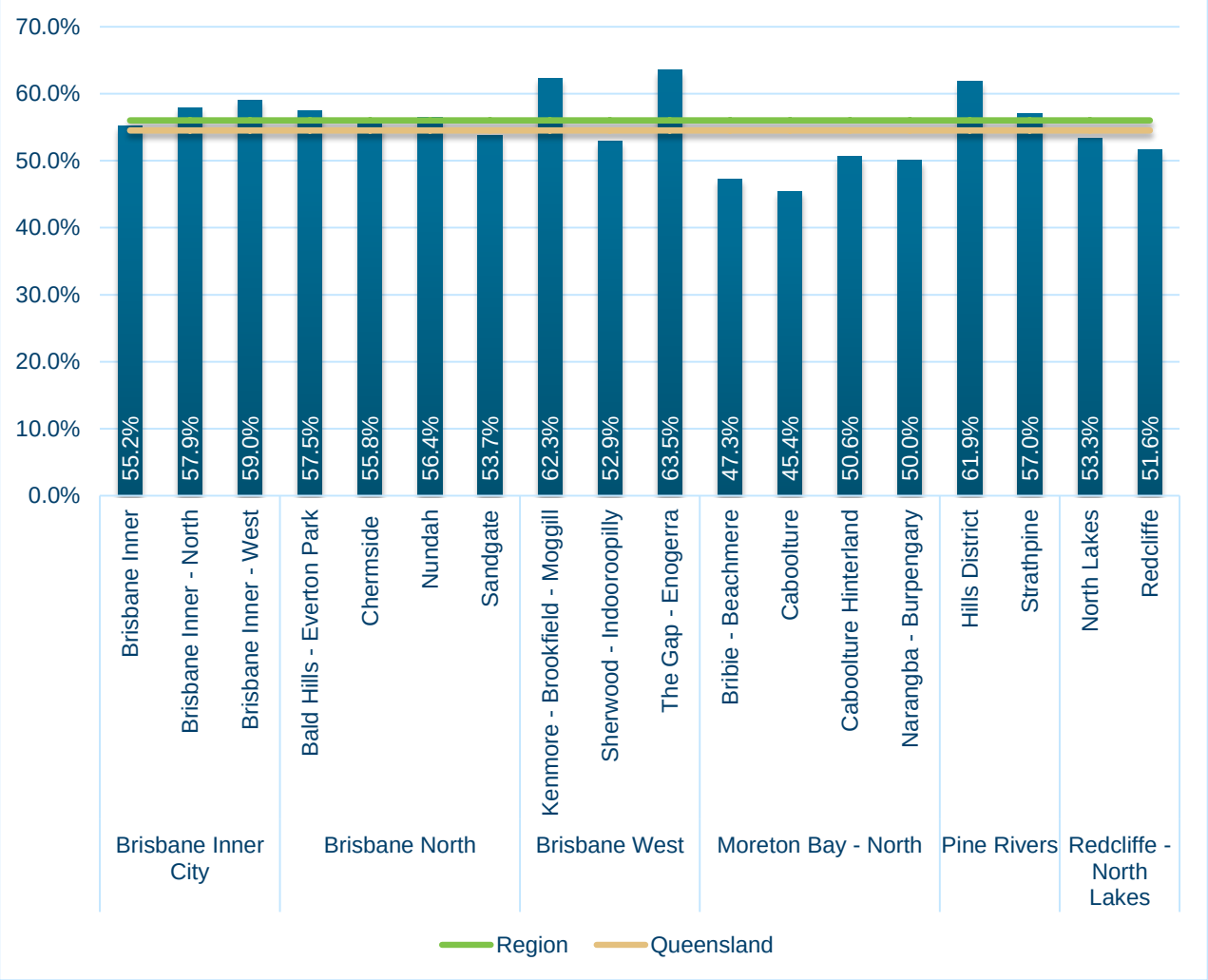
In 2014-15, screening rates for cervical cancer were higher in the region when compared to Queensland (56 per cent and 54.5 per cent respectively). Within the region, cervical cancer screening rates tended to be lower in the Moreton Bay – North sub region, particularly in Caboolture, where the cervical cancer screening rate was only 45.4 per cent. This is highlighted in Figure 39.

Figure 39: Cervical cancer screening rates, statistical area level three and sub region, Jan 2014 – Dec 2015



Source: Australian Institute of Health and Welfare, 2016

In the region, 39.1 per cent of the eligible population participated in the bowel cancer screening program, one per cent higher than the Queensland rate of 38.1 per cent. While the overall rate of bowel cancer screening in the region was higher than Queensland, within the region the rates varied from 43.3 per cent in the Bribie – Beachmere statistical area to just 35 per cent in the Caboolture statistical area. Screening rates in the Brisbane Inner City sub region were also lower than the regional average, as highlighted in Figure 40.

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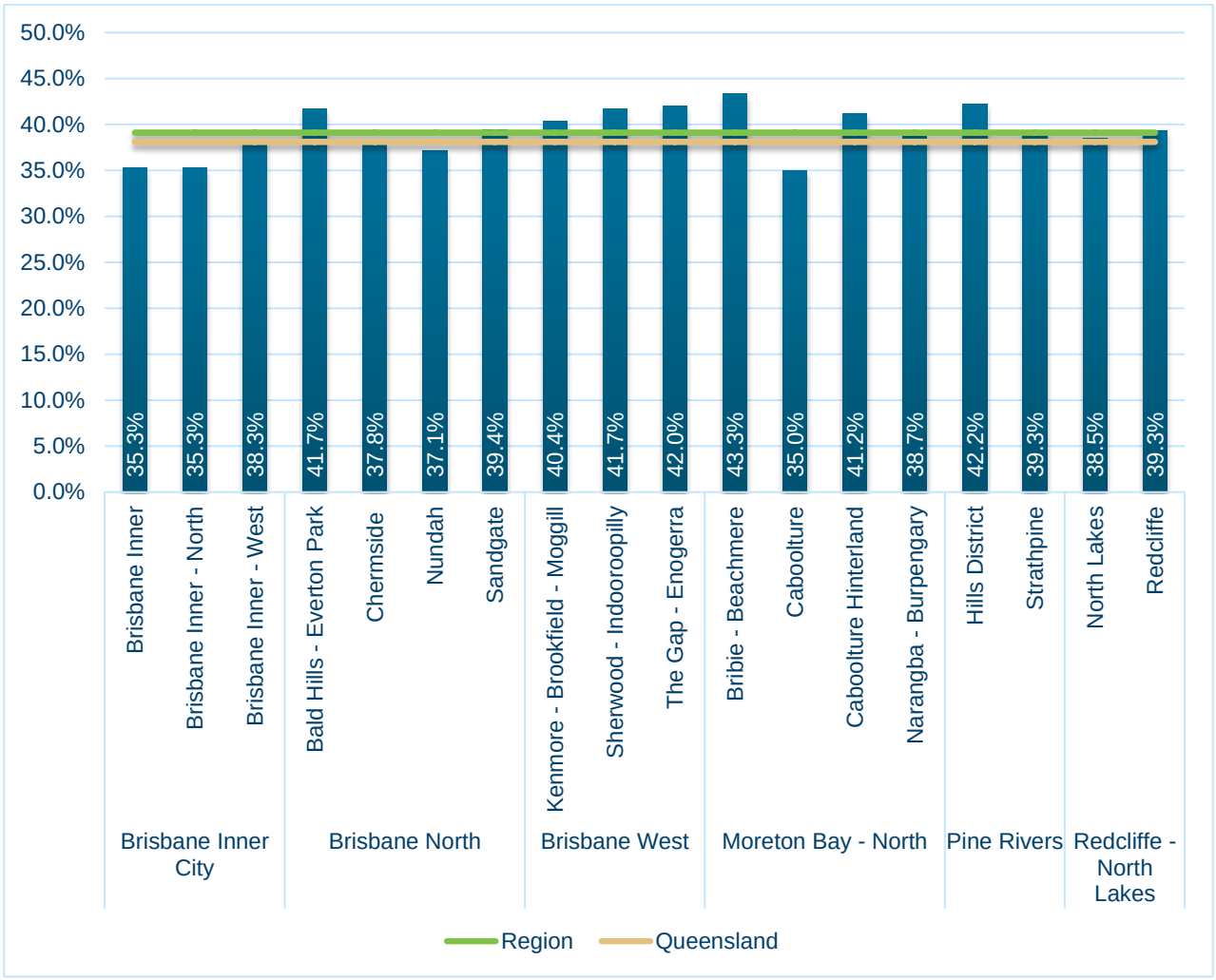
Figure 40: Bowel cancer screening rates, statistical area level three and sub region, January 2014 to December 2015



Source: Australian Institute of Health and Welfare, 2016

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Health status

Better health is central to human happiness and wellbeing. There are many factors which influence the health status and ultimately the health outcomes of a population.

In general, across a range of health status indicators, the region is comparable to the Queensland population with a current life expectancy for residents of 80.7 years for males and 84.5 years for females.

In the region, almost half of adults (46 per cent) have a chronic condition and approximately 4.1 per cent of the population or 35,000 people are living with a profound or severe disability.

In 2011-13, there was an estimated 71,300 people in the region aged 18 years and over who have high or very high psychological distress, which is a rate of 10.1 per cent. By sub region, Redcliffe - North Lakes has the highest rate at 12.2 per cent.

The health status of Aboriginal and Torres Strait Islander residents is significantly poorer than non-Indigenous residents. Aboriginal and Torres Strait Islander people in the region have poorer self-assessed health, a higher prevalence of long term conditions and an increased burden of disease, when compared to the non-Indigenous population in the region.

The Aboriginal and Torres Strait Islander population in the region experience higher prevalence of mental health problems, diabetes and chronic respiratory disease when compared to the non-Indigenous population. Aboriginal and Torres Strait Islander people also experience the burden of disease at a much younger age than the non-Indigenous population, along with lower life expectancy. In addition, less than half of the Aboriginal and Torres Strait Islander women in the region had at least one antenatal visit during their first trimester of pregnancy and low birth weight babies born to Aboriginal and Torres Strait Islander mothers are almost double that of non-Indigenous births.

Further information regarding health status is provided in this chapter.

The health of the population

Life expectancy

In the region, life expectancy is 80.7 years for males and 84.5 years for females. A similar trend is seen in Queensland with males living 4.3 years less than females (79.9 years and 84.2 years respectively) (Australian Bureau of Statistics, 2016b).

There is variability across the region with Brisbane West residents living longer (on average 84.7 years) while people in Moreton Bay North live considerably shorter lives (on average 81.4 years) (Australian Bureau of Statistics, 2016b).

While the life expectancy for the region's Aboriginal and Torres Strait Islander population is not available, the life expectancy for Aboriginal and Torres Strait Islander people in Queensland is 68.7 years for males and 74.4 years for females. The gap between Indigenous and non-Indigenous people is over 11 years for males and just under 10 years for females.

Self-assessed health

Overall, 14.1 per cent of the population rate their health as 'fair or poor' as opposed to 'good', 'very good' or 'excellent'. Those living in Moreton Bay North and Redcliffe - North Lakes are more likely to rate their health as 'fair or poor' in comparison to other parts of the region. This may be a reflection on the poorer social determinant and health risk factors present in the Moreton Bay North and Redcliffe – North Lakes sub regions.

Figure 41 reports the proportion of people who rate their health as 'fair' or 'poor' by sub region.

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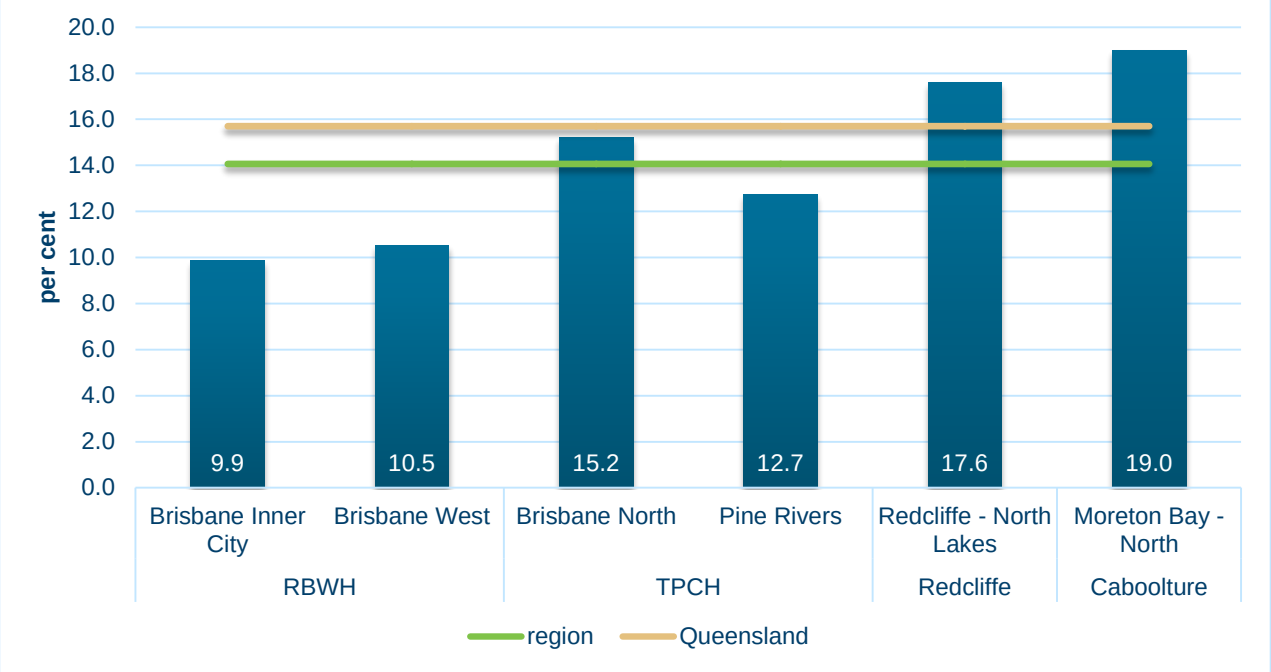
Figure 41: Proportion of people who rate their health as 'fair' or 'poor' by sub region and hospital catchment, 2011

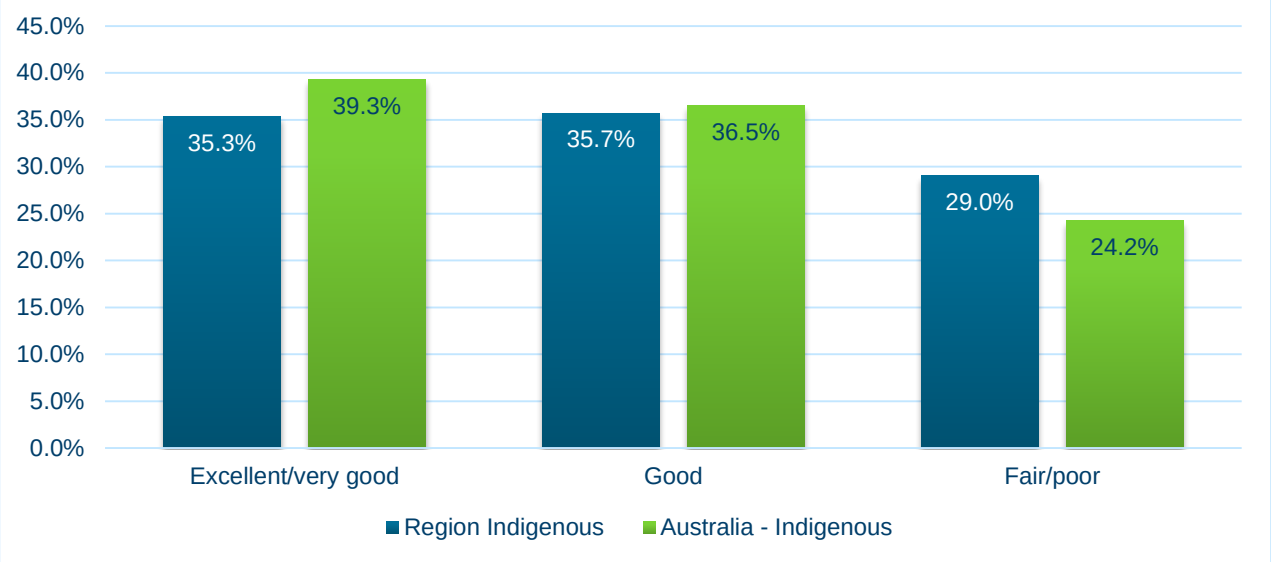


Source: Public Health Information Development Unit, 2015

Aboriginal and Torres Strait Islander self-assessed health

In the region, fewer Aboriginal and Torres Strait Islander people report having excellent or very good health compared to the national Indigenous population (35.3 per cent compared to 39.3 per cent). This means that a higher proportion of Aboriginal and Torres Strait Islander report having poor health compared to the national Indigenous population. This is highlighted in Figure 42. Compared to the non-Indigenous population in the region, the rate of Aboriginal and Torres Strait Islander people reporting fair or poor health is 1.8 times higher (29 per cent of Aboriginal and Torres Strait Islander people compared to 15.7 per cent of the non-Indigenous population in the region).

Figure 42: Self-assessed health, region and Australia, 2012-13



Source: Australian Bureau of Statistics, 2015

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Maternal health

Maternal health is concerned with the health of women throughout preconception, pregnancy, childbirth and postpartum and the strong interactions that exist between maternal wellbeing and the health of offspring. The health of the mother (or primary carer) is integral to the health and wellbeing of the child and family (Department of Health and Ageing, 2011).

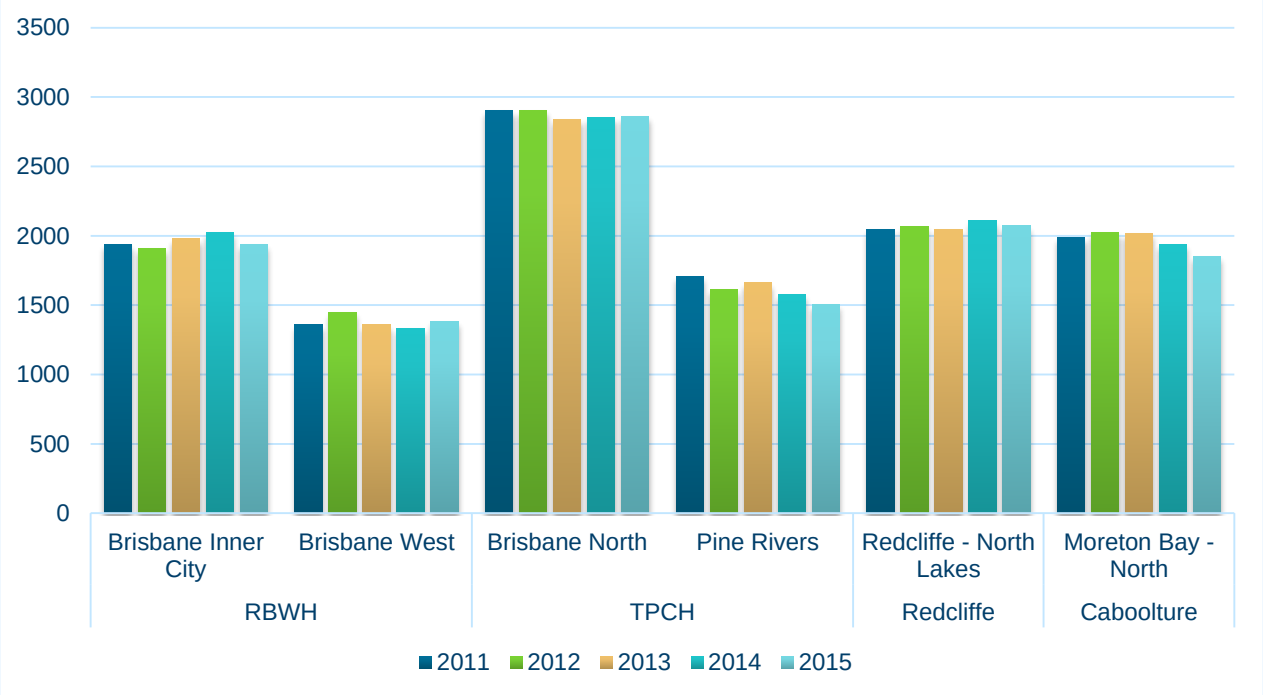
Evidence from a number of disciplines has demonstrated that the period from conception through the early years of a child's life provide the foundation for lifelong physical, social and emotional wellbeing (Department of Health and Ageing, 2011). Nevertheless, women are at risk of complications arising from or related to obstetric interventions. Many women report feeling unprepared for the transition to motherhood, a lack of confidence in their parenting skills and there is a high occurrence of parental stress, postnatal distress and depression in the short and long term after birth (Department of Health and Ageing, 2011). Physical recovery from birth may take nine to 12 months and women report a number of health problems postpartum (Department of Health and Ageing, 2011).

Births

During the years 2011 to 2015, there were almost 60,000 births to residents of the region, an average of 11,852 births per annum. Almost one in every five births in Queensland between 2011 and 2015 were to residents of the region. This is consistent with the proportion of the Queensland population that resides in the region.

Within the region, the highest number of births between 2011 and 2015 were to residents of the Brisbane North sub region (14,366 births at an average of 2873 per annum), followed by Redcliffe – North Lakes (10,341 births at an average of 2068 per annum). There has been a reduction in the number of births for residents of the Moreton Bay North and Pine Rivers areas between 2011 and 2015, with a 6.8 per cent and 12 per cent decrease in the number of births respectively. This is highlighted in Figure 43.

Figure 43: Number of births by sub region and hospital catchment of residency, 2011 to 2015



Source: Australian Bureau of Statistics, 2016

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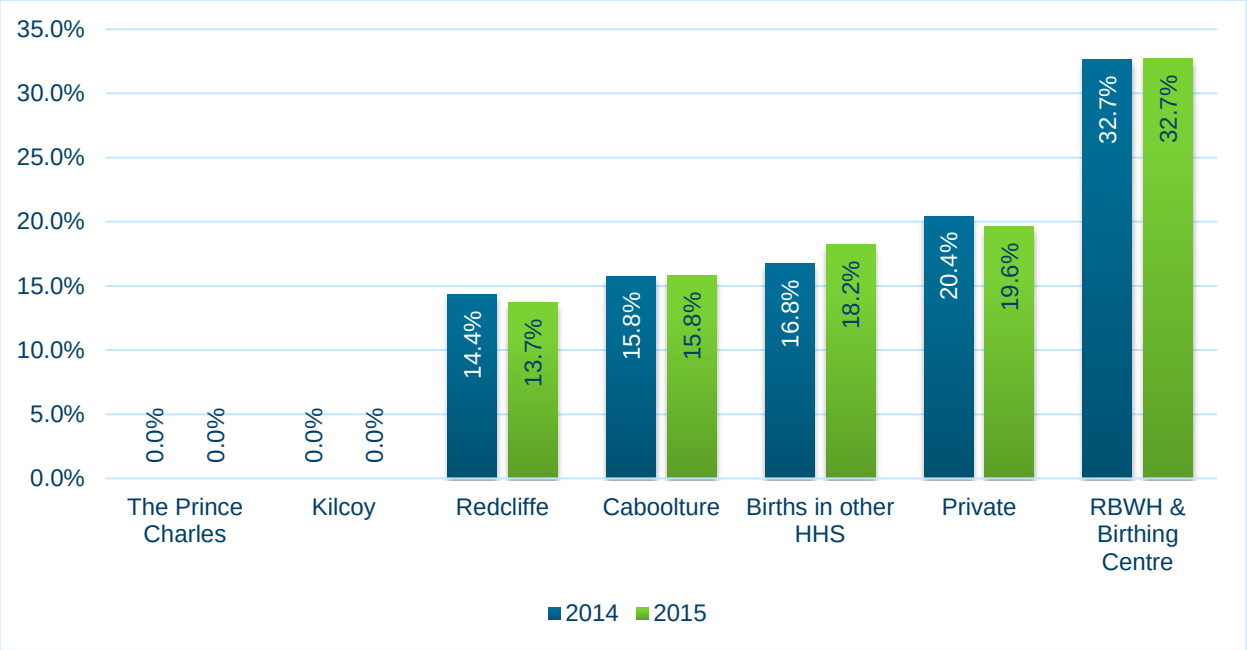
Births by facility

In 2014 and 2015, women residing in the region were more likely to give birth at the Royal Brisbane and Women's Hospital, with one in every three births to mothers residing in the region occurring at this facility. Private facilities in the region were the second most popular location to give birth, although there was a slight decrease in the proportion of births occurring in private facilities in the region between 2014 and 2015. A large proportion of babies born to women residing in the region also occurred in facilities outside of the region. This is shown in Figure 44.

Figure 44: Proportion of births by facility, 2014 to 2015



Source: Perinatal data collection, statistical services branch, Department of Health, 2016

Fertility

Fertility rates are the average number of babies a woman will give birth to throughout her reproductive life (Australian Bureau of Statistics, 2016). This is known as the total fertility rate. It is generally accepted that a total fertility rate of 2.1 babies per woman is sufficient to replace both herself and her partner (Australian Bureau of Statistics, 2016). According to the Australian Bureau of Statistics, the total fertility rate in Australia has been below replacement level since 1976.

In the region, the total fertility rate in 2015 ranged from 0.87 in the Brisbane Inner statistical area to 2.22 in the North Lakes statistical area. While fertility rates are generally higher in the Moreton Bay North and Redcliffe – North Lakes sub regions, there was an observed decline in fertility rates between 2011 and 2015. This is highlighted in Figure 45.

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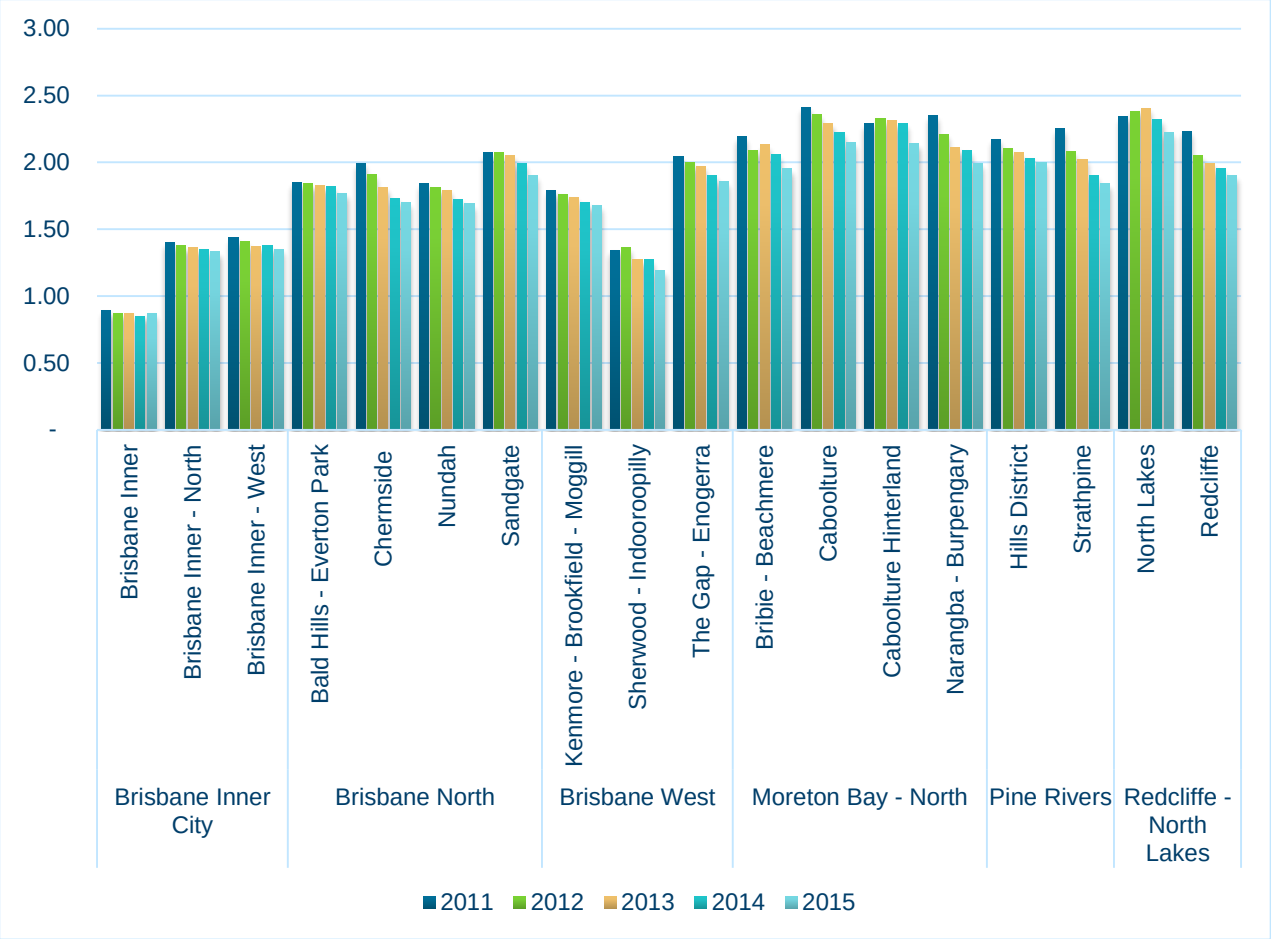
Figure 45: Total fertility rates by statistical area level three and sub region, 2011 to 2015



Source: Australian Bureau of Statistics, 2016

National core maternity indicators

Antenatal visit

Antenatal visits have a positive effect on health outcomes for both mothers and their babies as they provide care and can identify conditions that may be detrimental to health during pregnancy (Department of Health, 2012). They are particularly important to Aboriginal and Torres Strait Islander women who have a greater exposure to additional risk factors including:

- anaemia
- poor nutritional status
- hypertension
- diabetes
- smoking.

Source: Department of Health, 2012

The Commonwealth Department of Health (2012) recommends that a schedule of ten antenatal visits for a woman's first pregnancy without complications and seven antenatal visits for any subsequent pregnancy are adequate to address a woman's health needs while pregnant.

During the 2014-15 year, 97.2 per cent of women in the region had five or more antenatal visits while pregnant, with a further 2.5 per cent of women reporting having one to four antenatal visits while pregnant. Women in the region are more likely to have five or more antenatal visits when compared to Queensland (94.8 per cent).

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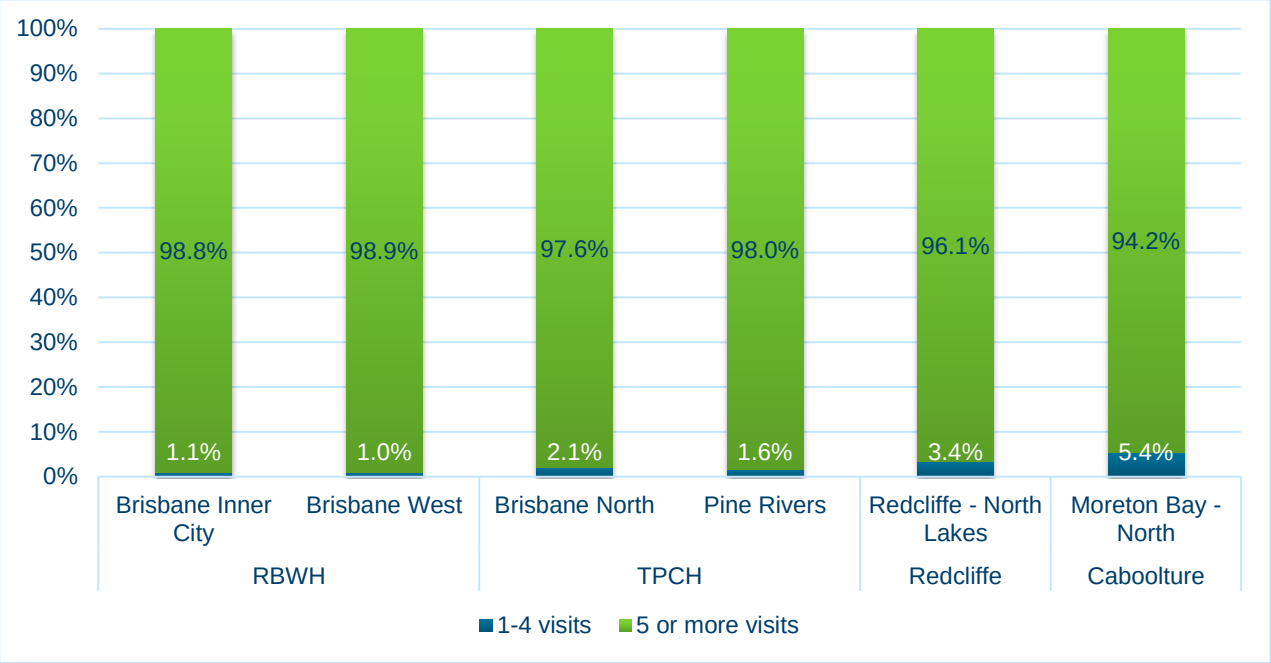
Within the region, the proportion of women who had five or more antenatal visits while pregnant ranged from 94.2 per cent in the Moreton Bay North sub region to 98.9 per cent in the Brisbane West sub region, as highlighted in Figure 46. The number antenatal visits during pregnancy is strongly associated with socioeconomic status. Women residing in areas of high socioeconomic disadvantage are less likely to have five or more antenatal visits throughout the course of their pregnancy.

Aboriginal and Torres Strait Islander women are less likely than non-Indigenous women to have five or more antenatal visits during pregnancy, with 88 per cent of Aboriginal and Torres Strait women having five or more antenatal visits in 2014-15, compared to 97.5 per cent of non-Indigenous women.

Figure 46: Antenatal visits by sub region and hospital catchment, 2014-15



Source: Queensland Health, 2016

Smoking during pregnancy

Women who smoke while pregnant are at increased risk of experiencing a wide range of problems including ectopic pregnancy, miscarriage and premature labour (Department of Health and Human Services, State Government of Victoria 2016). Babies whose mothers smoke during pregnancy are at higher risk of sudden infant death syndrome, decreased lung function and having a low birth weight (Department of Health and Human Services, State Government of Victoria 2016).

In 2014-15, 10.1 per cent of women in the region reported smoking at some stage during pregnancy. This is lower than the Queensland rate of 12.9 per cent of women who reported smoking during pregnancy in 2014-15.

Within the region, there was a considerable variation in the proportion of women who reported smoking during pregnancy, ranging from 3.2 per cent of women in the Brisbane Inner City sub region to 21.2 per cent of women in the Moreton Bay – North sub region, as shown in Figure 47. The proportion of women who reported smoking during pregnancy is strongly associated with socioeconomic disadvantage, with much higher rates of smoking during pregnancy reported in areas with higher levels of socioeconomic disadvantage.

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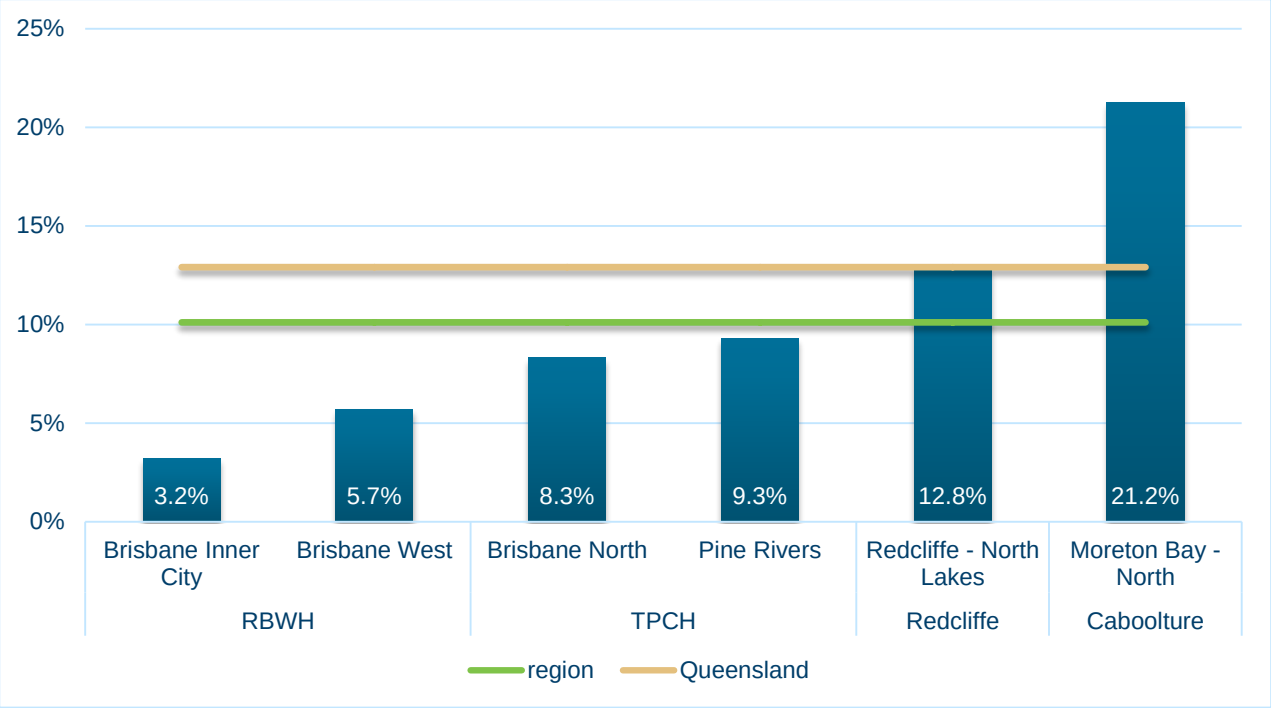
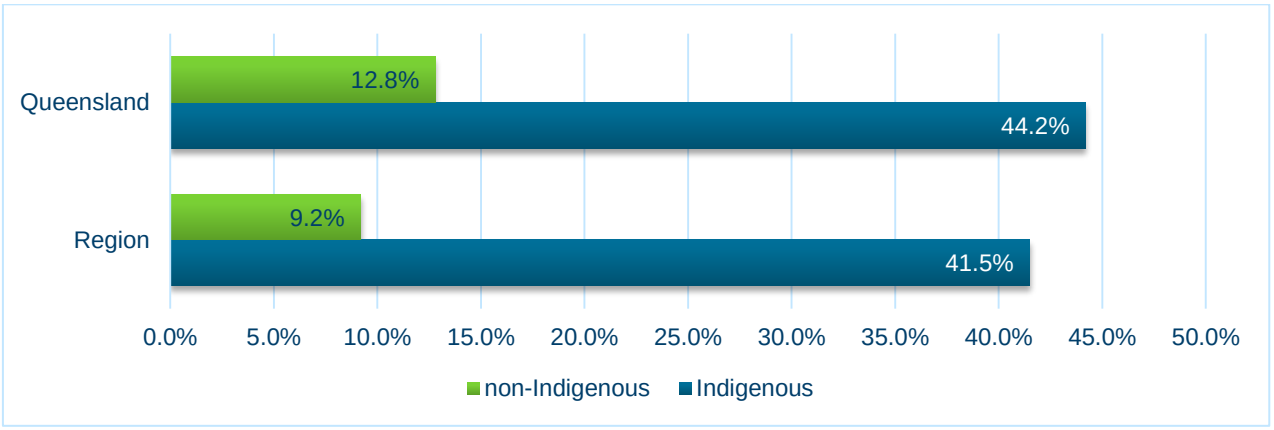
Figure 47: Proportion of females who smoked during pregnancy by sub region and hospital catchment, 2014-15



Source: Queensland Health, 2016

Smoking rates during pregnancy among Aboriginal and Torres Strait Islander women is of considerable concern. In 2014-15, the rate of Aboriginal and Torres Strait Islander women who smoked during pregnancy was 4.5 times the rate of non-Indigenous women in the region, with 41.5 per cent of Aboriginal and Torres Strait Islander women smoking during pregnancy, compared to 9.2 per cent of non-Indigenous women. Comparisons of smoking during pregnancy between the overall region and Queensland are highlighted in Figure 48.

Figure 48: Smoking during pregnancy by Indigenous status, region, 2014-15



Source: Queensland Health, 2016

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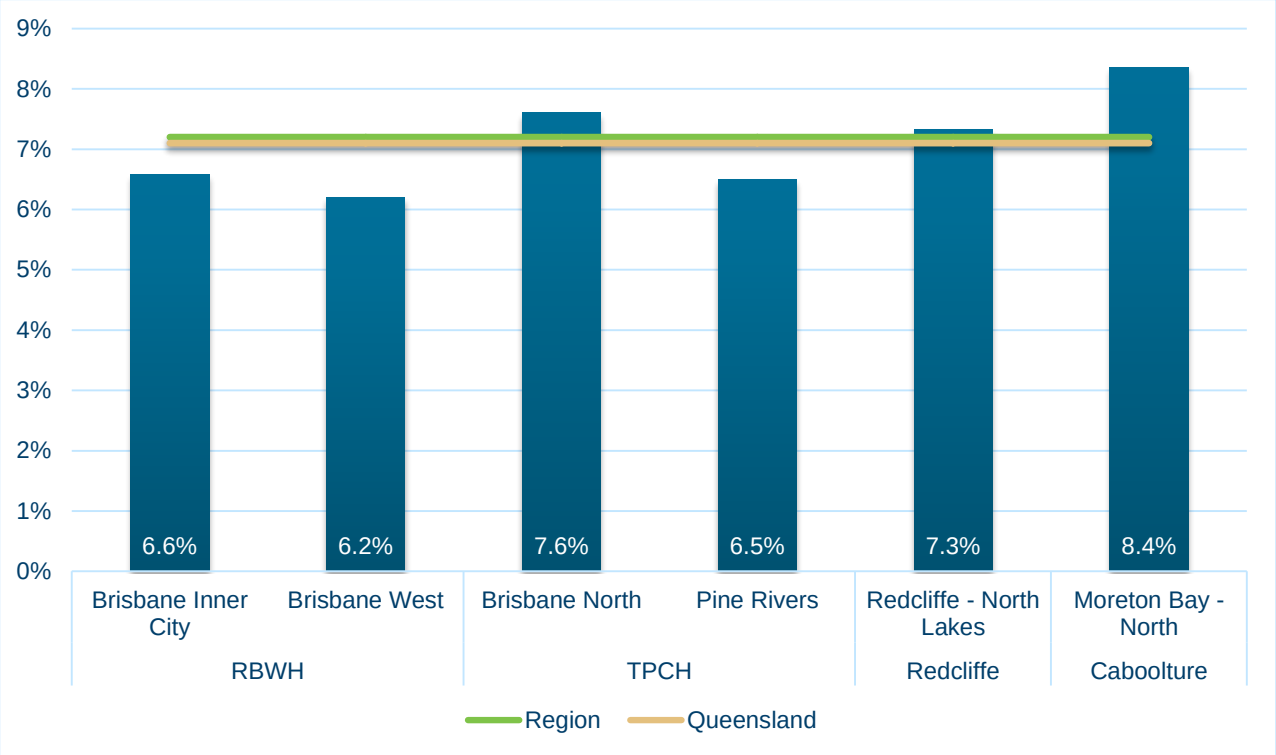
Low birthweight

Low birth weight babies are at greater risk of death and are more vulnerable to infection, breathing difficulties and long-term health problems in adulthood (Department of Health and Human Services, State Government of Victoria 2016). A baby is defined as having a low birthweight if they are born weighing less than 2500 grams (Australian Bureau of Statistics, 2008).

In 2014-15, 7.2 per cent of babies born in the region had a low birthweight. This is consistent with the Queensland rate of 7.1 per cent. Within the region, the proportion of babies born with a low birthweight ranged from 6.2 per cent in Brisbane West to 8.4 per cent in Moreton Bay – North. This is highlighted in Figure 49.

Aboriginal and Torres Strait Islander babies are more likely to be born underweight than non-Indigenous babies, with 10.1 per cent of Aboriginal and Torres Strait Islander babies born underweight in the region during 2014-15, compared to 7.1 per cent of non-Indigenous babies.

Figure 49: Proportion of low birthweight babies by sub region and hospital catchment, 2014-15



Source: Queensland Health, 2016

Infant mortality rate

Infant mortality rates

Infant mortality is the number of deaths in the first year of life compared to the number of live births occurring in the same population during the same period of time. In the region, the infant mortality rate was 4.1 per 1,000 live births for those aged less than one year old (for the period 2010 - 2012) and is comparable to the Queensland rate of 4.6 deaths per 1000 live births.

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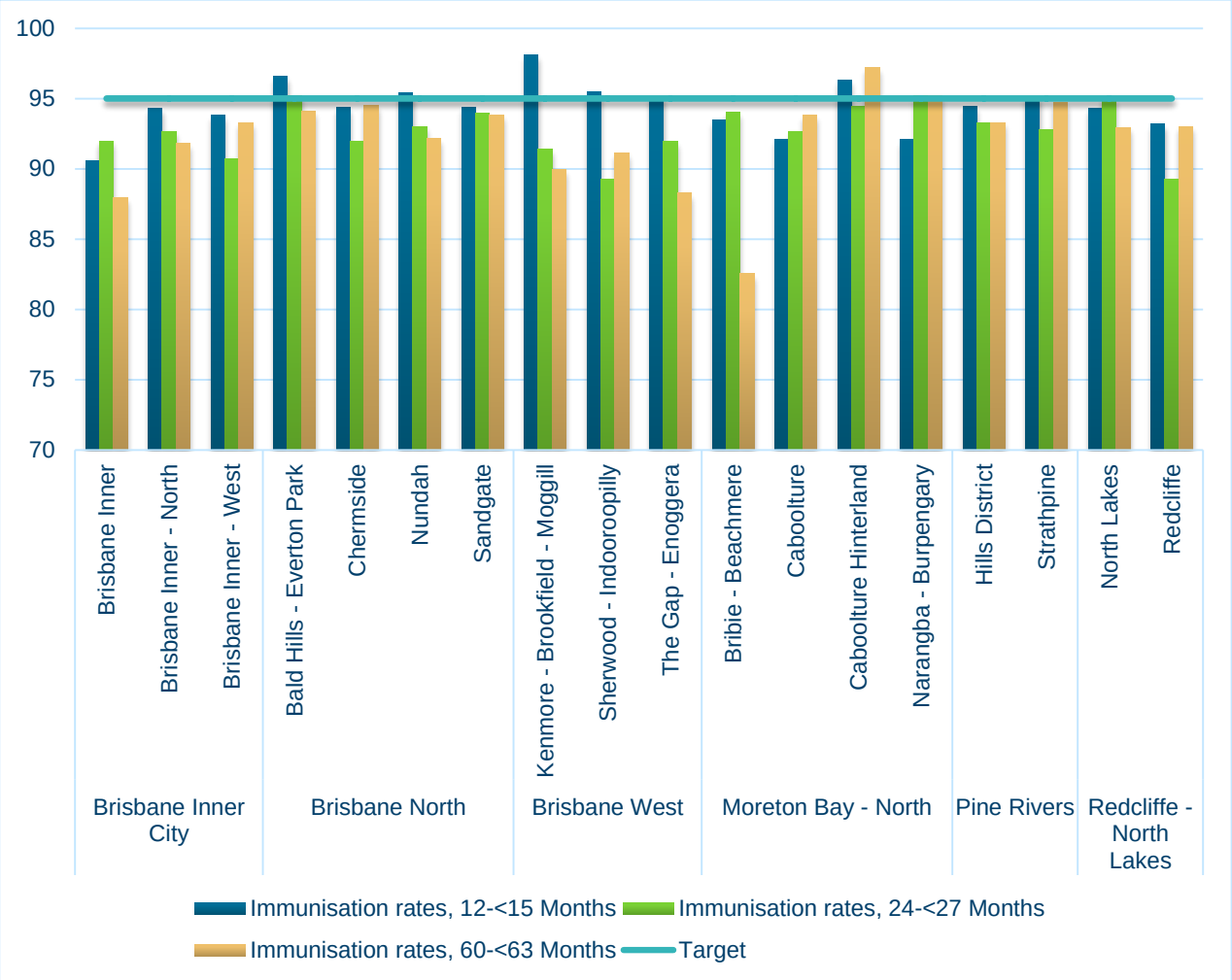
Childhood health

Immunisation rates

Immunisation rates for children are shown in Figure 50. Overall immunisation rates for the region are 94.2 per cent for 12 to 15 months, 92.8 per cent for 24 to 27 months and 92.5 per cent for 60 to 63 months. These rates are above the 2015-16 targets of 91.5 per cent for 12 to 15 months, 91.5 per cent for 24 to 27 months and 92 per cent for 60 to 63 months but below the stretch target of 95 per cent.

Figure 50: Immunisation coverage for children by statistical area level three and sub region, 2016[10]



Please note that the scale starts at 70 per cent when interpreting the graph.

Source: Australian Childhood Immunisation Register, 2016

[10] Note: part of the Narangba – Burpengary SA3 is located within the Redcliffe – North Lakes sub region

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For Indigenous children the rates are 90.3 per cent for 12 to 15 months, 89.5 per cent for 24 to 27 months and 93.6 per cent for 60 to 63 months. Indigenous immunisation rates are variable at a local level.

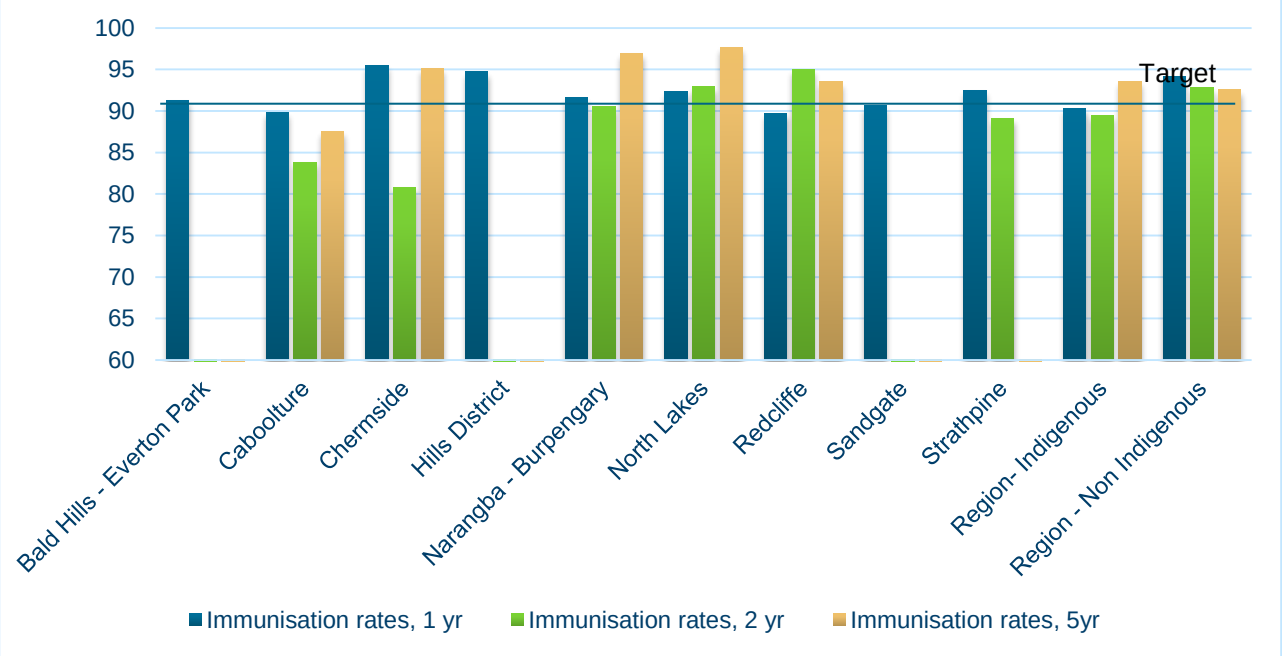
Figure 51 provides a breakdown at a local level where data was available.

Table 4: Overall immunisation rate by age and Indigenous status, 2016

Age group	Non-Indigenous	Indigenous
12 to 15 months	94.2%	90.3%
24 – 27 months	92.8%	89.5%
60 – 63 months	92.5%	93.6%

Source: Australian Childhood Immunisation Register, 2016

Figure 51: Immunisation coverage for Indigenous children by statistical area level three, 2016



Please note that the scale starts at 60 per cent when interpreting the graph.

Source: Australian Childhood Immunisation Register, 2016

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Burden of disease

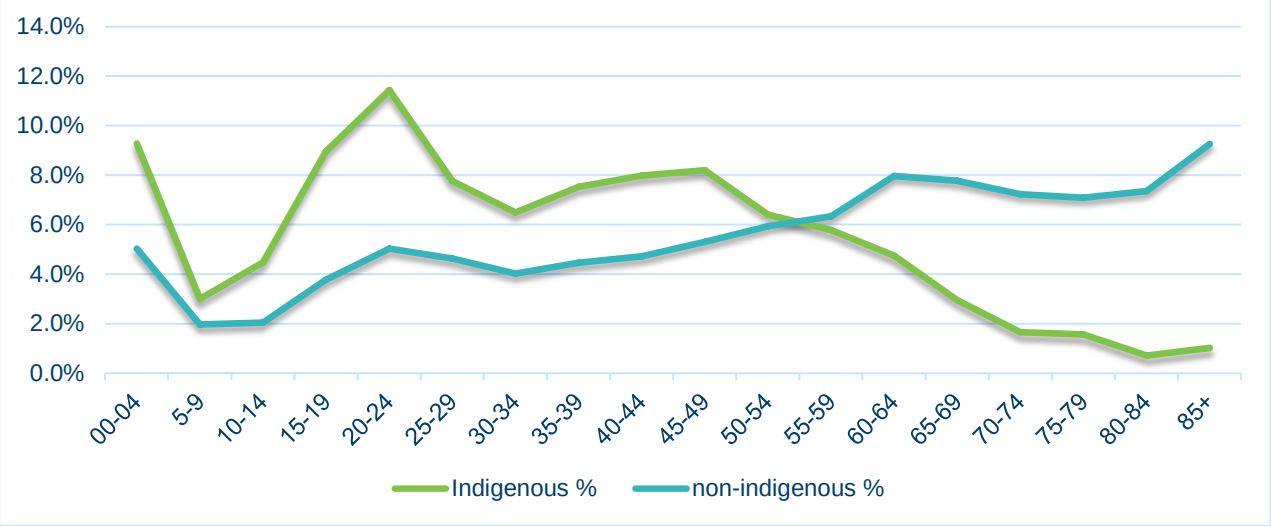
Burden of disease measures the years of healthy life lost to illness and is a measure of the health gap between the health status of a population and the ideal health situation (World Health Organization, 2016).

The burden of disease in the region increases with age, with almost 40 per cent of the total disease burden attributed to people aged 65 years and over. A large proportion of the fatal burden of disease (measured through years of life lost) is attributable to cardiovascular disease, cancer and unintentional injuries. The non-fatal burden of disease in the region (measured through years lived with disability) is largely attributable to mental disorders, diabetes and nervous system and sense organ disorders.

The Aboriginal and Torres Strait Islander population in the region has a higher disease burden across all ages when compared to the non-Indigenous population (Queensland Health, 2016).

Figure 52 shows that 37.2 per cent of the total disease burden among the Aboriginal and Torres Strait Islander population in the region is attributed to people aged less than 25 years compared to 17.9 per cent among the non-Indigenous population of the same age group. Over 11 per cent of the disease burden among Aboriginal and Torres Strait Islander people in the region is attributed to the 20-24 year age group alone, compared to five per cent among the non-Indigenous population.

Figure 52: Percentage of disease burden by age and Indigenous status, region, 2011



Source: Queensland Health, 2016

The largest burden of disease among the Aboriginal and Torres Strait Islander population in the region was attributable to mental disorders at 28.6 per cent of the disease burden. This is much higher than the non-Indigenous population in the region, where 16 per cent was attributable to mental disorders. Along with mental disorders, cardiovascular disease (11.6 per cent) and diabetes mellitus (10 per cent) accounted for over half of the attributable burden of disease among the Aboriginal and Torres Strait Islander people in the region.

For non-Indigenous populations in the region, whilst the highest attributed burden of disease was also mental disorders, for non-Indigenous resident's cardiovascular disease, cancer, and nervous system and sense organ disorders were all relatively similar in their percentage burden. Mental disorders are the largest contributor to the overall burden of disease in the region, accounting for 16.5 per cent of the total burden of disease in the region, followed by nervous system and sense organ disorders (15.1 per cent of the total burden) and cancer (14.9 per cent of the total burden).

Comparison rates of the disease burden between the Aboriginal and Torres Strait Islander population and the non- Indigenous population can be seen in Figure 53.

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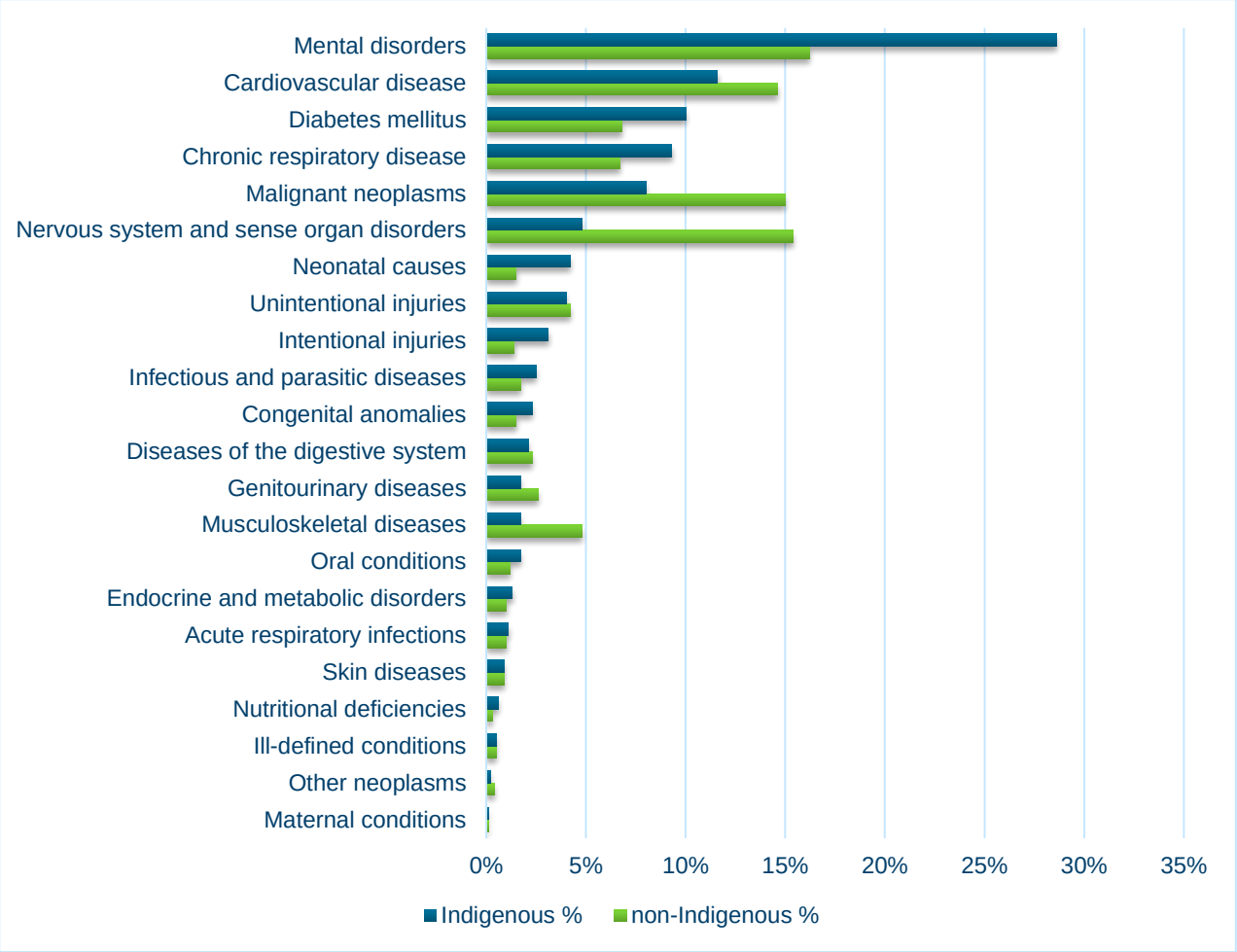
Figure 53: Burden of disease by cause and Indigenous status, region, 2011



Source: Queensland Health, 2016

Mortality

The following section analyses mortality rates and trends in the region for the period 2009-2013. Examining mortality trends provides valuable information on the fatal burden of disease experienced by a community. Similarly, analysis of the fatal burden of disease through metrics such as premature mortality indicate how healthy a population may be (Australian Institute of Health and Welfare, 2016), and allows for the identification of potential health inequity among population groups.

Analysis of mortality rates also allows health planners to gauge the effectiveness of healthcare systems in addressing the fatal burden of disease (World Health Organization, 2016). This is particularly useful in assessing the ability of a health system to respond to potentially avoidable deaths, usually measured through premature mortality or potentially avoidable deaths.

For males in the region, the leading causes of death are similar to the total population. The rate of deaths from suicide among males is much higher than among females. In the region, suicide is the eighth highest cause of death among males, accounting for three per cent of total deaths, whereas suicide is not in the highest twenty causes of death among females. This is also consistent with the Australian rate.

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Within the region, male deaths from suicide during the period 2009 to 2013 were highest in Bribie – Beachmere (27.7 deaths per 100,000), followed by Narangba – Burpengary (25.5 deaths per 100,000), Brisbane Inner (25.3 deaths per 100,000) and Redcliffe (25 deaths per 100,000). Death rates for chronic diseases were also higher than average in the Caboolture, Sandgate and Redcliffe. The higher rate of deaths from chronic disease may be associated with the lower socioeconomic status and higher median age of these regions.

While the leading cause of death for females is also chronic disease, the rates per 100,000 people are much lower when compared to males.

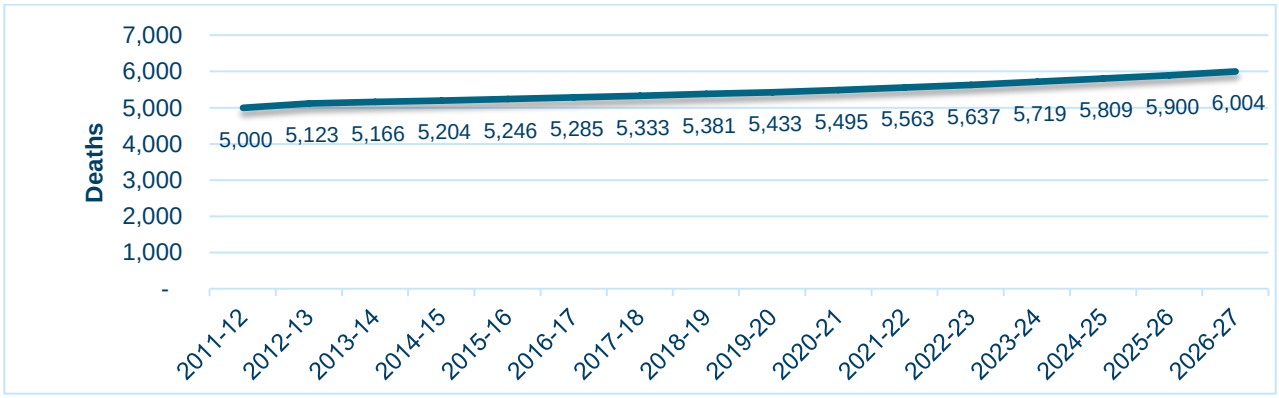
The rate of deaths from chronic disease follows the social gradient; inequalities in population health status are related to inequalities in social status, with deaths from conditions including coronary heart disease and lung cancer higher in Caboolture Hinterland, Caboolture and Redcliffe. Higher rates of death from chronic disease are also present in Sandgate. This may be due to the presence of a number of large aged care facilities and an older demographic present in the Sandgate area.

This section includes analysis on the following areas: premature mortality, potentially avoidable deaths, potential years of life lost and leading causes of death. Where possible, data will be reported at a local level to enable the identification of local trends.

Estimated deaths

It is estimated that the total number of deaths in the region will grow by over 1000 people from 5000 people in 2011-12 to 6004 in 2026-27. This represents approximately 17.5 per cent of all deaths in Queensland.

Figure 54: Projected mortality, 2011-12 to 2026-27 for the region



Source: Queensland Government population projections, 2015 edition, unpublished data

Premature mortality

Premature mortality rates are a measure of the average number of deaths before the age of 75 within a given population (Australian Institute of Health and Welfare, 2016a). They are standardised to enable comparisons across population groups and geographic areas, as this reduces the confounding factor of age. Standardised premature mortality rates allow for the identification of trends, particularly where higher than average rates are observed. Measured with potentially avoidable deaths, high rates of premature mortality may indicate higher fatal disease burden and potential gaps in the health system.

In 2013, the premature mortality rate for the region was 208.5 deaths per 100,000 people. This was similar to the Australian rate of 211.4 deaths per 100,000 people. Over the five-year period between 2009 and 2013, the premature mortality rate has decreased for both the region and Australia. This is highlighted in Figure 56. While there has been an overall decrease in the mortality rate during the period 2009 to 2013, there was an observed increase in premature mortality in the region between 2012 and 2013.

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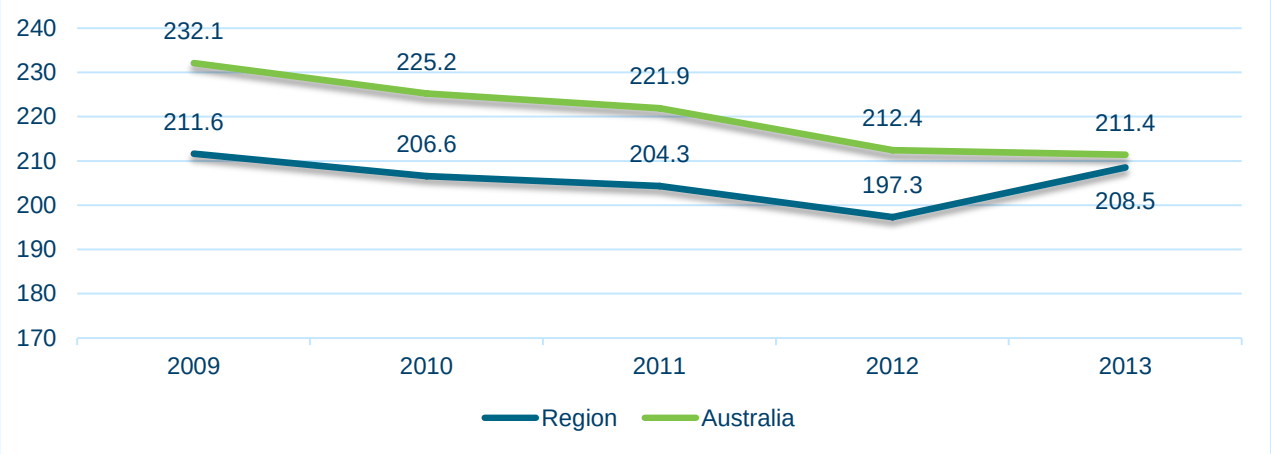
Premature mortality also accounted for an average 34 per cent of all deaths in the region during the period 2009 to 2013. This is consistent with the Australian average of 34.5 per cent.

Figure 55: Premature mortality, 2009 – 2013, rate per 100,000

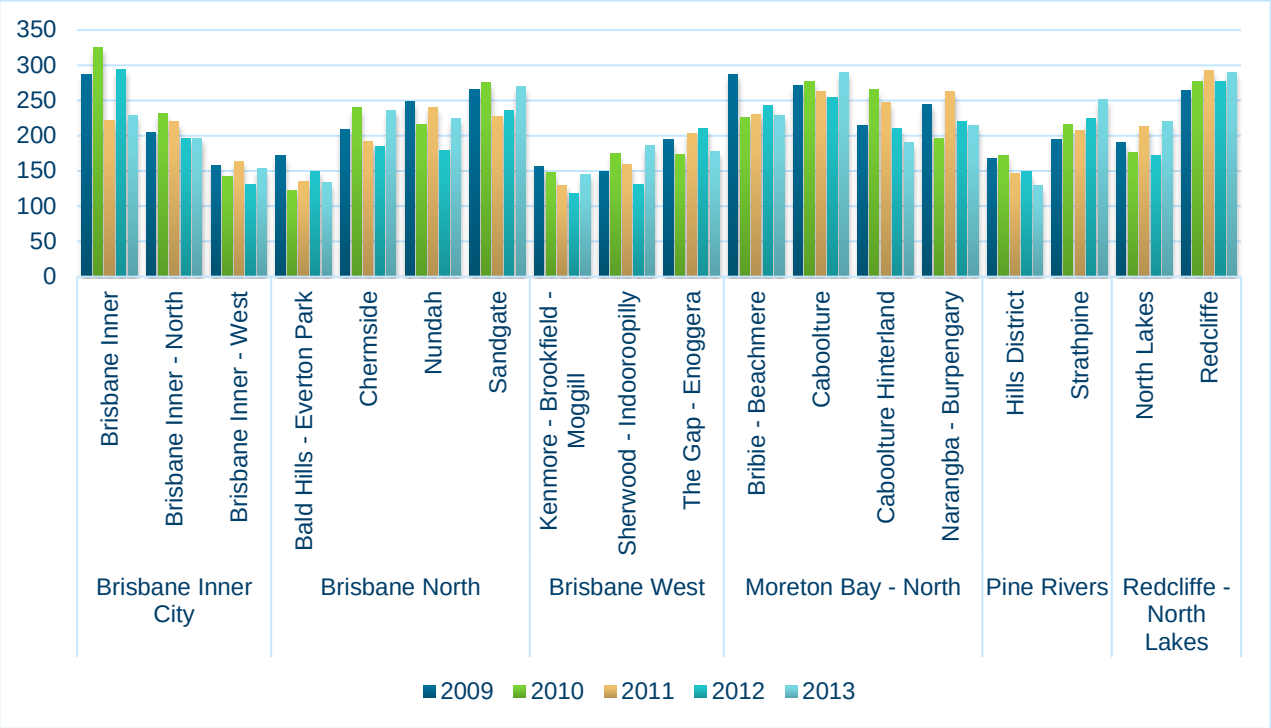


Source: Australian Institute of Health and Welfare, 2016.

Within the region, there were observed variations in premature mortality. Premature mortality rates in Sandgate, Redcliffe and Caboolture were higher than the Australian rate. Redcliffe in particular has seen a steady increase in premature mortality in the years between 2009 and 2013. The Strathpine area has also experienced a distinct increase in premature mortality during the same time period.

The areas associated with higher rates of premature mortality, are the more disadvantaged areas of the region.

Figure 56: Premature mortality (per 100,000) by Statistical Area level three and sub region, 2009 to 2013



Source: Australian Institute of Health and Welfare, 2016.

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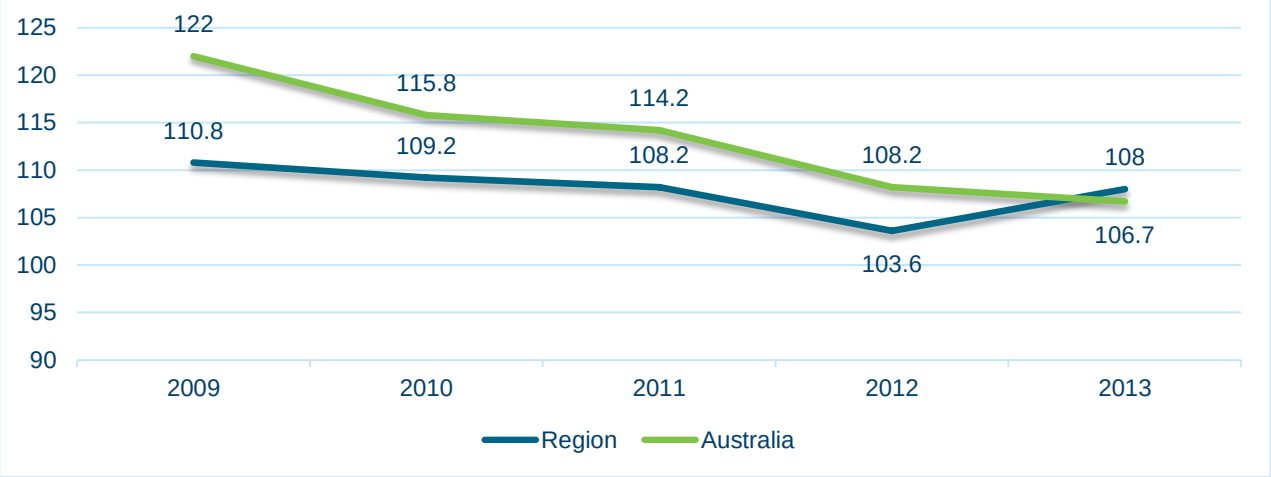
Potentially avoidable deaths

Potentially avoidable deaths are defined as deaths that may have been avoided in the context of the present healthcare system (Australian Institute of Health and Welfare, 2016). Potentially avoidable deaths include deaths from conditions that are potentially preventable through treatment within the current primary and hospital care systems. This is a measure of health system performance. Higher rates of potentially avoidable deaths highlight potential health service inequities.

In 2013, the rate of potentially avoidable deaths in the region was 108 per 100,000 people[11]. This was consistent with the Australian rate of 106.7 potentially avoidable deaths per 100,000 people. Over the five-year period between 2009 and 2013, the rate of potentially avoidable deaths in the region decreased with a slight increase in 2013. The trend from 2009 to 2012 was consistent with the Australian trend highlighted in Figure 57.

Figure 57: Potentially avoidable deaths, 2009 to 2013, rate per 100,000



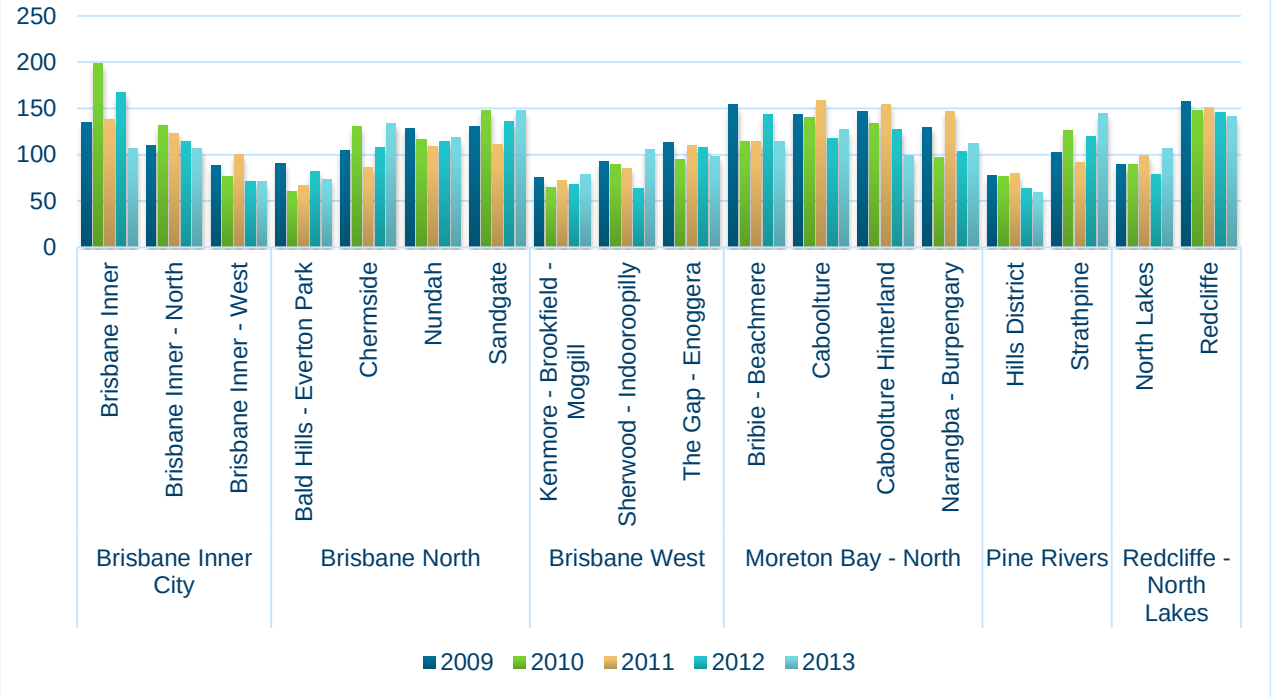
Source: Australian Institute of Health and Welfare, 2016.

Potentially avoidable deaths accounted for an average 52.4 per cent of premature deaths in the region during the period 2009 to 2013, accounting for an estimated 17 per cent of all deaths during the same period. This is consistent with the Australian average.

Within the region, the rates of potentially avoidable deaths varied considerably. By statistical area level three, Redcliffe had the highest rates of potentially avoidable deaths during the period 2009 to 2013, while Caboolture and Brisbane Inner also had higher than average rates of potentially avoidable deaths. The rates of potentially avoidable deaths in Caboolture, Caboolture Hinterland and Redcliffe declined during the period 2009 to 2013, whereas there has been a steady increase in potentially avoidable deaths in the Strathpine and Sandgate areas.

[11] Age standardised rate.

Figure 58: Potentially avoidable deaths (per 100,000) by statistical area level three and sub region, 2009-2013



Source: Australian Institute of Health and Welfare, 2016.

Leading causes of death

Total population

The top five leading causes of death are consistent across the country, state and region (Table 5). In the period between 2009 and 2013, coronary heart disease was the leading cause of death in the region, accounting for 105.6 deaths per 100,000 people or 15.7 per cent of all deaths during this period. This rate is consistent with the Australian rate of 105.3 deaths per 100,000 people. Deaths from stroke (8.3 per cent at a rate of 43.7 per 100,000) and dementia and Alzheimer disease (7.4 per cent at a rate of 38 per 100,000) followed. This was also consistent with Australian trends. Table 5 compares the top 20 causes of death in the region during the period between 2009 and 2013, compared with Australia.

While the leading causes of death in the region are similar to Australia, there is a higher rate of deaths from suicide in the region compared to Australia.

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Table 5: Top 20 leading causes of death and ICD code, 2009 – 2013

Australia	Per cent	Queensland	Per cent	Region	Per cent
Coronary heart disease (I20–I25)	14.6	Coronary heart disease (I20–I25)	15.4	Coronary heart disease (I20–I25)	14.9
Cerebrovascular disease (I60–I69)	7.6	Cerebrovascular disease (I60–I69)	7.8	Cerebrovascular disease (I60–I69)	8.3
Dementia and Alzheimer disease (F01, F03, G30)	6.7	Dementia and Alzheimer disease (F01, F03, G30)	5.9	Dementia and Alzheimer disease (F01, F03, G30)	7.4
Lung cancer (C33, C34)	5.6	Lung cancer (C33, C34)	5.9	Lung cancer (C33, C34)	5.4
Chronic obstructive pulmonary disease (COPD) (J40–J44)	4.0	Chronic obstructive pulmonary disease (COPD) (J40–J44)	4.2	Chronic obstructive pulmonary disease (COPD) (J40–J44)	4.2
Diabetes (E10–E14)	2.9	Colorectal cancer (C18–C21)	3.0	Colorectal cancer (C18–C21)	3.2
Colorectal cancer (C18–C21)	2.8	Diabetes (E10–E14)	2.8	Diabetes (E10–E14)	2.6
Cancer, unknown, ill-defined (C26, C39, C76–C80)	2.6	Cancer, unknown, ill-defined (C26, C39, C76–C80)	2.6	Prostate cancer (C61)	2.3
Heart failure and complications and ill-defined heart disease (I50–I51)	2.3	Prostate cancer (C61)	2.4	Cancer, unknown, ill-defined (C26, C39, C76–C80)	2.2
Prostate cancer (C61)	2.2	Suicide (X60–X84)	2.2	Breast cancer (C50)	2.1
Breast cancer (C50)	2.0	Breast cancer (C50)	1.9	Suicide (X60–X84)	2.0
Kidney failure (N17–N19)	1.7	Pancreatic cancer (C25)	1.6	Influenza and pneumonia (J09–J18)	1.9
Suicide (X60–X84)	1.7	Heart failure and complications and ill-defined heart disease (I50–I51)	1.6	Pancreatic cancer (C25)	1.5
Pancreatic cancer (C25)	1.7	Influenza and pneumonia (J09–J18)	1.5	Melanoma (C43)	1.5
Influenza and pneumonia (J09–J18)	1.6	Melanoma (C43)	1.3	Heart failure and complications and ill-defined heart disease (I50–I51)	1.4
Hypertensive disease (I10–I15)	1.3	Kidney failure (N17–N19)	1.3	Kidney failure (N17–N19)	1.3
Accidental falls (W00–W19)	1.2	Land transport accidents (V01–V89)	1.2	Accidental falls (W00–W19)	1.2
Cardiac arrhythmias (I47–I49)	1.1	Leukaemia (C91–C95)	1.2	Leukaemia (C91–C95)	1.2
Leukaemia (C91–C95)	1.1	Liver disease (K70–K76)	1.1	Non-rheumatic valve disorders (I34–I38)	1.2
Liver disease (K70–K76)	1.1	Non-rheumatic valve disorders (I34–I38)	1.1	Hypertensive disease (I10–I15)	1.0

Source: Australian Institute of Health and Welfare, 2016.

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Long term chronic conditions

Chronic conditions are a group of non-communicable conditions which tend to be long lasting and have persistent effects. Conditions that are considered chronic include (but are not limited to):

- arthritis
- asthma
- circulatory system disease such as high blood pressure
- chronic obstructive pulmonary disease (COPD)
- diabetes
- high blood cholesterol
- hypertension
- musculoskeletal such as osteoporosis

In the region, almost half of all adults (46 per cent) have a long term chronic condition, this has increased by five per cent from 2011-12 to 2012-13 (National Health Performance Authority, 2015). The most prevalent chronic condition affecting one in three people (aged 18 years and over) in the region is high blood cholesterol (30.9 per cent) followed by musculoskeletal (26.5 per cent). Chronic obstructive pulmonary disease (COPD) affects the least with 2.6 per cent as shown in Table 6.

By sub regions, there are vast differences with those living in Moreton Bay North reporting the highest rates of prevalence across seven of the eight reported conditions. In contrast, Pine Rivers tends to perform better than the other sub regions where it reports the equal or lowest rates for five of the eight reported conditions.

Table 6: Prevalence of chronic conditions by sub region, 2011-13

Condition	Brisbane Inner City	Brisbane North	Brisbane West	Pine Rivers	Redcliffe - North Lakes	Moreton Bay North	Region (average)	Queensland
Arthritis	12.1%	13.6%	12.1%	11.3%	14.4%	**15.6%**	**13.7%**	**14.1%**
Asthma	8.4%	9.6%	9.4%	10.2%	10.1%	**10.7%**	**9.7%**	**10.2%**
Chronic obstructive pulmonary disease (COPD)	2.3%	2.7%	2.3%	2.3%	2.8%	**2.9%**	**2.6%**	**2.7%**
Circulatory system disease	16.3%	17.0%	15.4%	16.4%	16.3%	**17.1%**	**16.7%**	**17.8%**
Diabetes	4.3%	4.9%	4.3%	4.1%	5.4%	**5.9%**	**4.8%**	**5.1%**
High blood cholesterol	31.3%	30.5%	**32%**	31.9%	30.6%	30.8%	**30.9%**	**30.7%**
Hypertension	9.7%	9.8%	9.9%	8.6%	9.6%	**10.0%**	**9.9%**	**10.1%**
Musculoskeletal	24.7%	26.9%	25.4%	24.5%	26.3%	**27.2%**	**26.5%**	**27.2%**[1]

[1] *The rates of musculoskeletal conditions include arthritis and have been combined due to reporting methods for Queensland.*

Source: Public Health Information Development Unit, 2015, Queensland Health 2014 and National Heart Foundation, 2014.

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Long-term health conditions are an indicator of overall health among population groups, and are reported through the Australian Bureau of Statistics' patient experience survey. Long term A person is classified as having a long-term condition if they reported having one of the following for a duration of at least six months, or were likely to last at least six months:

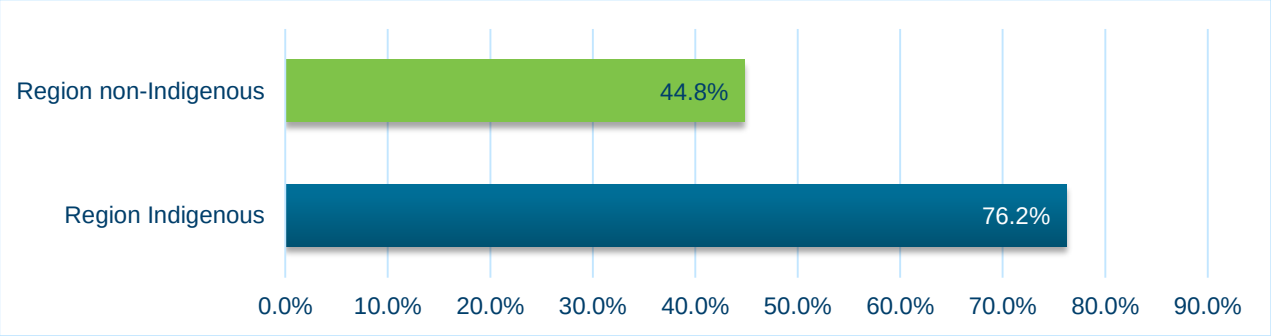
- arthritis or osteoporosis
- asthma
- cancer
- diabetes
- heart or circulatory condition
- mental health condition, including depression or anxiety
- long term injury
- any other long term condition.

(Australian Bureau of Statistics, 2015; National Health Performance Authority, 2015).

The proportion of Aboriginal and Torres Strait Islander people in the region[12] who report having one long term health condition is 25 per cent, with a further 51.2 per cent living with two long term health conditions. This is worse than the national rate of 20.9 per cent of Aboriginal and Torres Strait Islander people with one long term health condition and 46.9 per cent of Aboriginal and Torres Strait Islander people nationally living with two long term health conditions (Australian Bureau of Statistics, 2013).

This is also 1.7 times the rate for the non-Indigenous population of the region (44.8 per cent)[13.] This difference can be seen in Figure 59.

Figure 59: Long term conditions by Indigenous status, region



Source: Australian Bureau of Statistics, 2013, National Health Performance Authority, 2015

GP chronic disease management

Chronic disease management[14] enables GPs to plan and coordinate the healthcare of their patients with chronic or terminal medical conditions. This may include patients with conditions that require multidisciplinary, team-based care from a GP and at least two other health or care providers.

A chronic medical condition is one that has been (or is likely to be) present for six months or longer, for example, asthma, cancer, cardiovascular disease, diabetes, musculoskeletal conditions and stroke. There is no list of eligible conditions; however, chronic disease management items are designed for patients who require a structured approach, including patients requiring ongoing care from a multidisciplinary team

In the region, an average of 6359 people per 100,000 commenced a GP chronic disease management plan in between 2012-13 and 2014-15. This was an estimated six per cent of the region's population. Due to data calculation methods, comparisons with the national rate were not available.

[12] During 2012-13
[13] The Non-Indigenous rate is reported for a slightly different time period than the Indigenous rate.
[14] Chronic disease management refers to MBS item number 721

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The rate of patients who commenced a GP chronic disease management plan in the region varied considerably, varying from an average of 2704 people per 100,000 in Sherwood – Indooroopilly (three per cent of the area's population) to 12,008 per 100,000 in Bribie – Beachmere (12 per cent of the area's population). Three year trends, highlighted in Figure 60, follow a similar pattern to the average number of GP attendances, indicating that a large proportion of people in areas of higher socioeconomic disadvantage are more likely to require chronic disease management.

Figure 60: Average number of people per 100,000 commencing a GP Management Plan, by statistical area level three and sub region, 2012-13 to 2014-15

Source: Commonwealth Department of Health, 2016

Between the years 2012-13 and 2014-15, there was a 7.7 per cent increase in the number of patients commencing a GP chronic disease management plan in the region. Within the region, there was a large variation, with the number of patients commencing a GP chronic disease management plan in the Brisbane Inner – West region decreasing by 4.5 per cent, whereas the Caboolture Hinterland area saw a 22.1 per cent increase in the number of patients commencing a GP chronic disease management plan. The change in patients commencing a GP chronic disease management plan is indicated in Figure 61.

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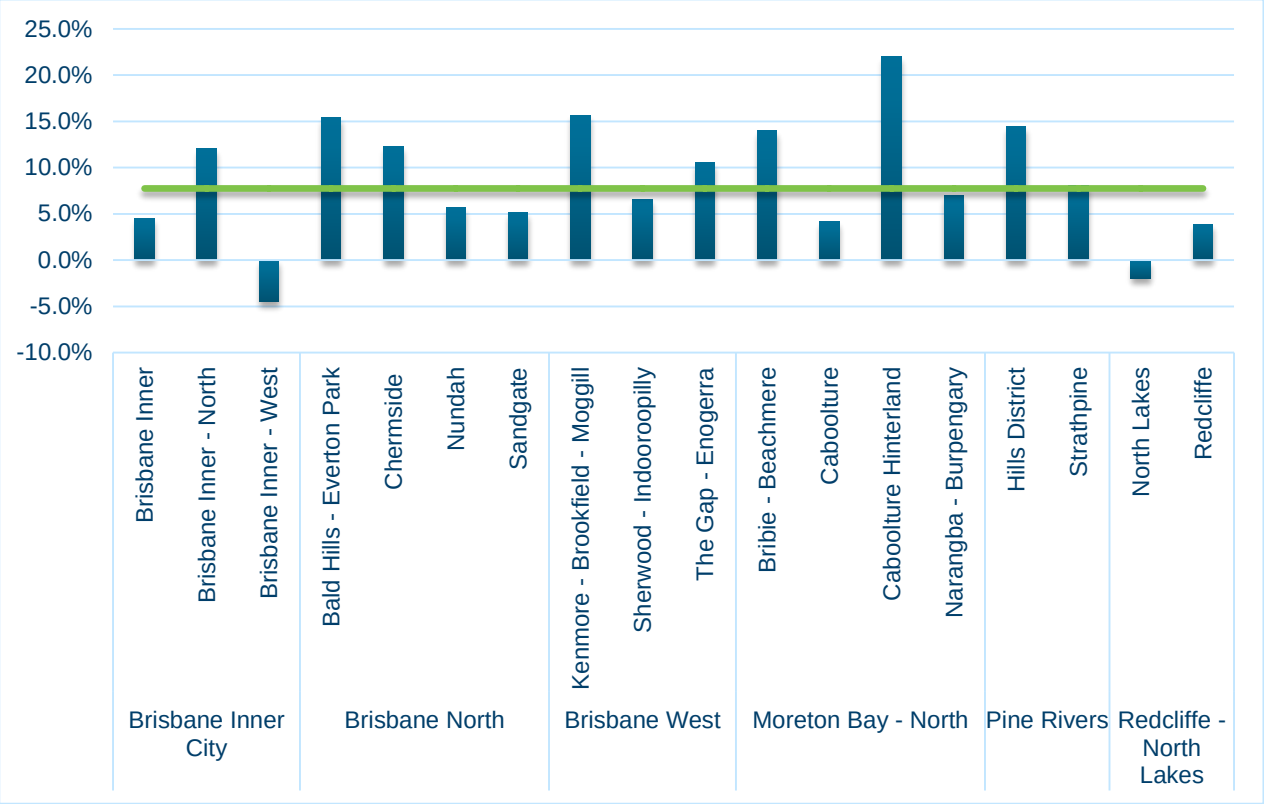
Figure 61: Patterns in patients commencing a GP management plan by statistical area level three and sub region, 2012-13 to 2014-15



Source: Commonwealth Department of Health, 2016

Disability

People with a profound or severe disability often require help or assistance in one or more of the three core activity areas; self-care, mobility and communication, because of a long-term health condition or a disability.

In the region, there are nearly 35,000 people who are in need of assistance with a profound or severe disability. This is an estimated 4.2 per cent of the population. People with a profound disability living in the community equates to 3.6 per cent of the population (approximately 30,000 people). There are more people with a profound disability living in Redcliffe - North Lakes (5.5 per cent) and Moreton Bay North (5.6 per cent) than any other sub region. Brisbane Inner City and Brisbane West have the lowest rates for both indicators and this is shown in Table 7.

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Table 7: Proportion of people with a profound disability or severe disability by sub region and hospital catchment, 2011

Hospital catchment	Sub region	People with a profound disability	People with a profound disability and are living in the community
RBWH	Brisbane Inner City	3.0%	2.3%
	Brisbane West	3.0%	2.4%
TPCH	Brisbane North	4.4%	3.6%
	Pine Rivers	3.1%	2.8%
Redcliffe	Redcliffe - North Lakes	5.5%	4.6%
Caboolture	Moreton Bay North	5.6%	5.1%
	Region (average)	**4.1%**	**3.5%**

Source: Public Health Information Development Unit, 2015

Potentially preventable hospitalisations

Potentially preventable hospitalisations (PPH) are an admission to hospital for a condition where the hospitalisation could have potentially been prevented. This is through the provision of appropriate individualised preventative health interventions and early disease management, usually delivered in primary care and community-based care settings (including general practitioners, medical specialists, dentists, nurses and allied health professionals) (Australian Institute of Health and Welfare 2015e).

There are three types of potentially preventable hospitalisations:

- acute: conditions for which hospitalisations should not be necessary if people receive timely and adequate access to primary healthcare
- chronic: conditions which may be managed in a primary healthcare setting to prevent the condition worsening and requiring hospitalisation
- vaccine preventable: conditions which are considered preventable rather than hospitalisation (e.g. influenza and other vaccine-preventable conditions.

Source: National Health Performance Authority, 2015

Table 8 provides a full list of potentially preventable hospitalisations by type as per the National Healthcare Agreement.

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Table 8: Selected potentially preventable hospitalisations, Australia, 2015

Vaccine Preventable	Acute	Chronic
• Other vaccine preventable conditions • Pneumonia and influenza	• Cellulitis • Convulsions and epilepsy • Dental conditions • Ear, nose and throat infections • Eclampsia • Gangrene • Pelvic inflammatory disease • Perforated/bleeding ulcer • Pneumonia (not vaccine preventable) • Urinary tract infections, including pyelonephritis	• Angina • Asthma • Bronchiectasis • COPD • Congestive cardiac failure • Diabetes complications • Hypertension • Iron deficiency anaemia • Nutritional deficiencies • Rheumatic heart disease

Source: Australian Institute of Health and Welfare, 2016

During 2013-14, there were 23,859 potentially preventable hospitalisations in the region which accounts for six per cent of all hospital admissions (396,148 hospital episodes). Of the hospitalisations considered potentially preventable, a large proportion were for acute/vaccine conditions. The average length of stay for potentially preventable hospitalisations (including same day admissions) is three days. During 2013-14, there were nearly 82,000 bed days.

Table 9 provides an overview of the potentially preventable hospitalisations by type and selected indicators. Further information about these hospitalisations is in the proceeding sections.

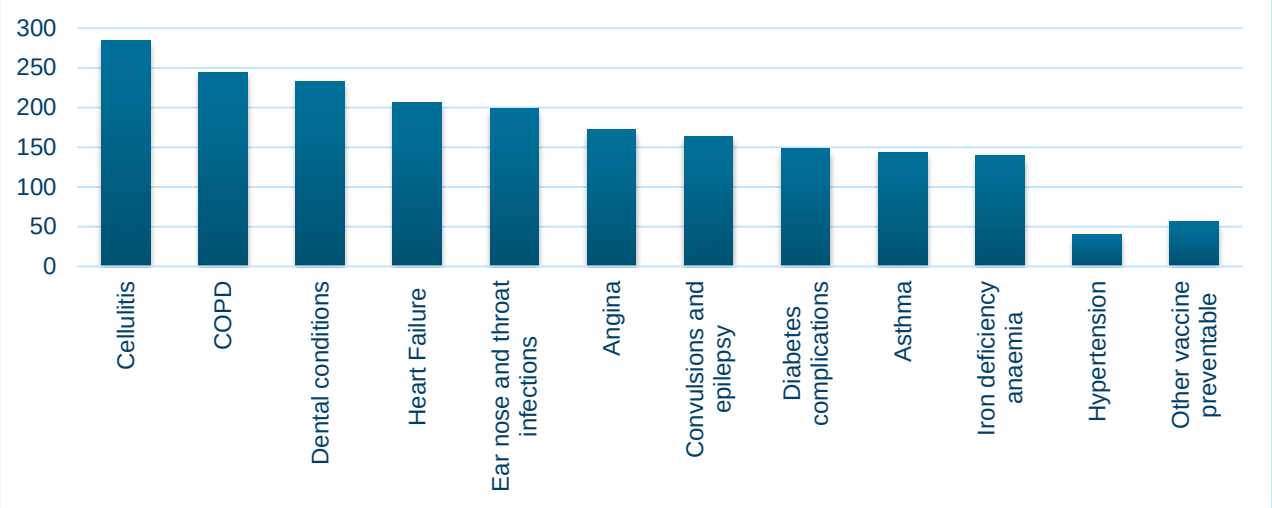
Table 9: Potentially preventable hospitalisations by type and selected indicators, 2013-14

Potentially preventable hospitalisation type	Indicator	Figure
All potentially preventable hospitalisations conditions	Number of PPH	23,859
	Same day PPH	8794
	Total bed days	81,764
	Average length of stay (days)	3
Chronic conditions	Number of chronic PPH	10,834
	Same day chronic PPH	3493
	Total bed days	42,271
	Average length of stay (days)	4
Acute / vaccine preventable conditions	Number of acute/vaccine preventable PPH	13,130
	Same day acute/vaccine preventable PPH	5305
	Total bed days	40,313
	Average length of stay (days)	2.8

Source: National Health Performance Authority, 2015

The leading condition for potentially preventable hospitalisations was for cellulitis followed by COPD in the region. Figure 62 reports the rate for selected conditions for 2013-14 for the region.

Figure 62: Potentially preventable hospitalisation rates for selected conditions, 2013-14



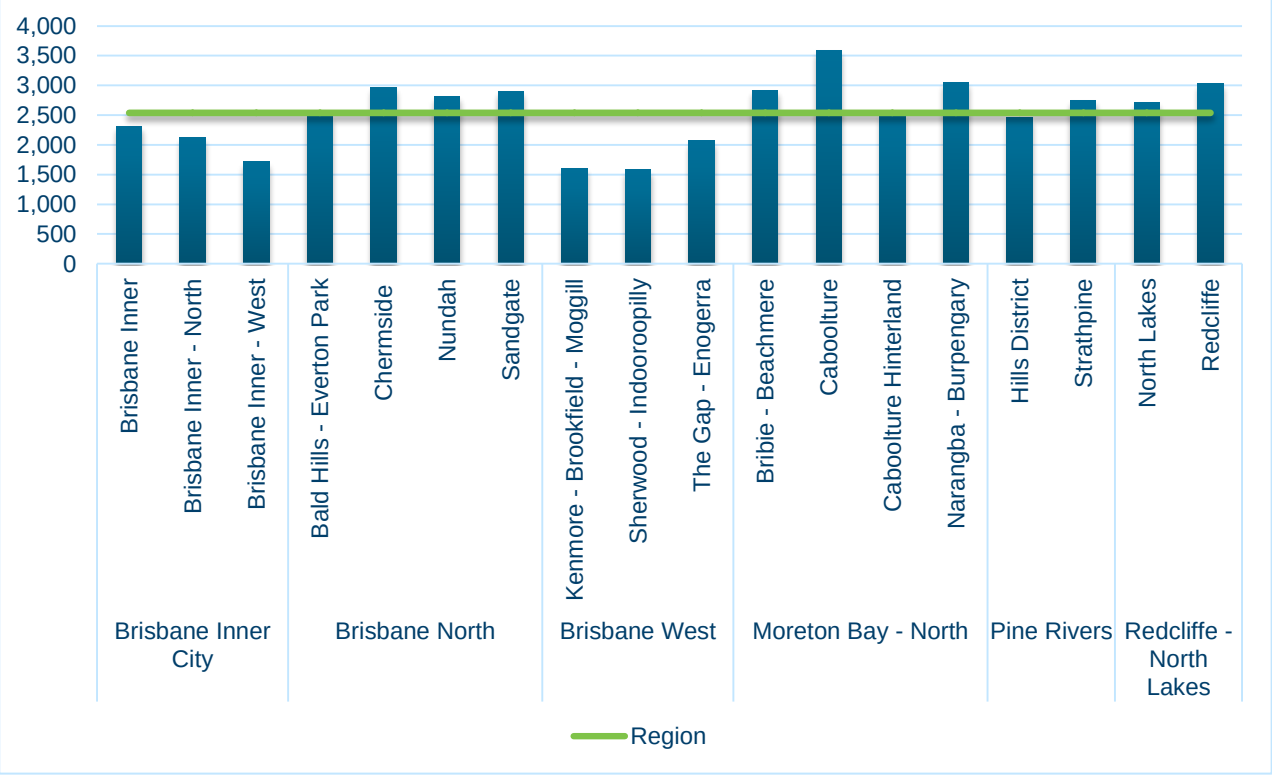
Source: National Health Performance Authority, 2015

Total potentially preventable hospitalisations

Within the region, the population of the Caboolture statistical area had the highest rate of potentially preventable hospitalisations, with 3597 hospitalisations per 100,000 people. The Caboolture and Redcliffe statistical areas also recorded high rates of potentially preventable hospitalisations.

The high rates of potentially preventable hospitalisations generally occur in areas of higher social disadvantage and may indicate an unmet need of a health service gap.

Figure 63: Number of potentially preventable hospitalisations per 100,000 people by statistical area level three and sub region, 2013-14



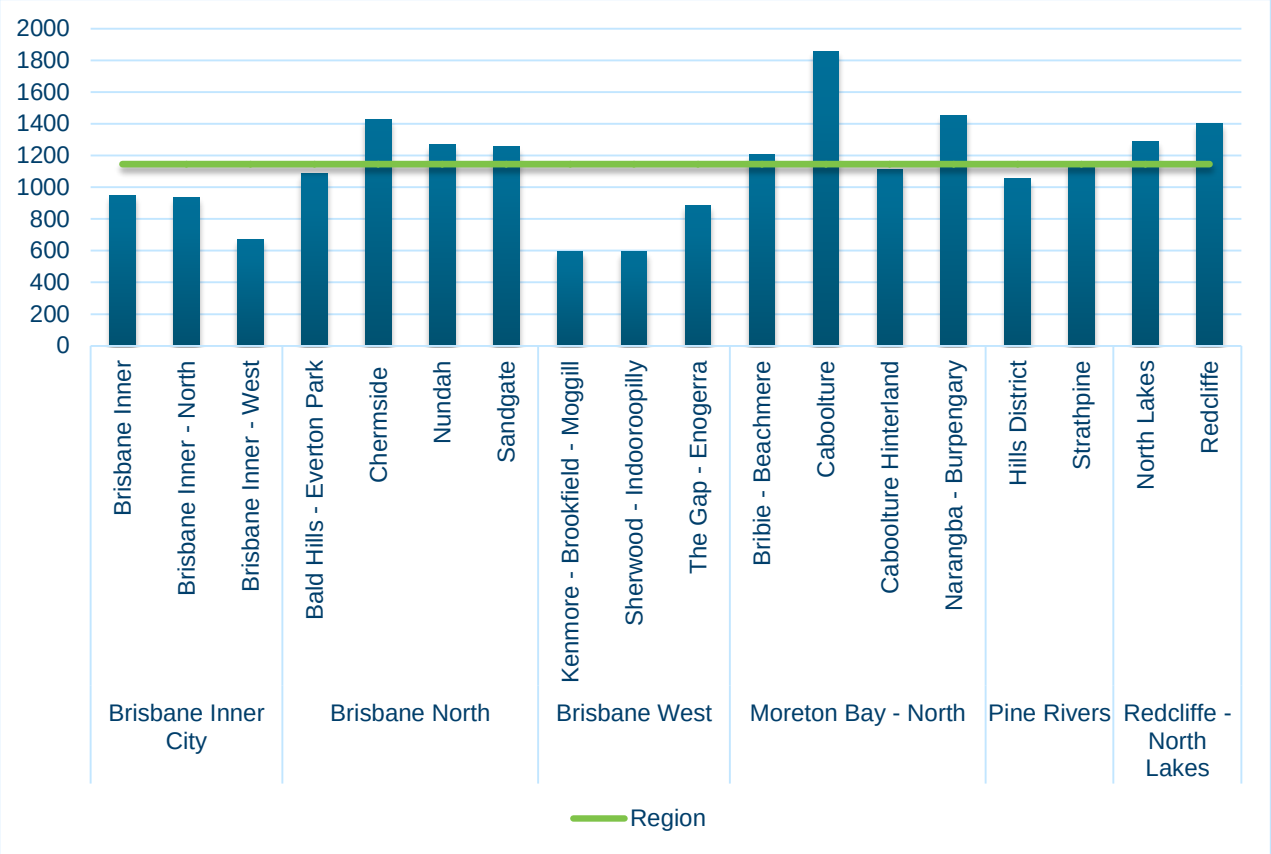
Source: National Health Performance Authority, 2015

Potentially preventable hospitalisations for chronic conditions

There were more than 10,800 chronic potentially preventable hospitalisations in the region during 2013-14. The total number of bed days[15] was 42,271 and this is more than 50 per cent of the total potentially preventable hospitalisation bed days. The average length of stay for chronic potentially preventable hospitalisations is four days, which is higher than the overall rates previously reported.

Chermside, Narangba - Burpengary and Caboolture reported the highest rates of potentially preventable hospitalisations for chronic conditions per 100,000 people, as seen in Figure 64.

Figure 64: Number of chronic PPH per 100,000 people by statistical area level three and sub region, 2013-14



Source: National Health Performance Authority, 2015

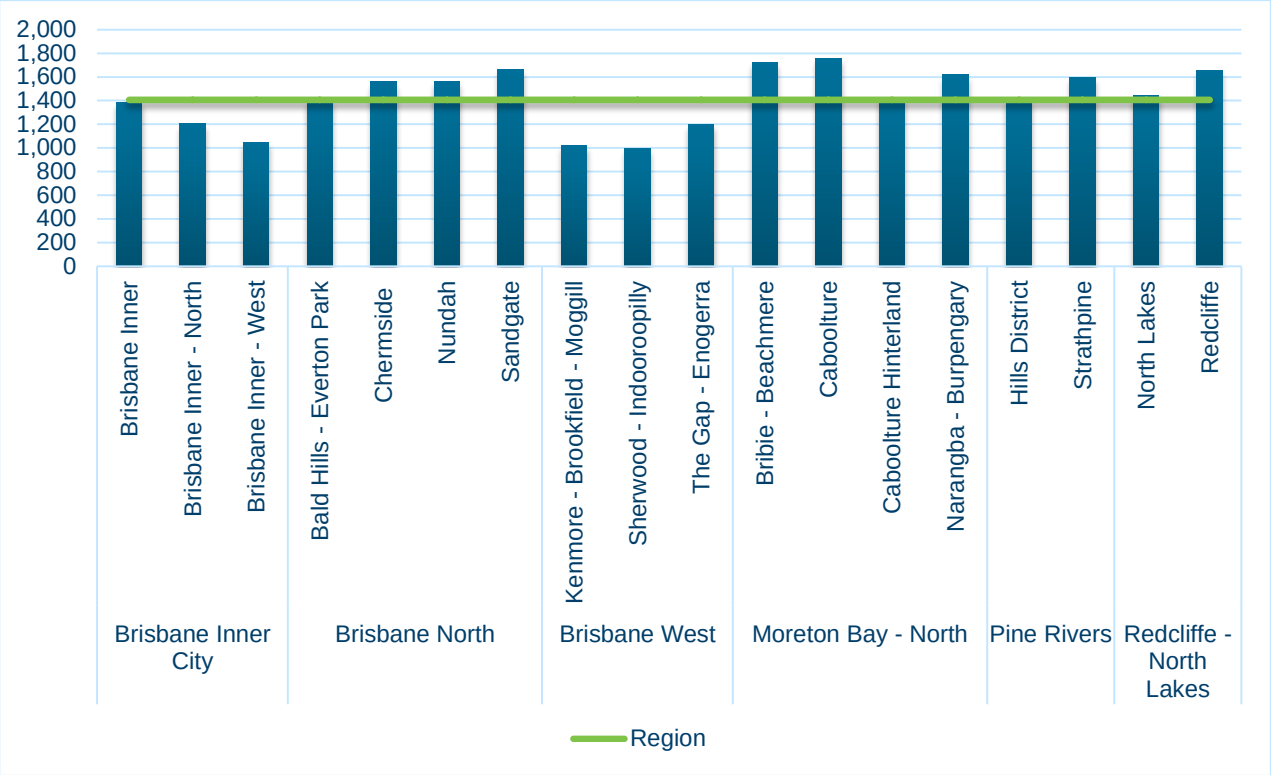
Acute/vaccine preventable potentially preventable hospitalisations

There were more than 13,000 acute/vaccine preventable potentially preventable hospitalisations in the region during 2013-14. The total number of bed days was 40,313 which is just less than half of all bed days for potentially preventable hospitalisations. The average length of stay for acute/vaccine preventable potentially preventable hospitalisations is 2.8 days, which is slightly lower than the overall rates previously reported. For same day admission rates, there were 5305 in the region. Chermside, Hills District, Narangba-Burpengary and Caboolture all report rates greater than 400 hospitalisations.

The rate of potentially preventable hospitalisations for acute/vaccine preventable conditions per 100,000 people is reported in Figure 65.

[15] A bed day is defined as a day which a person is confined to bed and in which the patient stays overnight in a hospital.

Figure 65: Number of acute/vaccine preventable PPH per 100,000 people by statistical area level three and sub region, 2013-14



Source: National Health Performance Authority, 2015

Frequent visitors to public hospitals

The term 'frequent visitors' refers to individuals who have more than five overnight hospitalisations within with a financial year. Frequent visitors refer to patients more than hospital separations.

Frequent visitors are high utilisers of health services and therefore targeting this cohort of patients may indicate opportunities for better case management of chronic conditions and thus opportunities for efficiency gains. Because of this a number of service related groups that naturally require a high number of visitors where excluded from the analysis.

The above qualifiers remove the following patients from the frequent visitor dataset:

- patients who are admitted as same-day patients such as those receiving chemotherapy, haemodialysis and day surgery procedures (as examples)
- patients who are occupying an inpatient bed for the purposes of rehabilitation, Geriatric Evaluation and Management, Maintenance, Boarding, Organ Procurement, Palliative care or Psychogeriatric care.
- patients who are admitted for mental health treatment.

Based on these parameters, there were 953 individual frequent visitors to the region's public hospitals during the 2015-16 financial year. Overall, the frequent visitor cohort generated 6209 separations (6.27 per cent of total separations) and occupied 34,990 bed days (8.2 per cent of total OBDs); generating an average length of stay of 5.64 days. This is much higher than the average length of stay of 3.22 days for overnight separations.

Respiratory conditions were the most common service group for frequent visitors with patients admitted for diagnostic groups such as chronic obstructive airways disease, cystic fibrosis, respiratory infections and respiratory system disorders. Admissions for respiratory conditions accounted for 19 per cent of all separations (1180 separations) and 22.9 per cent of all hospital bed days (8021 bed days).

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Cardiology was the second most common service group for frequent visitors representing 12 per cent of all separations with a total of 1180 separations and 2938 bed days in 2015-16. This included diagnostic groups such as chest pain and heart failure and shock.

Table 10: Total separations and bed days for frequent visitors by top ten diagnostic related groups, 2015-16

Service Related Group	Total Separations	Total Bed days
Respiratory Medicine	1,180 (19%)	8,021 (22.9%)
Cardiology	743 (12%)	2,938 (8.4%)
General Surgery	633 (10.2%)	2,556 (7.3%)
General Medicine	319 (5.1%)	1,108 (3.2%)
Neurology	300 (4.8%)	1,646 (4.7%)
Immunology & Infections	295 (4.8%)	1,742 (5%)
Gastroenterology	247 (4%)	1,192 (3.4%)
Medical Oncology	246 (4%)	1,202 (3.4%)
Haematology	201 (3.2%)	1,546 (4.4%)
Orthopaedics	192 (3.1%)	1,573 (4.5%)
Other	1,853 (29.8%)	11,466 (32.8%)
Grand Total	**6,209**	**34,990**

Source: Decision Support Systems (DSS), Queensland Health, 2016

Frequent visitors to public hospitals tend to be older, with 70 per cent of frequent visitors to public hospitals in 2015-16 aged 50 years and over. Over one in three frequent visitors to public hospitals are aged 70 years and over, as indicated in Table 11.

Table 11: Age profile of frequent visitors to public hospitals, region, 2015-16

Age Strata	No. of Patients	No. of SEPs	No. of Bed Days
Under 16	24	142	580
16-19	23	154	1181
20-29	64	481	3193
30-39	81	558	2865
40-49	91	599	3593
50-59	138	915	5488
60-69	185	1196	6662
70-79	194	1250	6770
80-89	137	816	4199
>90	16	98	459
Total	**953**	**6209**	**34,990**

Source: Decision Support Systems (DSS), Queensland Health, 2016

Over 40 per cent of total separations of frequent visitors to public hospitals occurred in Redcliffe Hospital, with 2563 separations in 2015-16. This was followed by Caboolture Hospital with, 1562 separations in 2015-16. While Redcliffe Hospital also has the highest total bed days, the average length of stay is longest at the Caboolture Hospital, as shown in Table 12.

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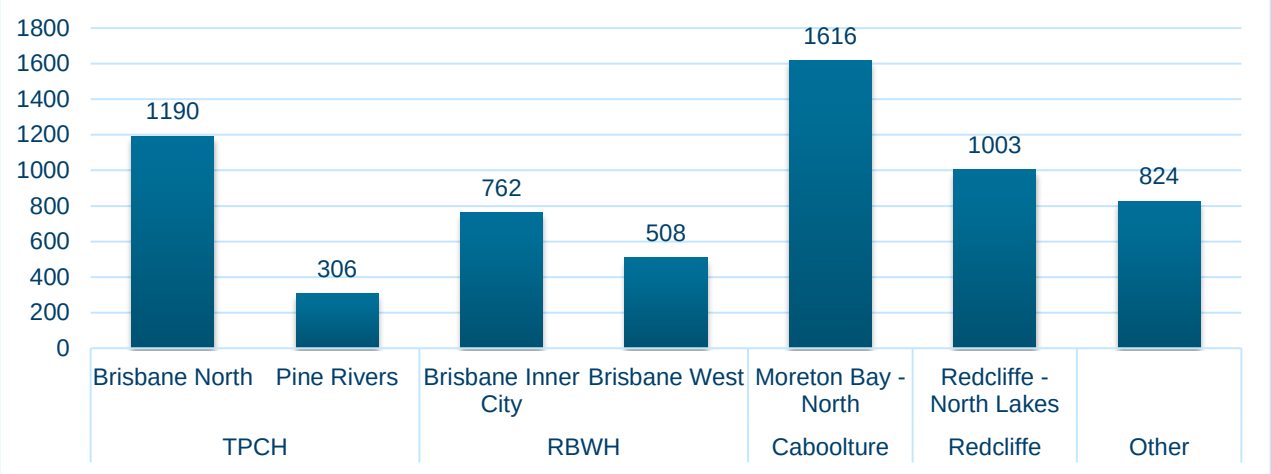
Table 12: Frequent visitors to public hospitals by facility, region, 2015-16

Hospital	Total separations of Frequent visitors	Total Bed Days of Frequent visitors	Average Length of Stay (ALOS)
TPCH	987	3897	3.95 Days
RBWH	1097	4667	4.25 Days
Redcliffe	2563	15,463	6.03 Days
Caboolture	1562	10,783	6.90 Days
TOTAL	**6209**	**34,990**	**5.64 Days**

Source: Decision Support Systems (DSS), Queensland Health, 2016

Figure 66 shows, also indicates that there are a higher number of frequent visitors to public hospitals residing in the Moreton Bay – North, Brisbane North and Redcliffe – North Lakes sub regions compared to all other areas in 2015- 2016.

Figure 66: Number of frequent presentations for chronic conditions by sub region and hospital catchment, 2013 – 2015



Source: Decision Support Systems (DSS), Queensland Health, 2016

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Mental health

Mental health is more than the absence of mental disorders, it is a state of wellbeing in which the individual realises his or her own abilities, can cope with the normal stresses of life, can work productively, and is able to make a contribution to his or her community (World health Organization, 2014). Mental health difficulties are common, affecting people from all walks of life, ages and backgrounds (Queensland Government, 2014). Many do not seek or receive the treatment and support they need. This leads to poor outcomes for individuals and families and contributes to a growing social and economic burden for communities (Queensland Government, 2014).

People living with mental health difficulties are also more likely to have other health issues, including increased drug and alcohol use and increased body mass. According to the Commonwealth Department of Health (2010), 73.4 per cent of people screened positive for psychotic illness having a body mass index (BMI) in the overweight or obese range, and 45.1 per cent having a BMI in the obese range (Department of Health, 2010). Participants in the *Living with psychosis survey* also reported low levels of physical activity. As a result, people living with psychotic illness are at an increased risk of co-morbid chronic conditions, when compared to the general population.

Estimates of psychological distress

Psychological distress is an indicator of the mental health and wellbeing of a population it is a self-assessed measure using the Kessler Psychological Distress Scale (K10). The K10 questionnaire was developed to yield a global measure of psychosocial distress, based on questions about people's level of nervousness, agitation, psychological fatigue and depression in the past four weeks (Coombs, 2005).

In 2011-13, there was an estimated 71,300 people in the region aged 18 years and over with high or very high psychological distress, representing 10.1 per cent of the adult population during the same period (Public Health Information Development Unit, 2015). Levels of distress are higher in the northern part of the region with Redcliffe - North Lakes and Moreton Bay North having the highest rates (Table 13).

Table 13: Prevalence of high or very high psychological distress by sub region and hospital catchment, 2011-13

Hospital catchment	Sub region	Number	Percentage of high or very high psychological distress (%)
RBWH	Brisbane Inner City	13,869	9.2
	Brisbane West	8824	8.8
TPCH	Brisbane North	15,613	9.9
	Pine Rivers	8589	9.7
Redcliffe	Redcliffe - North Lakes	11,771	12.2
Caboolture	Moreton Bay North	12,640	11.4
	Region	**71,306**	**10.1**
	Queensland		10.6

Source: Public Health Information Development Unit, 2015

There are eight statistical areas level three where ten per cent or more of the population report high or very high psychological distress. There is a higher prevalence psychological distress among people living in the Moreton Bay North and Redcliffe - North Lakes sub regions, followed by the Pine Rivers sub region. The rates of high or very high psychological distress within the region range from 7.7 per cent to 13 per cent (Figure 67).

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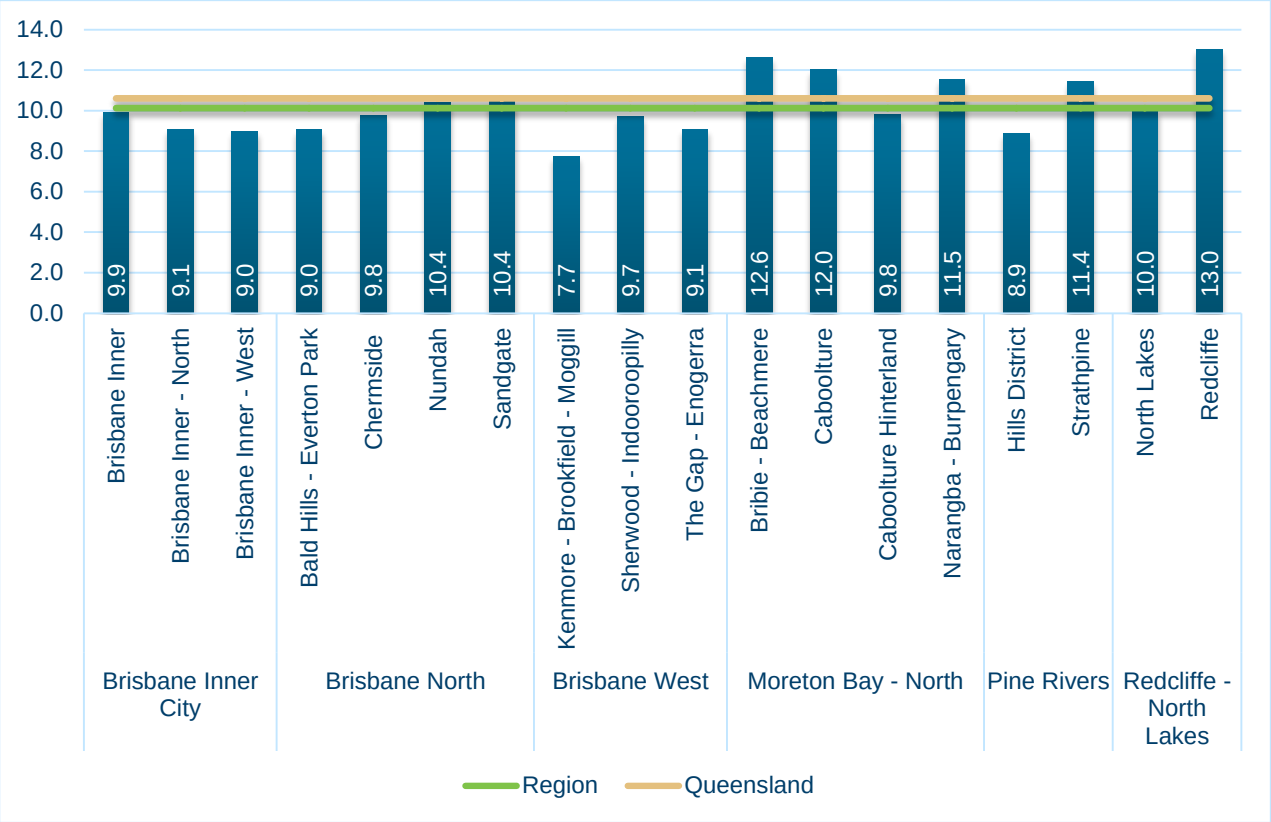
Figure 67: Estimates of high or very high psychological distress by statistical area level three and sub region, 2011-13



Source: Public Health Information Development Unit, 2015

Estimated population with mental and behavioural problems

Mental and behavioural disorders (as diagnosed and classified within ICD-10) include a range of conditions such as dementia, schizophrenia, mood, neurotic or personality disorders and mental behavioural disorders due to substance use.

Within the region, 14.3 per cent of the population are estimated to have mental and behavioural disorders. By sub regions, this ranges from 12.4 per cent (Pine Rivers) to 14.7 per cent (Redcliffe - North Lakes and Moreton Bay North sub regions).

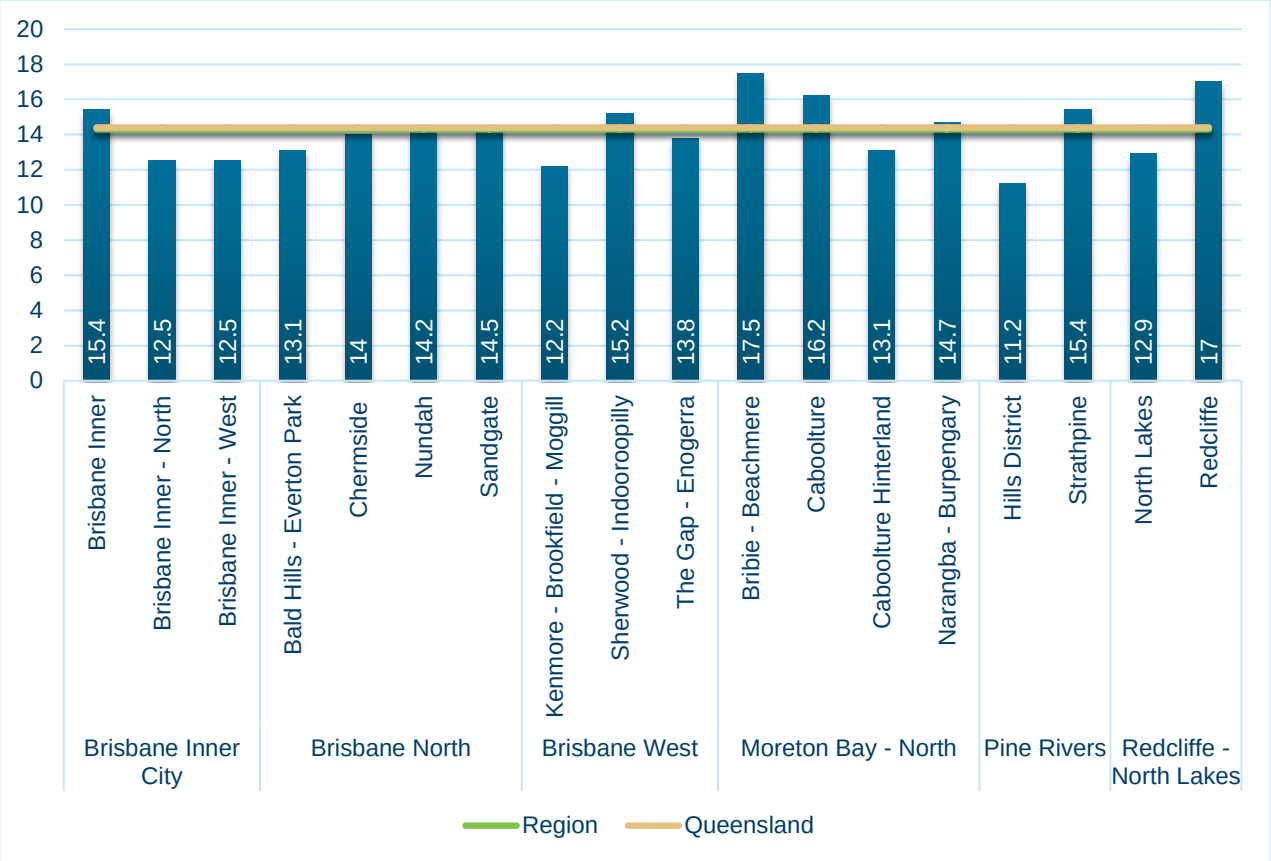
Table 14: Estimated population with mental and behavioural disorders by sub region and hospital catchment, 2011-13

Hospital catchment	Sub region	Estimated with mental and behavioural disorders (%)
RBWH	Brisbane Inner City	14.2
	Brisbane West	13.4
TPCH	Brisbane North	14.0
	Pine Rivers	12.4
Redcliffe	Redcliffe - North Lakes	14.7
Caboolture	Moreton Bay North	14.7
	Region	**14.3**
	Queensland	

Source: Public Health Information Development Unit, 2015

Figure 68 shows the top five local areas, which all have rates above 15 per cent. This highlights areas with higher need.

Figure 68: Proportion of the population with mental and behavioural disorders by statistical area level three and sub region, 2011-13



Source: Public Health Information Development Unit, 2015

Mental health, alcohol and other drug substance misuse co-morbidity

Data from primary care provides an estimate of the prevalence of co-morbidity among people experiencing mental health conditions and issues with alcohol or other drugs.

Of those diagnosed with a drug related issue, more than half (54.7 per cent[16]) had a coded mental health condition, compared to 12.3 per cent of people who were not diagnosed with a drug related issue (Brisbane North PHN PenCS clinical audit tool data from participating practices in the region). The most common condition for people diagnosed with a drug related issue was depression, representing 35 per cent of the general practice population diagnosed with a drug related issue. This was followed by anxiety (32.5 per cent).

A total of 18.7 per cent of the general practice population[17] diagnosed with a drug related issue were coded with both anxiety and depression, compared to 2.7 per cent of the general practice population that were not diagnosed with a drug related issue. Rates of the less prevalent mental health conditions of bipolar and schizophrenia were also much higher among general practice patients diagnosed with a drug related issue when compared to patients who were not diagnosed with a drug related issue, as highlighted in Figure 69. These figures may be an under estimation for the population as a whole, because with mental health and alcohol and drug problems may not seek help from a GP.

[16] This figure represents the total proportion of the population with a drug related diagnosis that have one or more mental health conditions. All mental health conditions do not sum to 100 per cent due to some patients experiencing more than one mental health condition.

[17] General practice population refers to the population who have visited the GP at least three times in the last two years.

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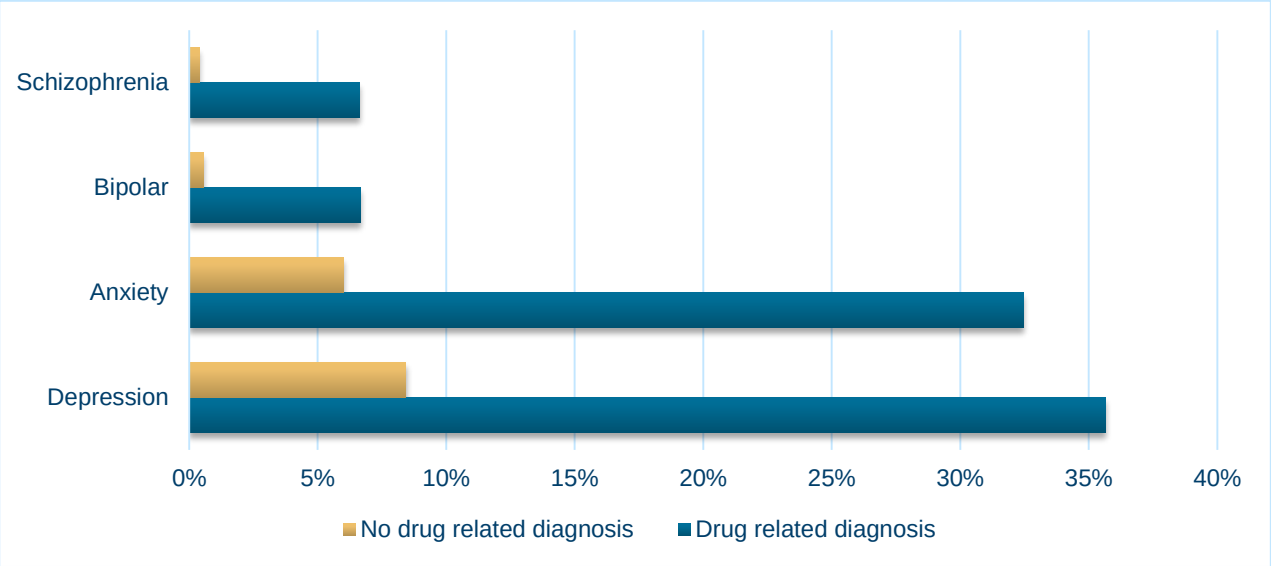
The higher rate of mental health co-morbidities among the general practice population diagnosed with a drug related issue may indicate a higher health need in the region.

Figure 69: Mental health conditions by drug use status, general practice patients, region, 2016



Source: Brisbane North PHN PenCS clinical audit tool data collect, 2016

GP mental health treatment

GP mental health treatment provides the framework for GPs to "undertake early intervention, assessment and management of patients with mental disorders" (Department of Health, 2012). GP mental health treatment also provides the referral pathways into more specialised mental health treatment, provided by clinical psychologists, registered psychologists and trained social workers and occupational therapists (Department of Health, 2012).

Analysis of GP mental health treatment provides a snapshot into potential mental health needs within a population. In the region, the rate of people commencing a GP mental health treatment plan remained consistent between 2012-13 and 2014-15, with an average 4322 people per 100,000 (an estimated 4 per cent of the population) commencing a GP mental health treatment plan[18] (MBS item numbers 2700, 2701, 2715 and 2717).

Within the region, there was considerable variation in the rate of people commencing GP mental health treatment. People residing in the Brisbane Inner statistical area were on average three times more likely to commence a GP mental health treatment plan compared to people residing in the Sandgate area (6414 per 100,000 and 2068 per 100,000 respectively). As indicated in Figure 75, people residing in the Strathpine region had a higher than average rate of people commencing a GP mental health treatment plan between 2012-15 and 2014-15.

[18] Commencement of a GP mental health plan refers to MBS item numbers 2700, 2701, 2715 and 2717.

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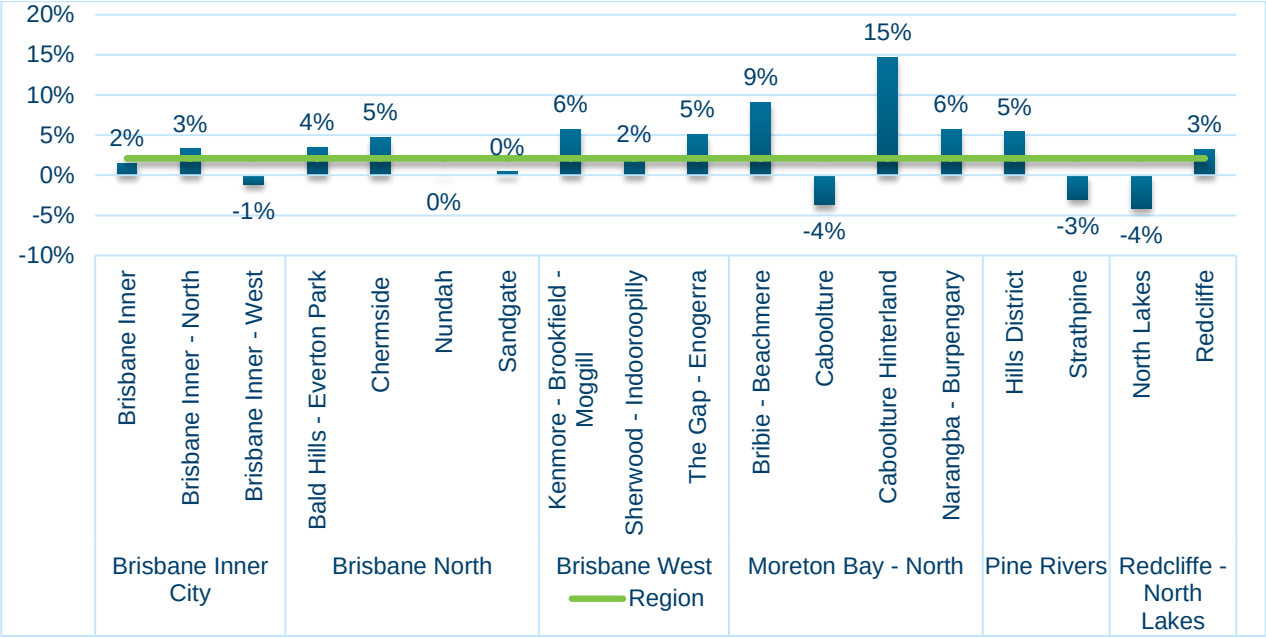
Figure 70: Average number of people per 100,000 commencing a GP mental health treatment plan by statistical area level three and sub region, 2012-13 to 2014-15

Source: Commonwealth Department of Health, 2016

Between the years 2012-13 and 2014-15 there was a two per cent increase in patients commencing a GP mental health treatment plan in the region. However, within the region there was again a large variation, with the number of patients commencing a GP mental health plan decreasing by four per cent in the North Lakes area, compared to a 15 per cent increase in the number of patients commencing a GP mental health treatment plan in Caboolture Hinterland. The change in patients commencing a GP mental health treatment plan is highlighted in Figure 71.

Figure 71: Patterns in patients commencing a GP mental health treatment plan by statistical area level three and sub region, 2012-13 to 2014-15



Source: Commonwealth Department of Health, 2016

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Mental Health hospitalisations

In 2014-15 there were 24,239 admitted mental health hospitalisations for residents within the region. 'Other Psychiatry' related services reported the highest number of separations for both adults and children[19]. This was followed by other mental health and major affective disorders for both adults and children within the region. Between 2010-11 and 2014-15 the Brisbane West sub region had the greatest percentage increase in hospitalisations for adults and the Pine Rivers sub region had the greatest percentage increase in hospitalisations for children. Between 2010-11 and 2014-15 other psychiatry related services had the greatest percentage increase in hospitalisations for adults and greatest percentage increase in hospitalisations for children.

Table 15: Mental health – hospitalisations, region residents, 2010-11 to 2014-15

Adult/Child	Enhance Service Related Group	2010-11	2011-12	2012-13	2013-14	2014-15
Adult	Other Mental Health	2,451	2,363	2,625	2,405	2,536
	Major Affective Disorders	1,742	1,727	1,995	2,132	1,967
	Other Psychiatry	13,458	15,012	15,893	17,773	18,099
	Schizophrenia	1,549	1,536	1,502	1,490	1,414
Adult Total		**19,200**	**20,638**	**22,015**	**23,800**	**24,016**
Child	Other Mental Health	34	14	23	23	15
	Major Affective Disorders	13	10	20	12	12
	Other Psychiatry	160	146	194	271	195
	Schizophrenia	4	4	4	4	1
Child Total		**211**	**174**	**241**	**310**	**223**
Region Total		**19,411**	**20,812**	**22,256**	**24,110**	**24,239**

Source: Queensland Health Admitted Patient Data Collection (QHAPDC)

The region's relative utilisation rate of mental health services (145.9) is above the state average (100) across all service related groups. Relative utilisation varies across region with the Brisbane Inner City, Brisbane West and Brisbane North sub regions having relatively high rates for all mental health services.

Table 16: Relative utilisation of admitted public and private hospital services, mental health by enhanced service related group by sub region and hospital catchment, 2014-15

Child/ Adult	Sub region	Hospital Catchment	Major Affective Disorders	Other Psychiatry	Schizophrenia	Other Mental Health	Grand Total
Child	Brisbane North	TPCH	132.4	158.8	104.5	158.3	151.9
	Pine Rivers	TPCH	117.0	162.6	52.4	140.9	147.2
	Brisbane Inner City	RBWH	130.2	187.4	181.7	183.7	180.8
	Brisbane West	RBWH	115.1	192.0	72.3	111.7	166.7
	Redcliffe – NL	Redcliffe	109.8	118.1	99.6	103.6	114.3
	Moreton Bay – North	Caboolture	91.1	108.5	107.8	119.0	107.7
Child Total			**117.8**	**155.4**	**114.6**	**144.1**	**147.2**
	Brisbane North	TPCH	178.3	67.5	0.0	56.8	70.1
	Pine Rivers	TPCH	432.5	113.2	0.0	26.2	116.7
	Brisbane Inner City	RBWH	0.0	72.3	409.1	74.1	71.6
	Brisbane West	RBWH	0.0	60.4	0.0	215.3	70.7
	Redcliffe – NL	Redcliffe	0.0	51.4	0.0	54.5	49.6
	Moreton Bay – North	Caboolture	44.5	74.5	0.0	0.0	66.9
Adult Total			**113.6**	**73.6**	**66.3**	**60.3**	**73.9**
Region Total			117.8	153.6	114.6	143.0	145.9

Source: Queensland Health Admitted Patient Data Collection (QHAPDC)

[19] Child is defined as a person aged below 15 years of age.

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Mental Health Emergency Department presentations

Mental Health emergency department (ED) presentations represented 5.2 per cent of all emergency department presentations in 2015-16. This was a slight decrease from 5.3 per cent of all emergency department presentations in 2013-14 and 2014-15.

Table 17: Proportion of ED all presentations that are mental health presentations, region, 2013-14 to 2015-16

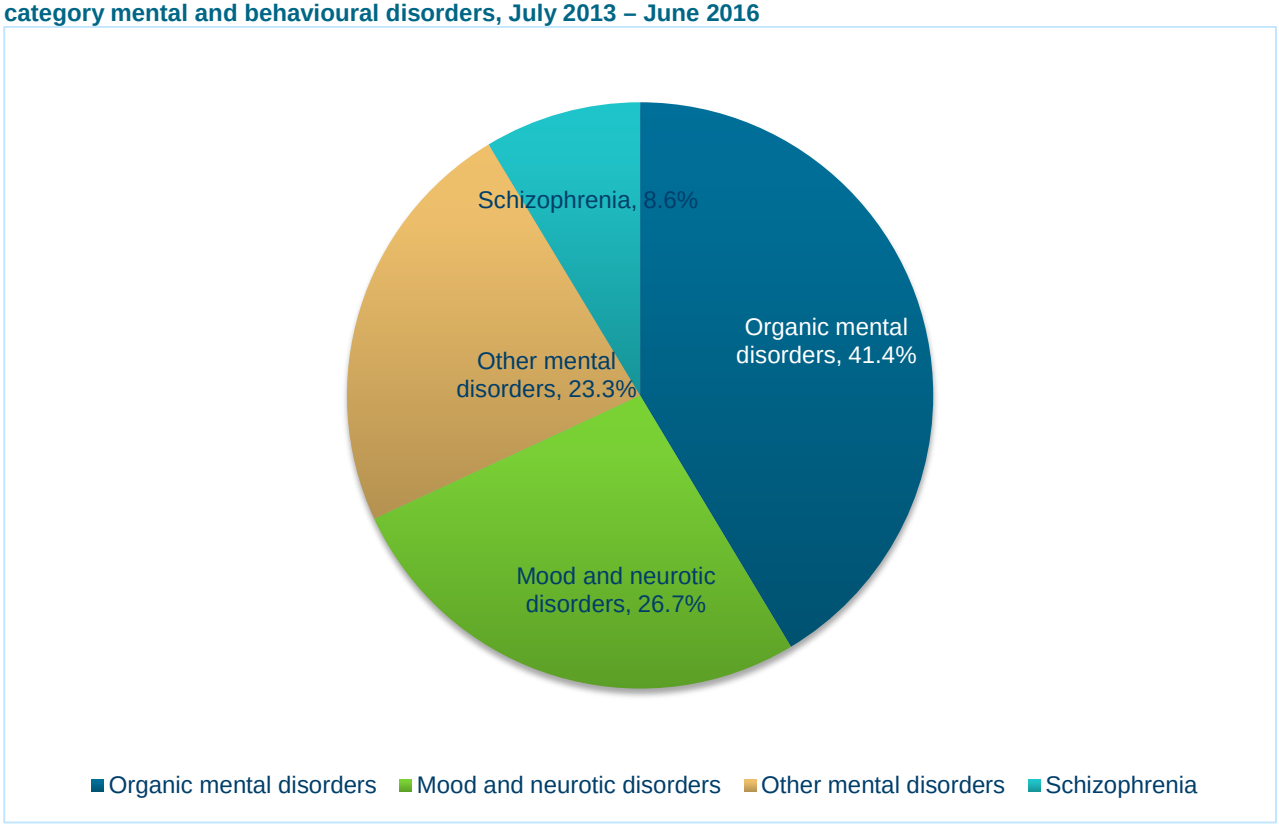
Adult/ Child	2013-14 (%)	2014-15 (%)	2015-16 (%)
Child	311 (0.7%)	345 (0.7%)	346 (0.7%)
Adult	13,198 (6.3%)	13,720 (6.3%)	13,990 (6.2%)
Total	**13,509 (5.3%)**	**14,065 (5.3%)**	**14,336 (5.2%)**

Source: Emergency Department Information System (EDIS), Queensland Health

Mental and behaviour disorders are defined as having a primary ICD code of mental and behavioural disorders which includes organic mental disorders, mood and neurotic disorders, other mental disorders, and schizophrenia.

Organic mental disorders, a form of decreased mental function due to a medical or physical disease, rather than a psychiatric illness, was the most common reason for emergency department attendance with 41.4 per cent of all public emergency department attendances in the period. This is followed by mood and neurotic disorders with 26.7 per cent.

Figure 72: Top diagnosis (description), ED presentations, Metro North public hospitals, principal diagnosis category mental and behavioural disorders, July 2013 – June 2016



Source: Emergency Department Information System (EDIS), Queensland Health

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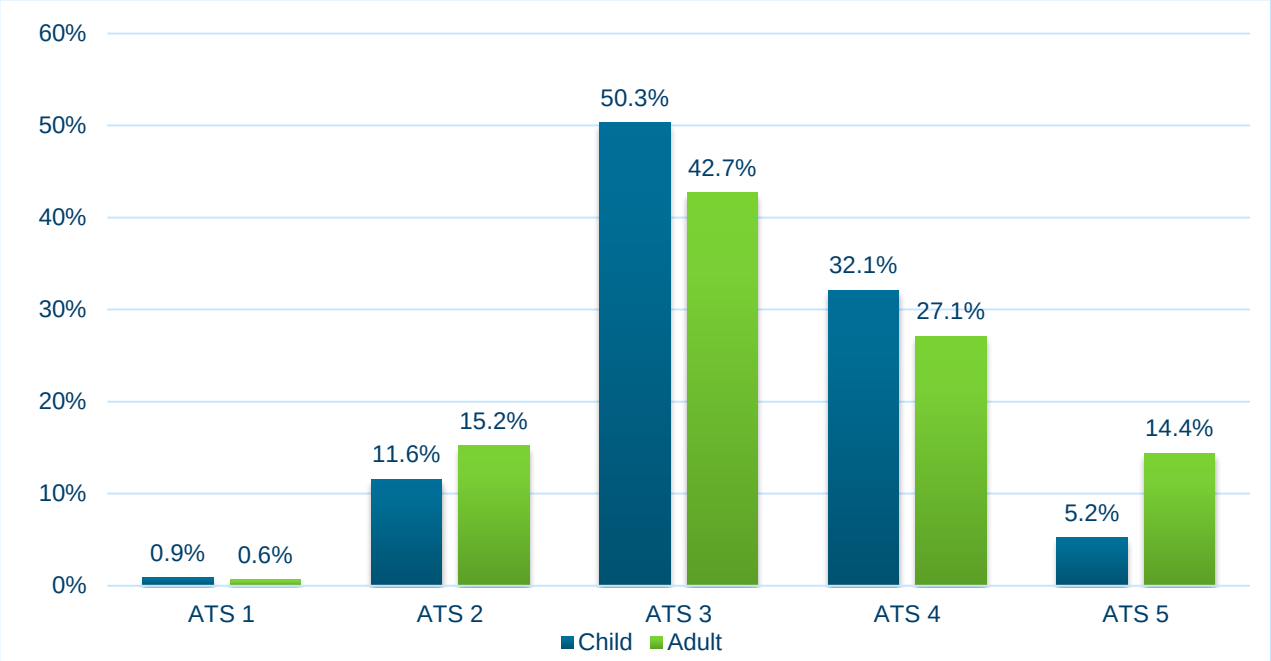
The majority (over 70 per cent) of ED presentations with principal diagnosis category of mental and behavioural disorders were categorised as triage category 3 or triage category 4.

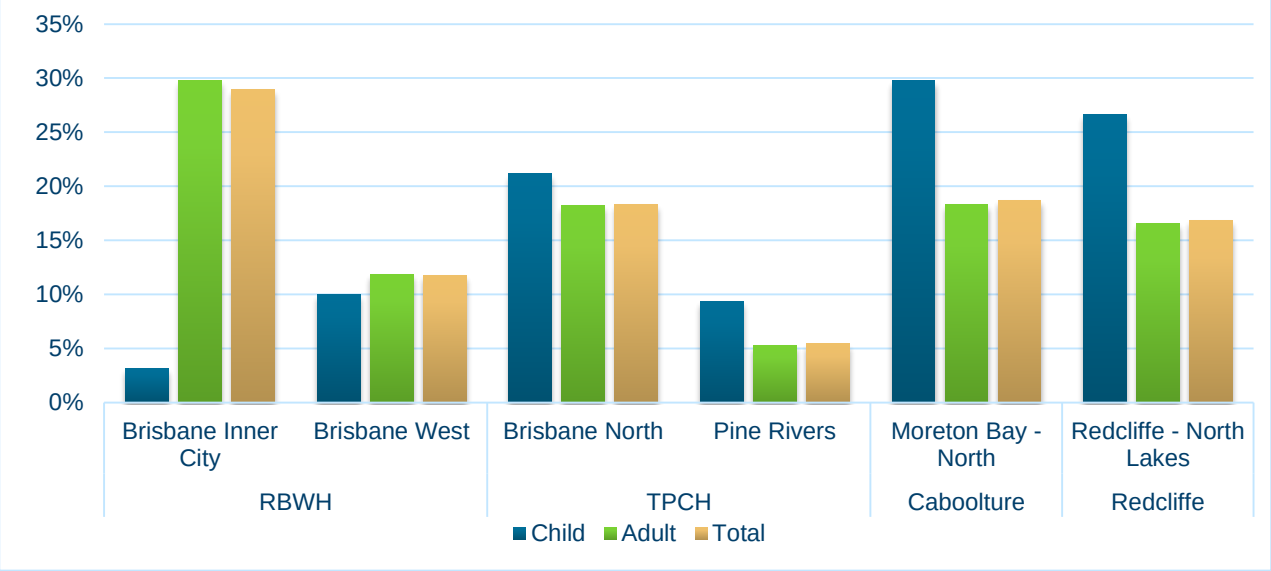
Figure 73: Emergency presentations with a principal diagnosis category mental and behavioural disorders, by triage category 2015-16



Source: Emergency Department Information System (EDIS), Queensland Health, 2016

Most mental health ED presentations were for residents of the Brisbane Inner City, Moreton Bay North, and Brisbane North sub regions. The Moreton Bay North and Redcliffe - North Lakes sub regions had a high proportion of the regions children ED mental and behavioural disorders presentations.

Figure 74: Public emergency presentations, mental and behavioural disorders, by sub region and hospital catchment, 2013-14 to 2015-16



Source: Emergency Department Information System (EDIS), Queensland Health, 2016

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Oral Health

Tooth and gum diseases are entirely preventable but rank among the most common causes of morbidity in Australia. Dental decay is the most costly diet-related disease in Australia - ahead of coronary disease, hypertension and diabetes (National Rural Health Alliance, 2013). Within the region, the trend of children experiencing high rates of dental disease remains high.

Among a 2011 sample of children who attended a Metro North Oral Health Services facility, over half (50.8 per cent) of those aged 5 – 10 years experienced decay in their primary dentition, and over 28 per cent (28.1 per cent) of those aged 6 – 15 years experienced decay in their permanent dentition (Office of the Chief Dental Officer, 2016). Within these two cohorts almost a quarter (23.6 per cent) had experienced severe dental caries, defined as four or more affected teeth, with one-fifth of these children (20.9 per cent) having their disease left untreated. Children residing in the Redcliffe and Caboolture[20] areas have significantly higher disease rates than those residing in other areas of the region.

Many factors affect oral health, including diet, oral health behaviours and use of dental services. Within the region more than three-quarters (78.4 per cent) of children are reported to brush the recommended number of times per day, and almost all children (98.2 per cent) report using a fluoride toothpaste. On average less than 10 per cent (8.3 per cent) of children present for a general dental visit before the age of two years, and over one-third (37.8 per cent) present before the age of five years.

More recent data on oral health risk factors for children aged 4-15 years of age indicates that there 1.14 teeth per child has untreated decay (Table 18). This is lower than the Queensland rate of 1.40 teeth per child with untreated decay (Queensland Health 2016a).

Table 18: Oral health risk factors, region and Queensland, 2014-15

	Average No. of teeth with untreated decay	Average No. of teeth with decay experience	Prevalence of decay experience
Region	1.14 (1.02-1.25)	1.89 (1.74-2.04)	51.4 (48.6-54.1)
Queensland	1.40 (1.36-1.44)	2.29 (2.23-2.34)	55.4 (54.5-56.3)

Source: Queensland Health, 2016a

[20] This refers to the Redcliffe and Caboolture hospital catchment areas

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Communicable diseases

Communicable diseases spread from one person to another or from an animal to a person. The spread often happens through airborne viruses or bacteria, but can also occur through blood or other bodily fluid. For many diseases, various means have been used to control the spread including; vaccines, antibiotics, general hygiene (i.e. hand washing) and other sterile techniques (Queensland Health, 2014). To help control disease spread, it is mandatory for Queensland Health to be notified upon the diagnosis of many of these diseases.

Table 19 shows the number of notifications of selected communicable diseases for the years 2010 to 2015. Broadly, the numbers of notifications are increasing. This is however not a linear or uniform trend with notifications of singular diseases increasing or decreasing between years depending on various factors[21].

Table 19: Communicable disease notifications by grouping, region, 2010 -2015

Group	Communicable Disease	2010	2011	2012	2013	2014	2015
Blood-borne Disease	Hepatitis C	445	407	366	381	396	411
Gastrointestinal Disease	Campylobacter	872	1040	863	881	1349	1589
	Cryptosporidiosis	58	72	266	181	137	332
	Salmonellosis (all)	462	483	482	622	968	905
Vaccine Preventable Disease	Influenza (Lab Confirmed)	608	2647	4368	1321	4460	7447
	Measles	1	7	0	20	26	5
	Mumps	6	4	9	12	15	14
	Pertussis	1926	1787	1440	686	241	626
	Rotavirus	182	366	226	277	237	232
	Rubella	1	4	4	2	0	3
	Varicella	1093	1179	1279	1557	1480	1697
Sexually Transmitted Infections	Chlamydia (Sti)	3361	3411	3574	3644	3812	3995
	Gonorrhoea (Sti)	429	525	513	558	624	675
	Syphilis (Infectious <2yr Dur)	73	107	129	92	90	137

Source: Data extracted from the Notifiable Conditions System (NoCS), 2016

Gastrointestinal Diseases

Campylobacter, Salmonella, and Cryptosporidium are the three most common organisms associated with notified gastrointestinal diseases in Queensland, with Campylobacter and Salmonella being the most significant. Notifications for these diseases were high in the region in 2014 and 2015, prompting important public health action. In addition, there were a significant number of notifications of Cryptosporidiosis in the summer of 2015. The Hills District and Brisbane Inner North both had a large number of notifications in comparison to the other statistical areas.

[21] It is also important to be aware that if a case is not formally diagnosed (e.g. by a pathological diagnosis) Queensland Health will not be notified and so it will not be counted in this data.

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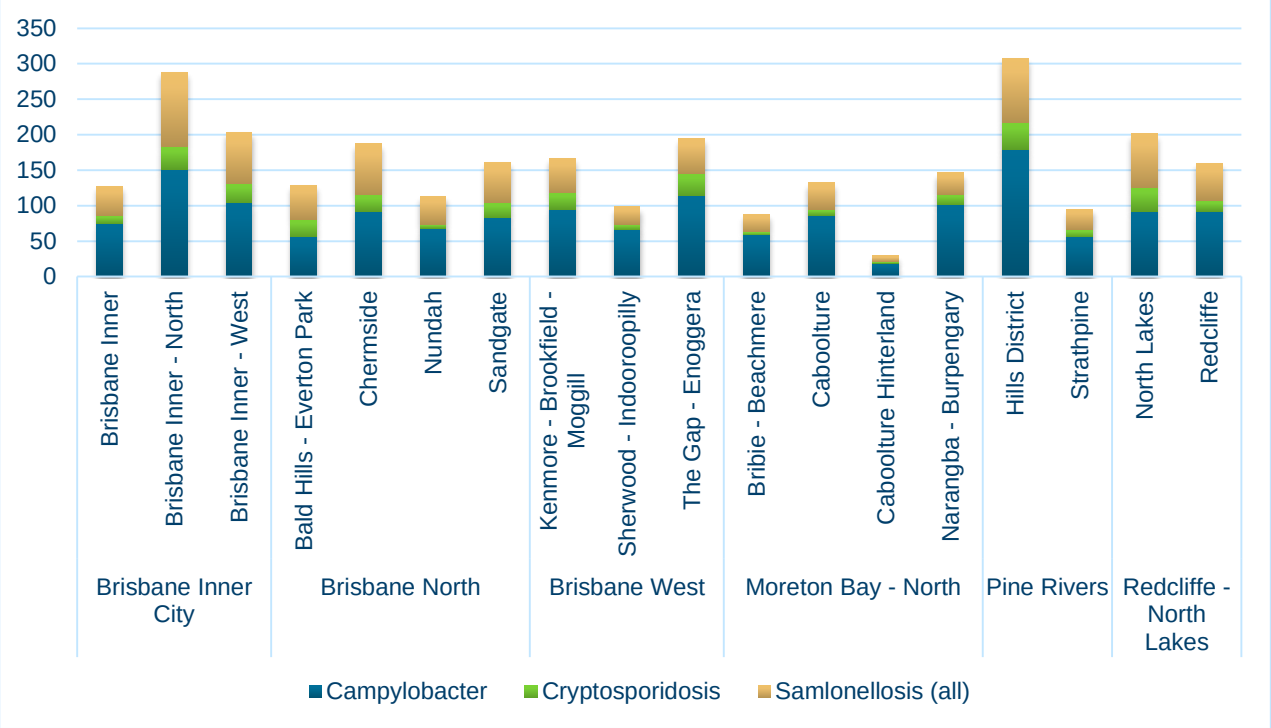
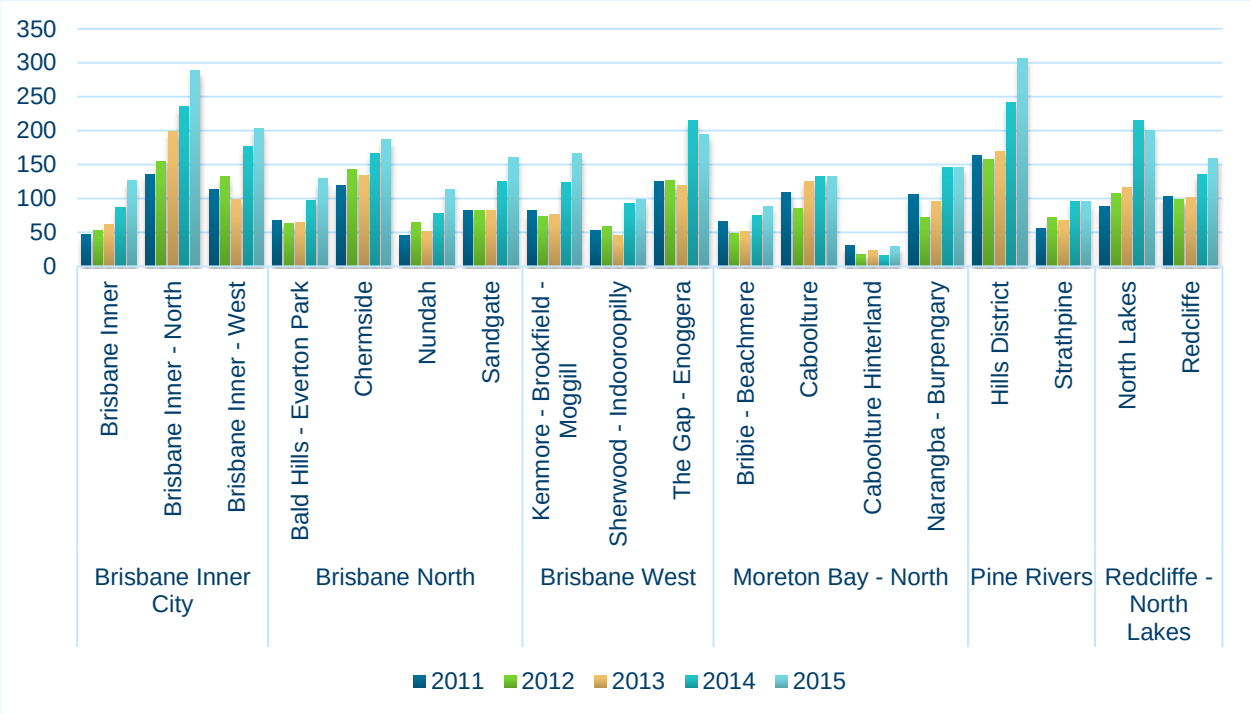
Figure 75: Notifications of selected gastrointestinal diseases by statistical area level three and sub region, 2015



Source: Data extracted from the Notifiable Conditions System (NoCS), 2016

Figure 76 highlights the trends in notifications for gastrointestinal diseases between the years of 2010 and 2015.

Figure 76: Notifications of selected gastrointestinal diseases by statistical area level three and sub region, 2011 to 2015



Source: Data extracted from the Notifiable Conditions System (NoCS), 2016 Vaccine Preventable Diseases

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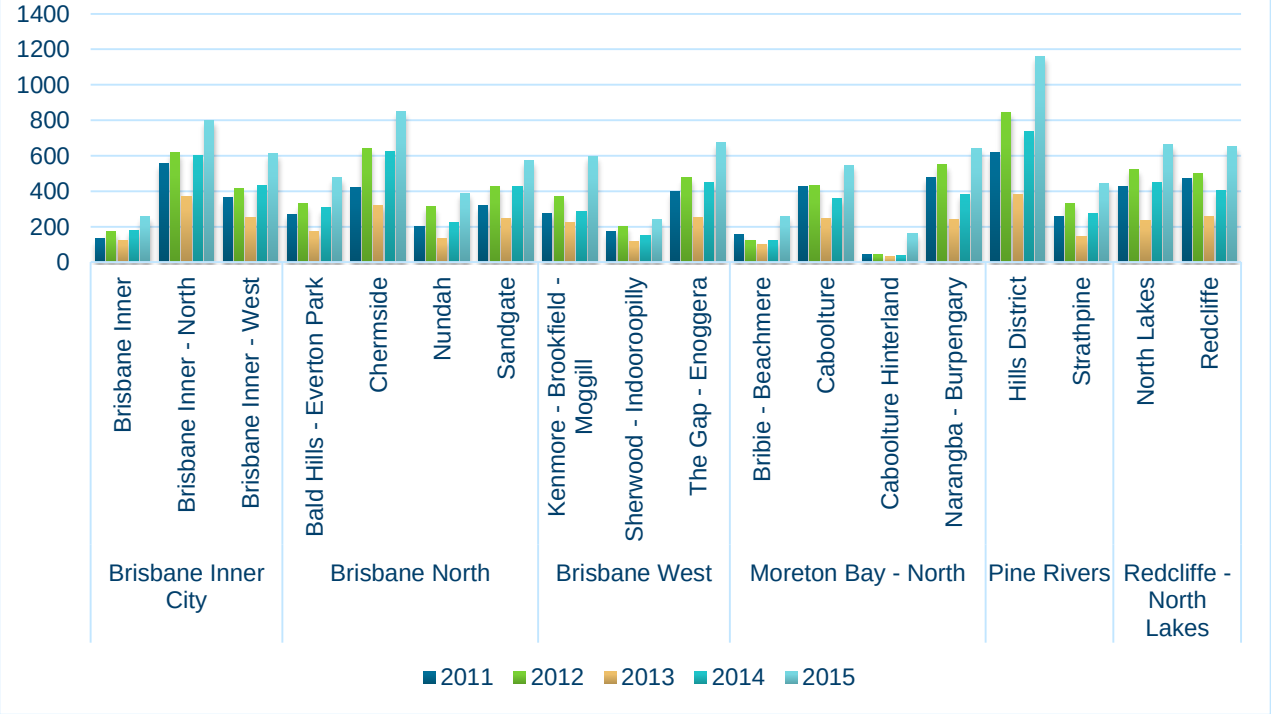
Notifications of Influenza and Varicella—two of the most common vaccine preventable diseases—and mumps increased between 2010 and 2015. Pertussis notifications have been decreasing over this time period as a sustained outbreak subsided, although an increase in notifications in 2015 was observed.

Figure 77: Notifications of vaccine preventable diseases by statistical areas level three and sub region, 2011 to 2015



Source: Data extracted from the Notifiable Conditions System (NoCS), 2016

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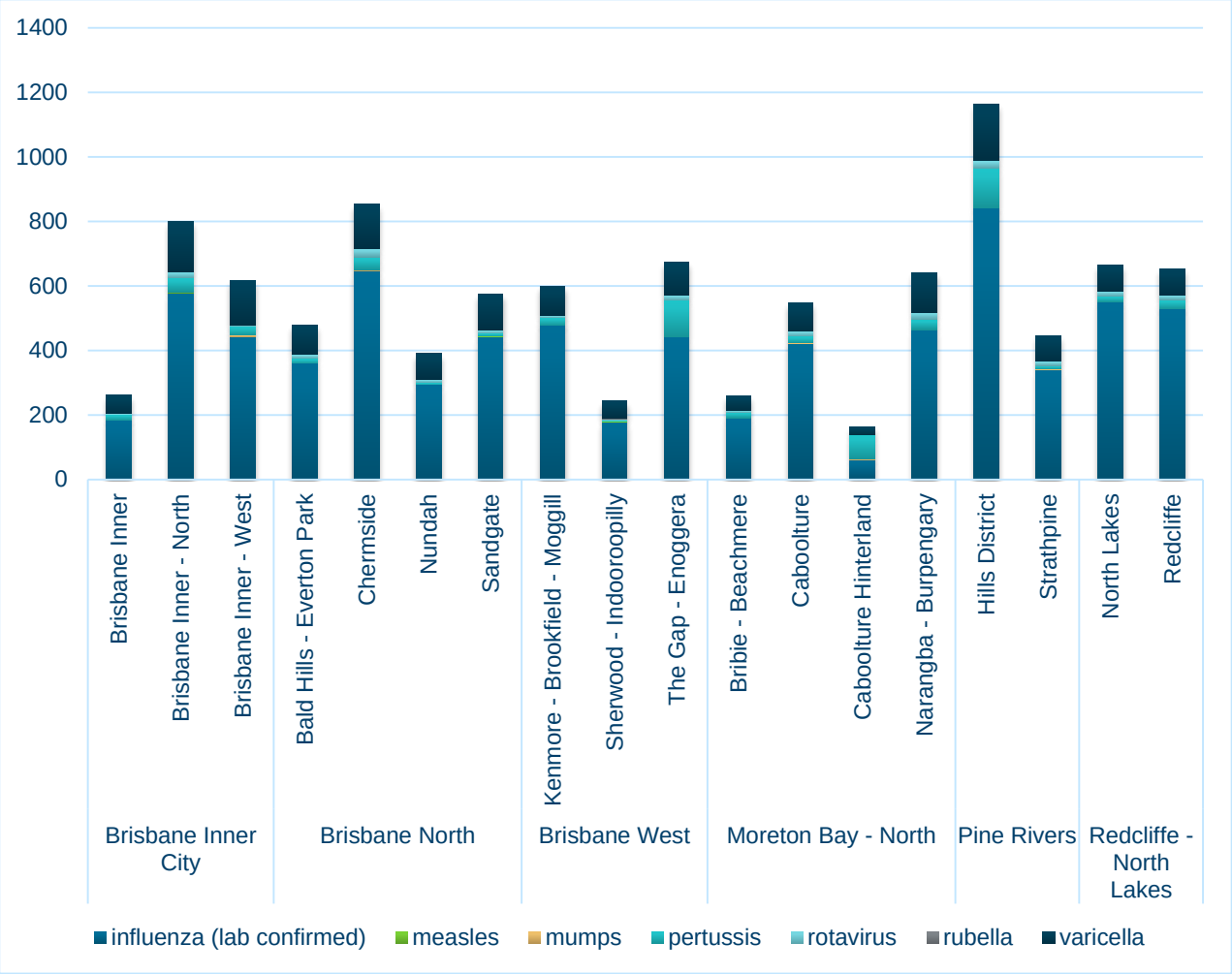
There was variation between the SA3s with the Hills District notifying the largest number of vaccine preventable diseases followed by Chermside, and Brisbane Inner – North. This is highlighted in Figure 77.

Figure 78: Notifications of selected vaccine preventable diseases, statistical area level three and sub region, 2015



Source: Data extracted from the Notifiable Conditions System (NoCS), 2016

Sexually Transmitted Infections

Notifications of Chlamydia, Gonorrhoea and Syphilis diseases vary across the region. As highlighted in Figure 78, syphilis and gonorrhoea have a higher number of notifications in central SA3s such as Brisbane Inner, Brisbane Inner North, Brisbane Inner West, and Nundah. Chlamydia, while also very prevalent in these areas, had a high number of notifications in Chermside, Narangba-Burpengary, Caboolture, The Hills District, North Lakes, Redcliffe and the Gap-Enoggera. Of note, Chlamydia is one of the most commonly notified of all communicable diseases in the region with almost 4000 notifications in 2015.

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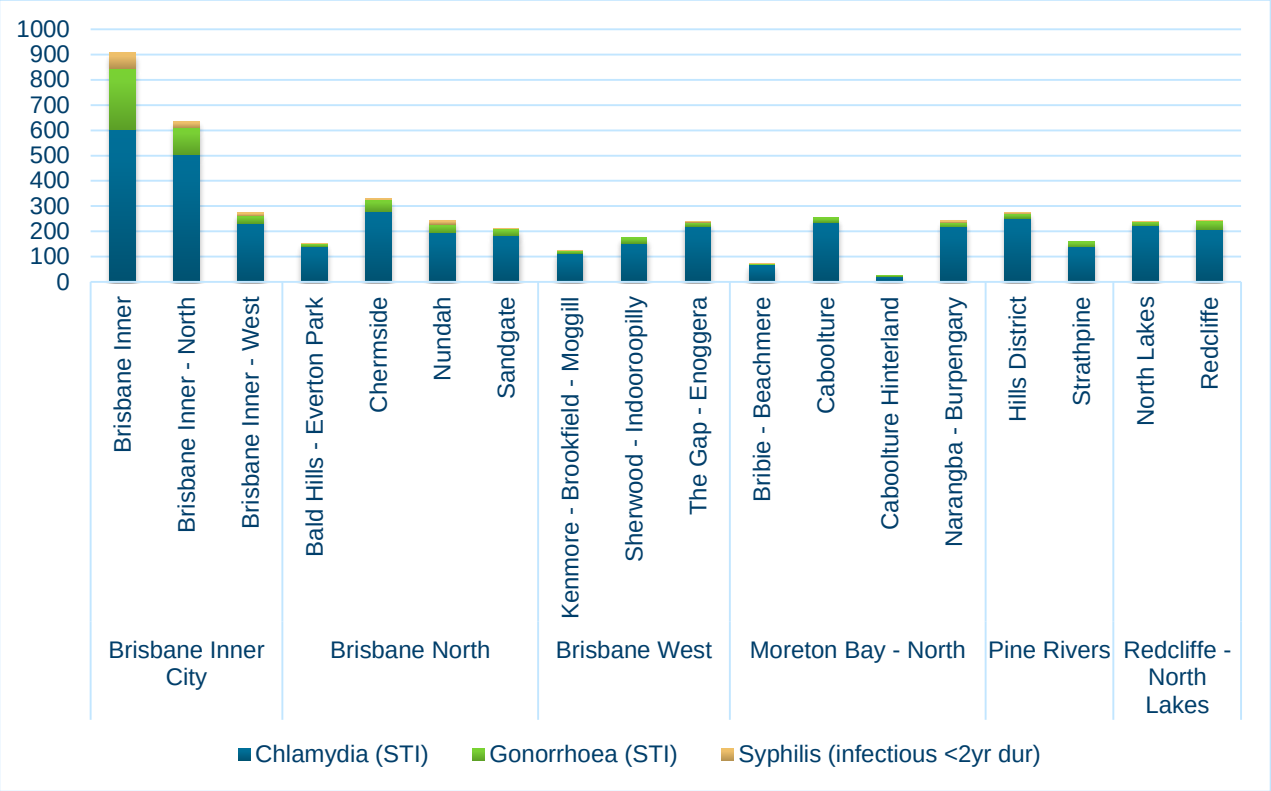
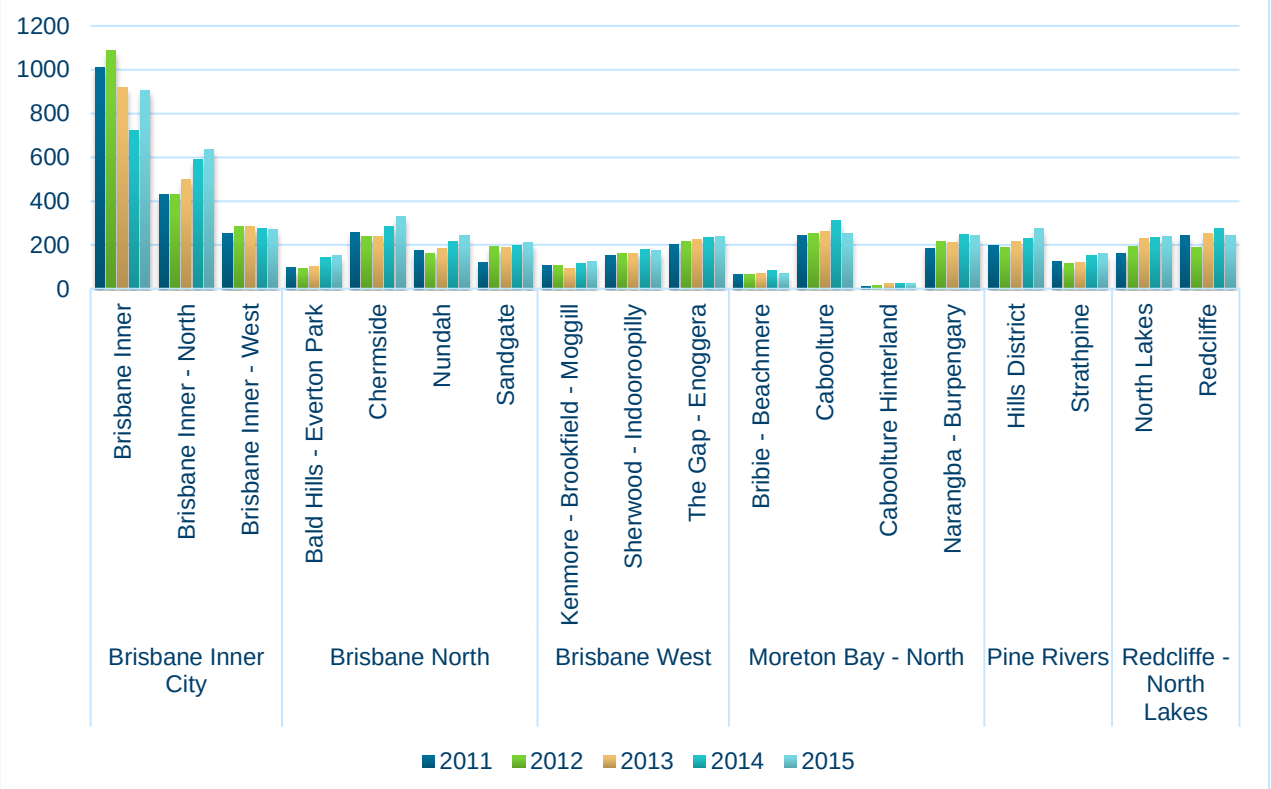
Figure 79: Notifications of selected sexually transmitted disease by statistical area level three and sub region, 2015



Source: Data extracted from the Notifiable Conditions System (NoCS), 2016

Trends in notifications of sexually transmitted diseases from 2010 to 2015 are found in Figure 80.

Figure 80: Notifications of sexually transmitted diseases by statistical area level three and sub region, 2011 to 2015



Source: 2016 Data extracted from the Notifiable Conditions System (NoCS), 2016

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Service use and access

The health system in Australia is a complex network of services and settings, incorporating a wide variety of public and private providers, funding arrangements, participants and regulations (Australian Institute of Health and Welfare, 2016c). Healthcare services operate across several levels of government and non-government sectors (Queensland Health, 2015). In many instances, governments will share responsibility for health and this is reflected in complex funding arrangements and policy settings (Australian Institute of Health and Welfare, 2016 and Queensland Health, 2015).

Under the National Healthcare Agreement (2016), health services that are delivered through the Australian health system should:

- be shaped around the health needs of individual patients, their families and communities,
- focus on the prevention of disease and injury and the maintenance of health, no simply the treatment of illness
- support an integrated approach to the promotion of healthy lifestyles, prevention of illness and injury and diagnosis and treatment of illness across the continuum of care
- provide all Australians with timely access to quality health services based on their needs, not ability to pay, regardless of where they live in the country.

Healthcare is generally divided into three main types, primary healthcare, secondary healthcare and hospital care. Primary healthcare is generally the first point of contact with the health system and includes a large range of care providers, typically outside of the hospital setting (Australian Institute of Health and Welfare, 2016). This includes, but is not limited to, general practice, community health services, allied health services, pharmacies and Aboriginal and Torres Strait Islander health services.

Secondary health services are healthcare services provided by specialists and facilities and generally require a referral from primary care.

Hospital care provides a range of specialised inpatient and outpatient care, particularly for people who require urgent medical treatment or surgical care (Australian Institute of Health and Welfare, 2016). Hospital care comprises a large component of the health system.

The primary, secondary and hospital care types do not operate in isolation. While primary care is seen as the ‘gateway’ to the wider health system (Australian Institute of Health and Welfare, 2016), a large number of people will directly receive hospital care (largely through emergency departments) without interfacing with standard forms of primary care.

This section analyses healthcare services and access trends in the region across the continuum of primary, secondary and hospital care.

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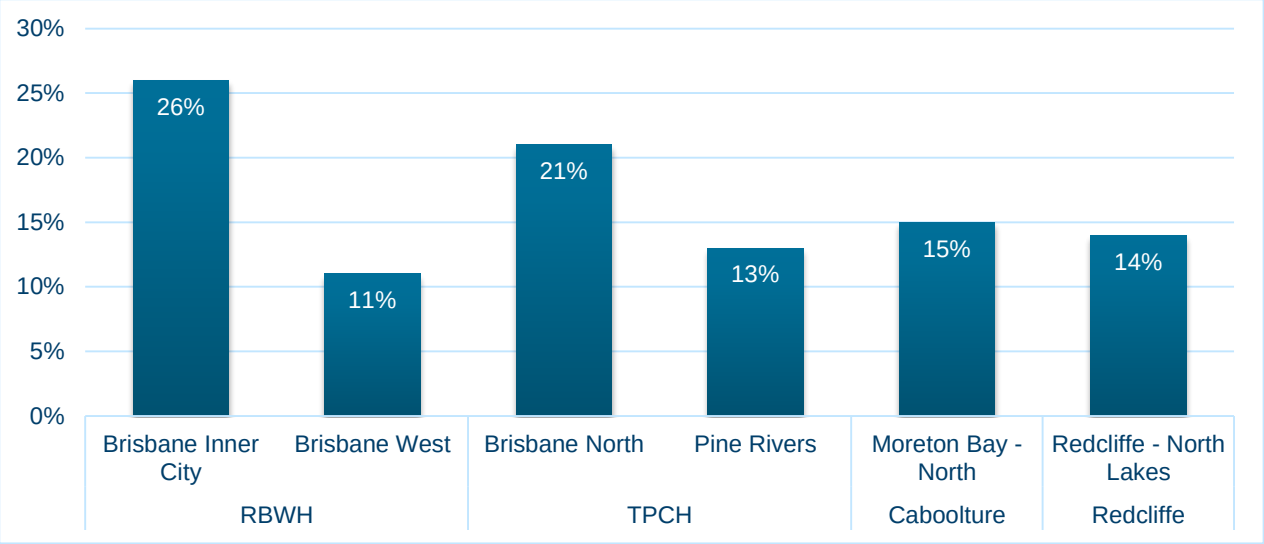
Primary healthcare – general practice

Overview

General practices comprise the bulk of primary healthcare services within the region and play an important role in the overall health system. General practitioners provide care for short-term illnesses, chronic disease, mental health and preventative health as well as coordinating patient care. As at October 2016, there were 304 general practices in the region. General practices are distributed in a similar pattern to the population distribution of the region. Over one quarter of general practices (26 per cent or 79 practices) are located in the Brisbane Inner City sub region, followed by the Brisbane North sub region, with 21 per cent (63 practices). This is highlighted in Figure 81.

While general practice locations are similarly distributed to the population, they are not distributed according to need. General practices in the northern areas of the region are smaller and tightly clustered. The disparity in practice locations and expressed needs will be explored throughout the chapter.

Figure 81: Number of general practices by sub region and hospital catchment, 2016



Source: Brisbane North PHN, 2016d

General practice service use and access trends

Analysis of GP access trends provides insight into the health of a population, and is an important service indicator. Low rates of GP attendances coupled with high disease burden may indicate failures within the health system. Similarly, high GP access rates may indicate a number of expressed needs among a population. Similarly, analysis of GP bulk billing may identify access issues and potential barriers, particularly in areas of socioeconomic deprivation.

In the region during 2014-15, the average person visited the GP almost six times (5.6 attendances)[22]. This was consistent with the national average of 5.7 GP attendances per person. Within the region, the average number of GP attendances per person varied from 4.3 attendances in Sherwood – Indooroopilly statistical area to 7.2 attendances in the Bribie – Beachmere statistical area, a variation of almost three GP attendances per person. The average number of GP attendances per person for each SA3 within the region can be seen in Figure 82.

[22] Age-standardised rate

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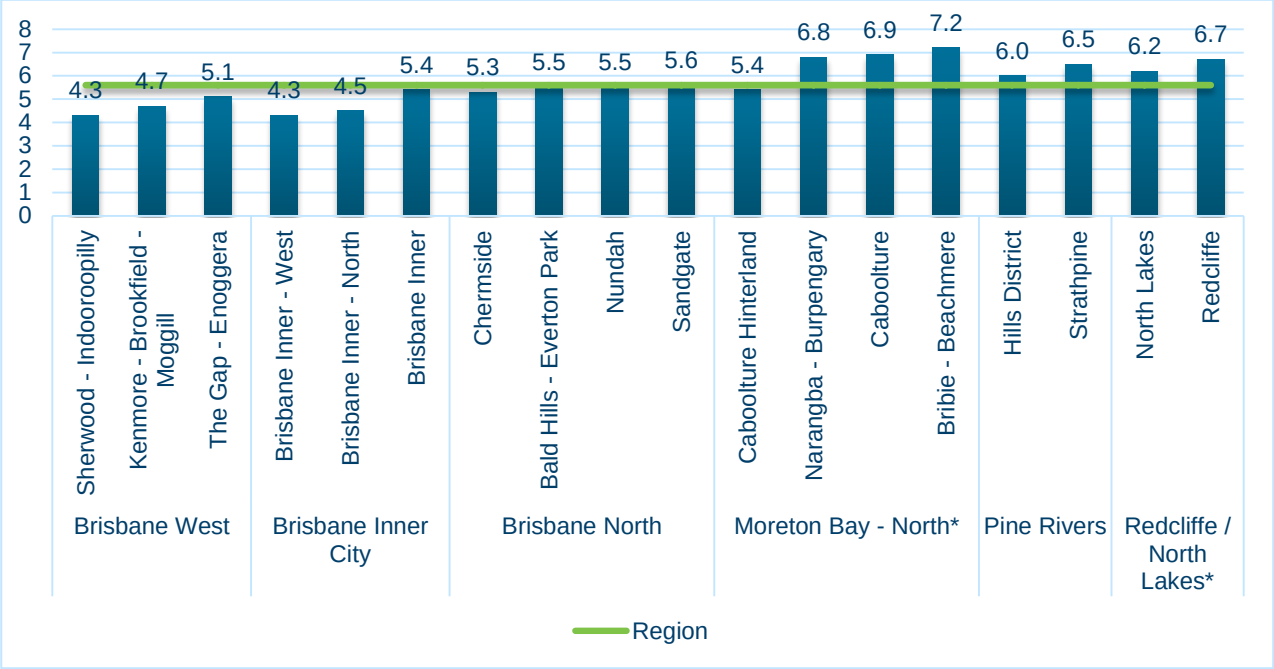
Figure 82: Average number of GP attendances per person, age standardised by statistical area level three and sub region, 2014-15

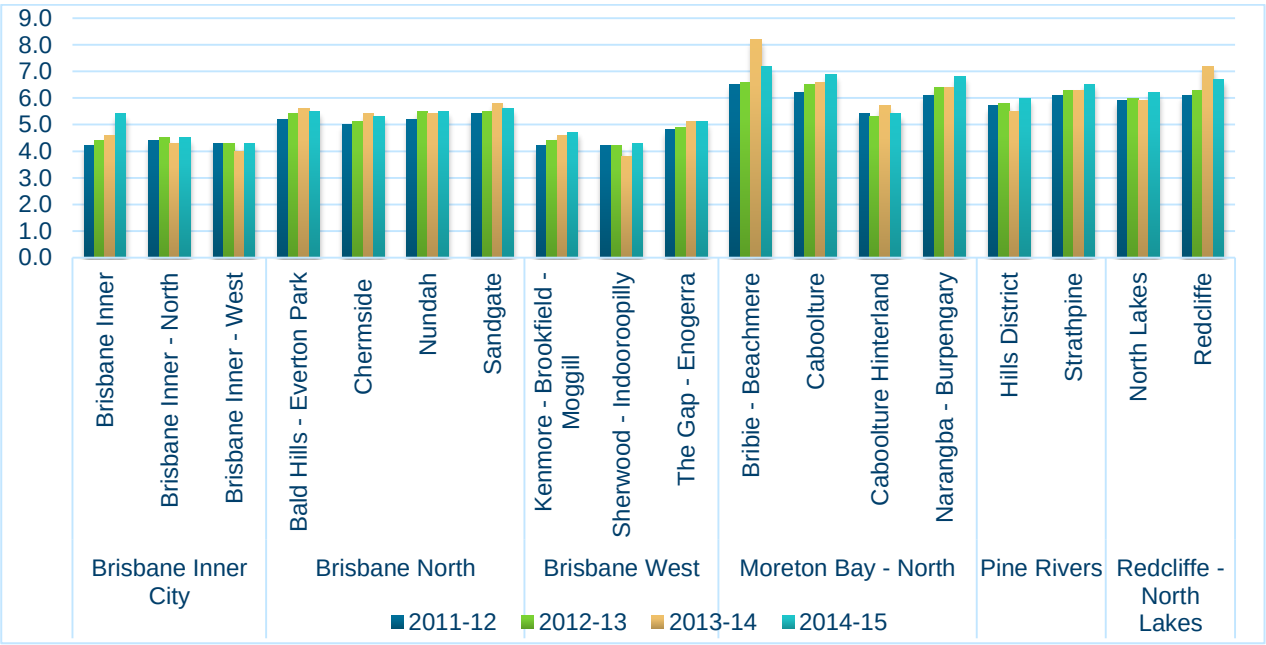


*Note: Part of the Narangba – Burpengary area is located in the Redcliffe - North Lakes sub region

Source: Australian institute of Health and Welfare, 2016d

The average number of GP attendances per person slowly increased between 2011-12 and 2014-15, from an average of 5.3 to 5.6 GP attendances per person. This increase is consistent with the national average during the same time period (5.2 to 5.7 GP attendances). Within the region, while increases in the average number of GP attendances per person were also consistent with the national average, there was a higher than average increase observed in the Brisbane Inner (4.4 to 5.4) statistical area. There are also emerging trends in the Caboolture, Redcliffe and Narangba – Burpengary areas, as highlighted in Figure 83.

Figure 83: Average number of GP attendances per person, age standardised by statistical area level three and sub region, 2011-12 to 2014-15

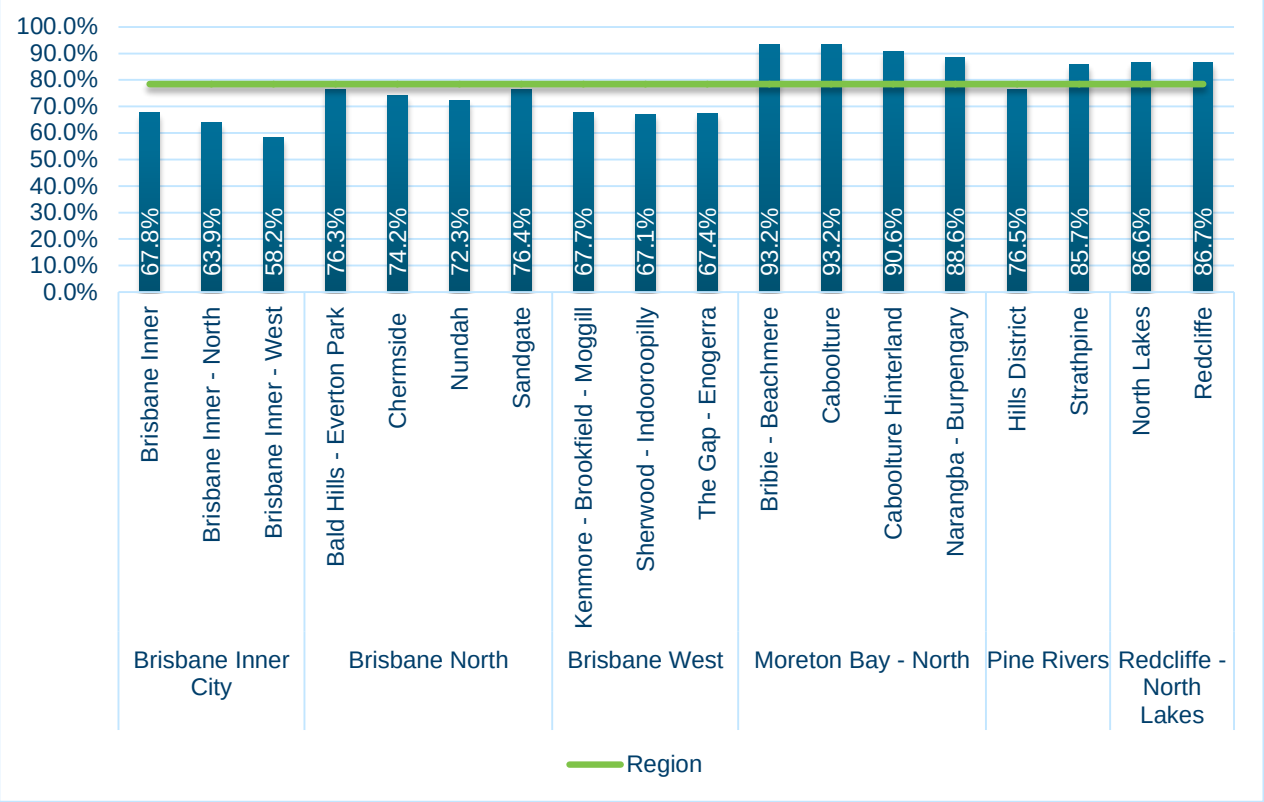


Source: Australian Institute of Health and Welfare 2016d, National Health Performance Authority 2015

GP bulk billing

In 2014-15, 78.4 per cent of GP attendances were bulk billed, on average. This is less than the national average of 84.3 per cent. Bulk billing rates varied considerably within the region, ranging from 58.2 per cent in the Brisbane Inner – West statistical area to 93.2 per cent in the Bribie – Beachmere and Caboolture statistical areas. This is a variation of 35 per cent. Areas in the region with higher bulk billing rates are associated with higher than average GP attendances per person, and poorer social determinants. Bulk billing rates for SA3s within the region are highlighted in Figure 84.

Figure 84: Percentage of GP attendances that were bulk billed by statistical area level three and sub region, 2014-15



Source: Australian Institute of Health and Welfare 2016d,

During the period between 2011-12 and 2014-15, the average number of GP attendances that were bulk billed increased by four per cent (74.4 per cent to 78.4 per cent). This is consistent with the national increase of 4.3 per cent (80 per cent to 84.3 per cent). Within the region, the increase of bulk billing rates was consistent with the national average, with the exception of the Kenmore – Brookfield – Moggill statistical area, where the percentage of GP attendances that were bulk billed increased by almost 10 per cent (58.5 per cent to 67.7 per cent). There were also higher than average increases in other statistical areas across the region, as indicated in Figure 85.

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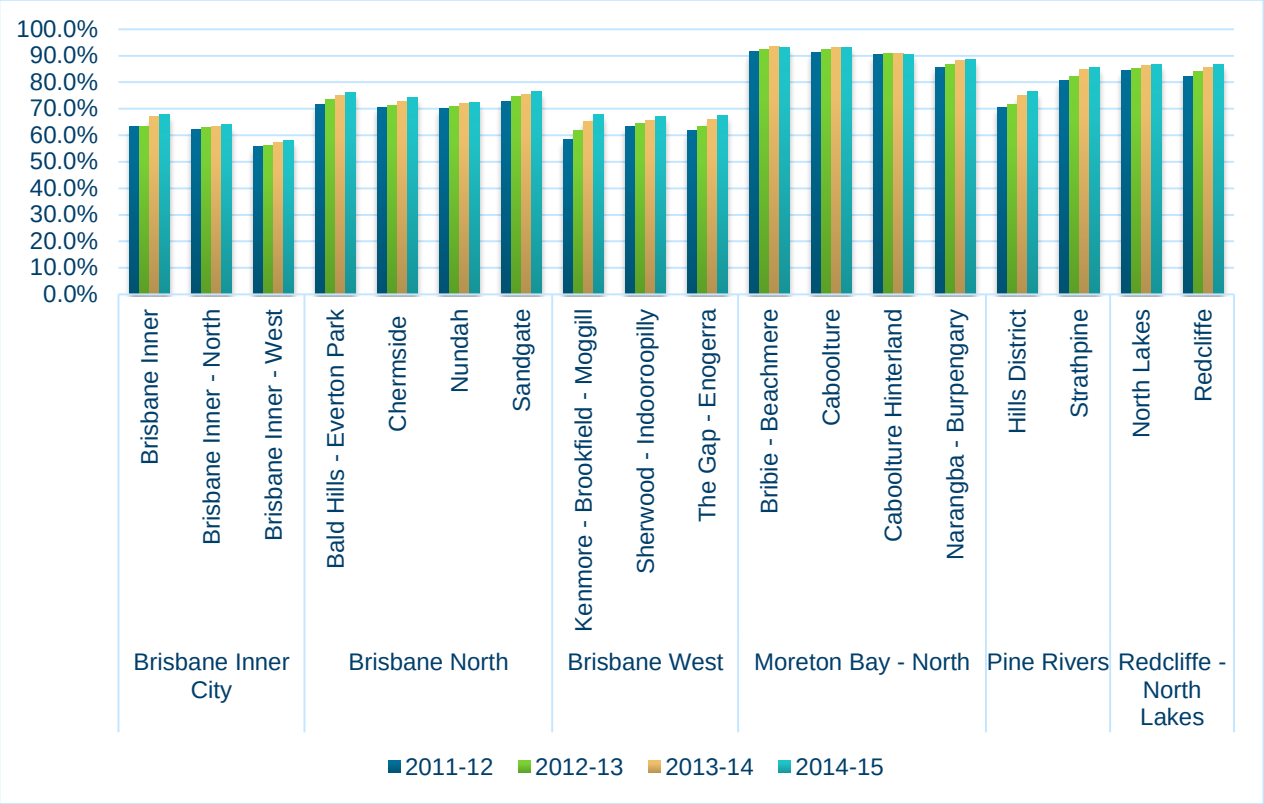
Figure 85: Percentage of GP attendances that were bulk billed by statistical area level three and sub region, 2011-12 to 2014-15



Source: Australian Institute of Health and Welfare 2016d, National Health Performance Authority 2015

Frequent GP attenders

People are considered very high GP attenders if during one year they visited a GP 20 or more times. Frequent GP attenders are people who visited a GP 12 – 19 times per year. Nationally, very high and frequent GP attenders accounted for 41 per cent of all non-hospital Medicare expenditure during 2012 – 2013 (National Health Performance Authority, 2015).

In the region, nearly eight per cent of the population attended the GP between 12 to 19 times during the 2012-13 financial year. This is consistent with national averages. Just over three per cent of the population in the region attended the GP 20 or more times during the 2012-13 financial year. Higher GP attendances are associated with higher levels of social deprivation within the region, and indicate areas of higher need. This is highlighted in Figure 86.

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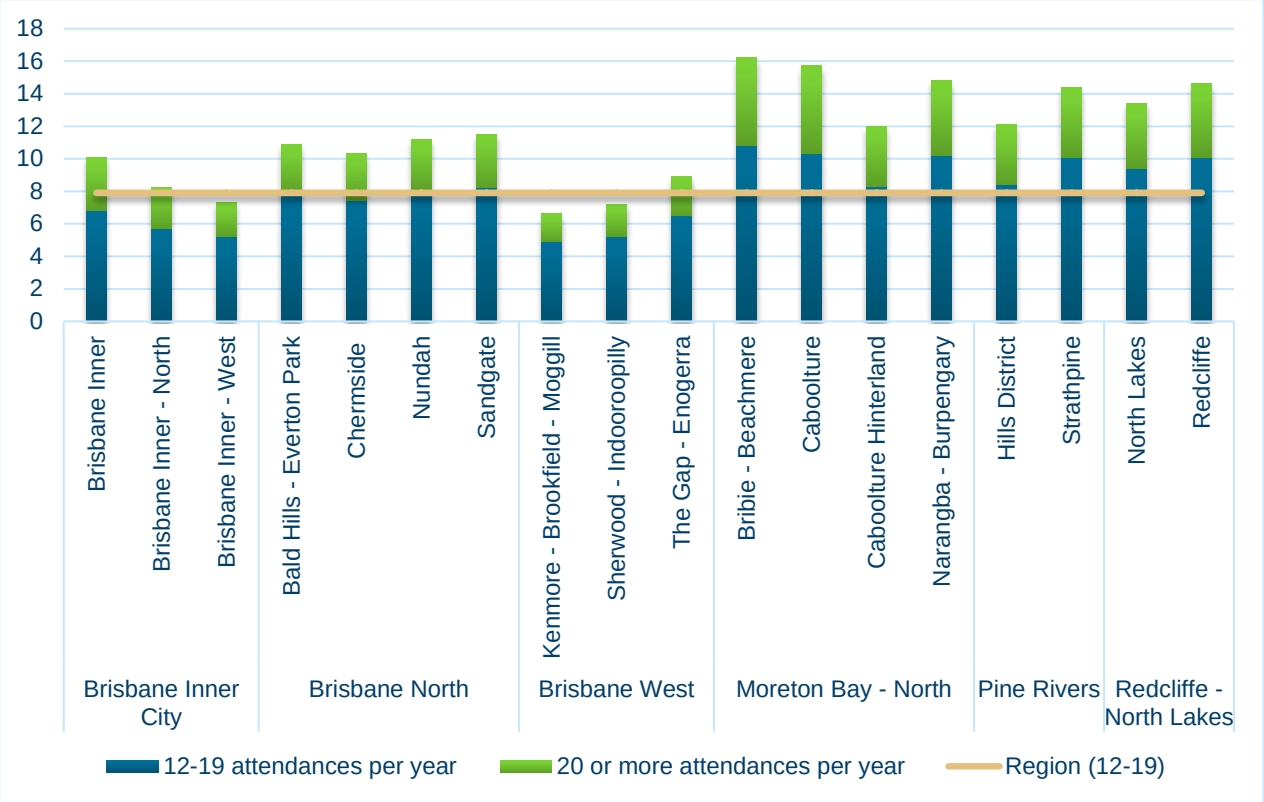
Figure 86: Frequent and very high GP attenders by statistical area level three and sub region, 2012-13



Source: National Health Performance Authority, 2015c

Non hospital specialists

Average number of specialist attendances[23]

In 2014-15, on average there was almost one specialist attendance per person in the region (0.84 per person). This is consistent with the national average of 0.86 specialist attendances per person (Australian Institute of Health and Welfare, 2016d). Within the region, higher rates of specialist attendances are associated with areas of higher socioeconomic status. A person living in the Brisbane Inner – West is over two times as likely to visit a specialist compared to a person residing in the Caboolture Hinterland area (1.1 attendances per person and 0.5 attendances per person respectively). This is highlighted in Figure 87.

[23] Specialist attendances are Medicare benefits-funded referred patient/doctor encounters, such as visits, consultations, and attendances by video conference, involving medical practitioners who have been recognised as specialists or consultant physicians for Medicare benefits purposes. Specialist attendances include: consultant physician attendances; consultant psychiatrist attendances; other specialist attendances; specialist case conferences; and all anaesthesia consultations, whether provided by general practitioners or specialists. Specialist attendances do not count attendances in a hospital setting.

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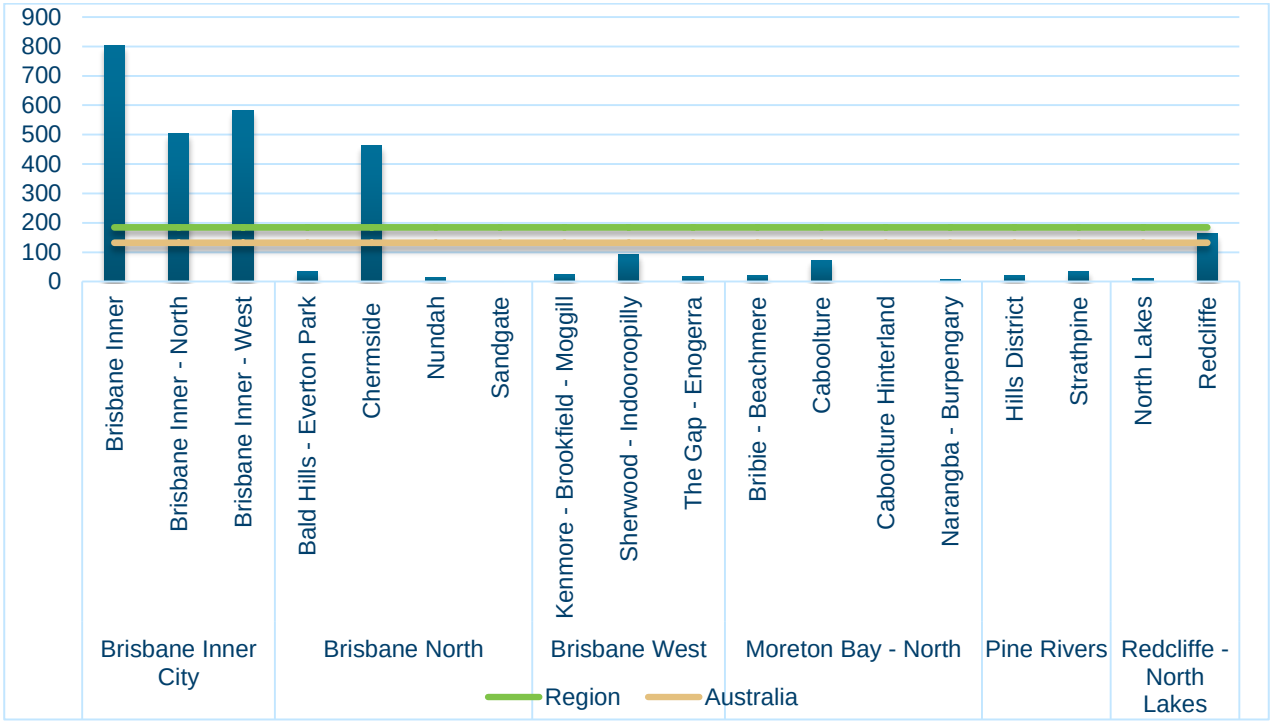
Figure 87: Average number of specialist attendances per person (age-standardised) by statistical area level three and sub region, 2014-15

Source: Australian Institute of Health and Welfare, 2016d.

The higher rate of specialist attendances in the Brisbane Inner and Inner – West areas may be linked to a range of factors, including cost and availability. According to the Australian Institute of Health and Welfare (2015), there was a large variation in specialist workforce within the region. In 2014, almost one third of the total workforce in the region was located within the Brisbane Inner, Brisbane Inner – West and Brisbane Inner – North statistical areas. This is highlighted in Figure 88. The lack of specialists in higher needs areas may indicate a significant service gap in the region.

Figure 88: Specialist FTE rates per 100,000 people by statistical area level three and sub region, 2014



Source: Australian Institute of Health and Welfare, 2015

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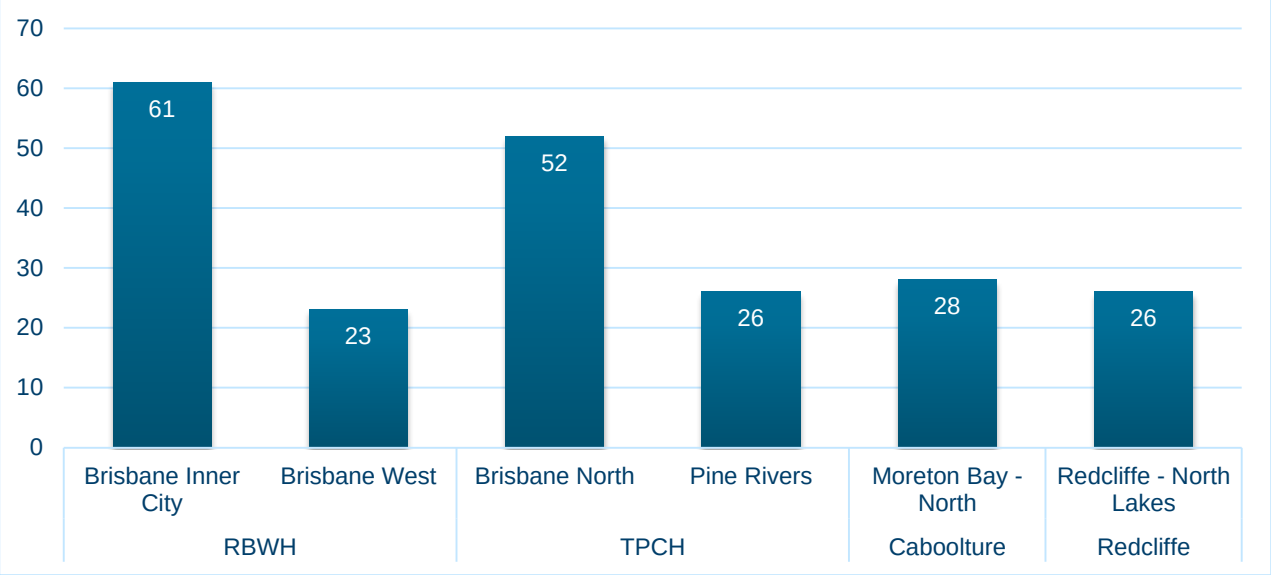
Community healthcare services

Pharmacies

As of October 2016, there are an estimated 216 pharmacies in the region. Pharmacies are distributed in a similar pattern to the region's population, with a higher proportion of pharmacies located in the Brisbane Inner City sub region and a smaller proportion of pharmacies located in Redcliffe - North Lakes and Moreton Bay North sub regions. The distribution of pharmacies by sub region is shown in Figure 89.

Figure 89: Location of pharmacies by sub region and hospital catchment, 2016



Source: Brisbane North PHN, 2016

Aboriginal and Torres Strait Islander health access

Aboriginal and Torres Strait Islander people typically die at much younger ages than other Australians and are more likely to experience disability and reduced quality of life because of ill health. One important contributor to health and wellbeing is access to culturally appropriate health services (Australian Institute of Health and Welfare, 2011a). One effective way to measure the health of Aboriginal and Torres Strait Islander people is to conduct an Aboriginal and Torres Strait Islander health assessment.

Aboriginal and Torres Strait Islander health assessments (Item 715)

The aim of health assessment for Aboriginal and Torres Strait Islander people is to help ensure that Aboriginal and Torres Strait Islander people receive primary healthcare matched to their needs on an annual basis. This is achieved by encouraging early detection, diagnosis and intervention for common and treatable conditions that cause morbidity and early mortality.

Average number of Aboriginal and Torres Strait Islander people who received a health assessment

In 2014 – 2015 there were 6202 Aboriginal and Torres Strait Islander health assessments delivered in the region. A higher proportion of health checks have been delivered in areas where there is a greater number of the Aboriginal and Torres Strait Islander population living. Some of these areas include Caboolture and Nundah and are associated with the location of the Aboriginal and Torres Strait Islander Community Controlled Health Service locations (Figure 90).

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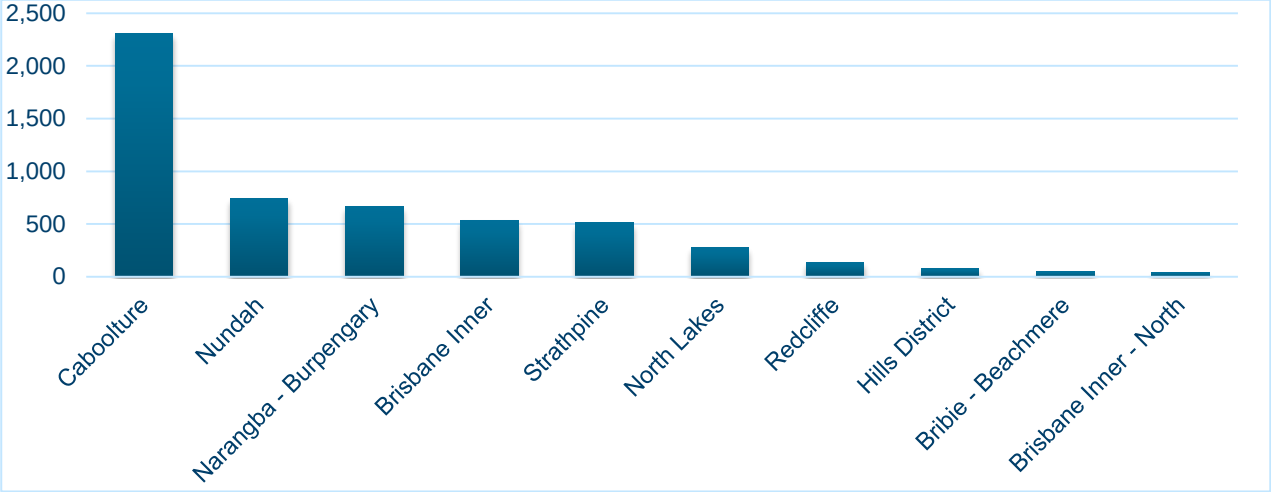
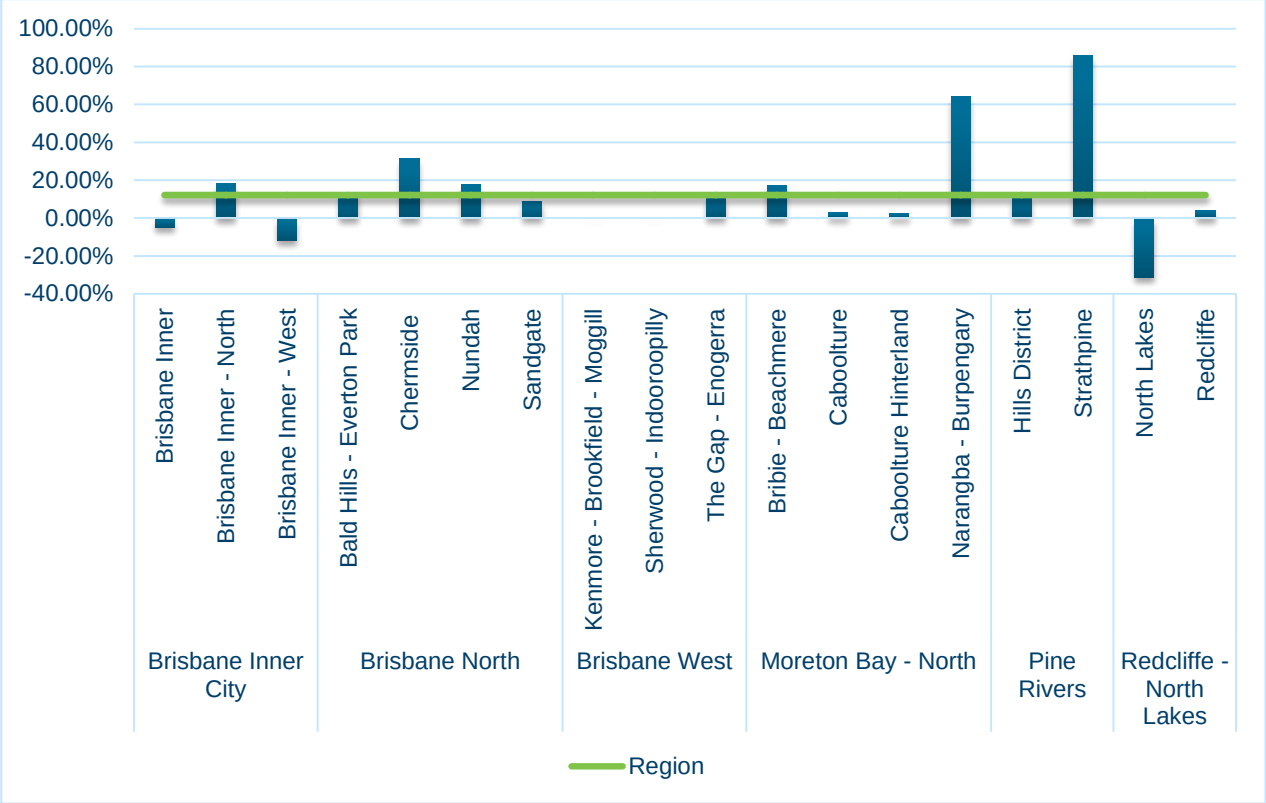
Figure 90: Average number of people receiving 715 health assessments by top ten statistical areas level three, 2012-15



Source: Department of Health, 2016

Between 2012 and 2015 there was a 12.1 per cent increase in Aboriginal and Torres Strait Islander health assessments in the region. Strathpine saw the greatest percentage increase (85.8 per cent). This may be attributable to the emphasis that the Department of Health placed on 715 health checks and the program *Deadly Choices*. Equally, the Institute for Urban Indigenous Health was established in 2009 and continued to grow culturally appropriate health services throughout the region.

Figure 91: Average annual change in 715 health assessments by statistical area level three and sub region, 2012-15



Source: Commonwealth Department of Health, 2016

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After-hours service use and access

Average number of after-hours GP attendances per person

After hour services refers to the provision of primary healthcare services where patients can access GPs, allied health and diagnostic services. After-hours is defined as:

- outside 8am to 6pm weekdays
- outside 8am to 12pm on Saturday
- all day on Sunday and public holidays.

The complete after-hours period is broken into:

- sociable after-hours period: 6pm to 11pm weeknights
- unsociable after-hours period: 11pm to 8am weekdays, hours outside of 8am and 12pm Saturdays, and all day Sundays and public holidays.

Source: Department of Human Services, 2015a

Some evidence links the availability of after hour GP services to reduced rates of emergency presentations in the same area. However, other factors contribute to emergency department presentations including patient perception of urgency or seriousness of the problem (Australian Institute of Health and Welfare, 2014).

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The average number of after-hours GP attendances per person (age-standardised) during 2014 – 2015 in the region was 0.39. This indicates that people tend to not visit a GP after-hours and therefore may be presenting at other health service providers. The highest number of average after-hours GP attendances in the region occurred in the Caboolture and North Lakes areas (Figure 92). The higher number of after-hours GP attendances in the North Lakes area may be attributable to the presence of the minor trauma centre, located in the suburb of Kallangur.

Figure 92: Average number of after-hours GP attendances (age standardised) by statistical area level three and sub region, 2014 – 2015

Source: Department of Human Services, 2015b

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Emergency Department (ED) presentations

Emergency Department data presented in this section is for the period of July 2013 to June 2016, and includes:

- Caboolture Hospital
- Kilcoy Hospital
- Redcliffe Hospital
- Royal Brisbane and Women's Hospital
- The Prince Charles Hospital.

The Australasian triage scale (ATS) classification system includes a determination of the urgency of a patient's condition with categories one to three having the highest urgency whilst categories four and five the least.

Table 20: Australasian triage scale (ATS) classification system

Triage category	Australasian Triage Scale (ATS)	Treatment Acuity (maximum waiting time)
Triage category 1	Resuscitation	Immediate
Triage category 2	Emergency	Minutes (within 10 minutes)
Triage category 3	Urgent	Half hour (within 30 minutes)
Triage category 4	Semi-urgent	One hour (within 60 minutes)
Triage category 5	Non-urgent	Two hours (within 120 minutes)

Presentations not allocated to a triage category have been excluded from this analysis. Data captured on presentations, may also capture a single person more than once. Presentation by residents at emergency departments located outside the region has been excluded from the analysis.

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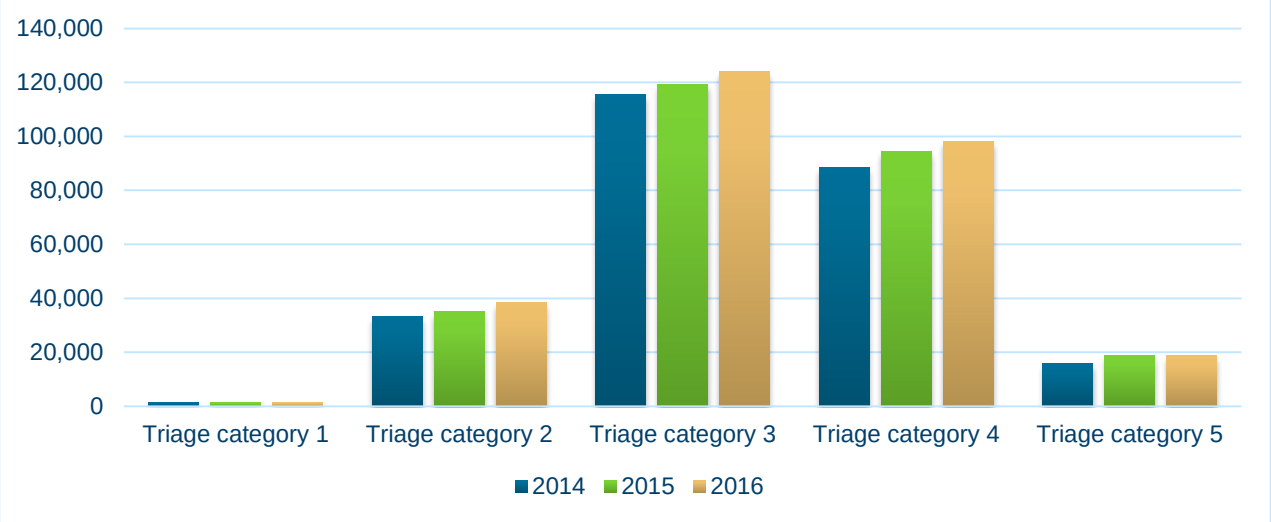
ED Presentations

There were approximately 280,000 ED presentations in 2015-16, a ten per cent increase over the last three years. Triage category three represented the highest proportion of emergency presentations with 44.2 per cent of all presentations in 2015-16, closely followed by Triage Category four with 35 per cent of all presentations in 2015-16.

Between 2014 and 2016, there were 223,396 total ED after-hours presentations in the region. Of these presentations, 65,116 presentations were category four and five presentations that were not admitted (approximately 30 per cent).

Figure 93 highlights non-admitted presentations compared to total ED presentations during the after-hours period.

Figure 93: ED presentations by triage category during the after-hours period, 2014 to 2016



Source: Queensland Health, 2016

Potentially unnecessary ED presentations

Public hospital data was analysed to identify ED presentations that were potentially unnecessary and could have been managed by a GP. In keeping as close as possible to the Australian Institute of Health and Welfare definition of GP type ED presentations, the following filters were applied to hospital data:

- triage category four and five
- was not admitted to hospital, not referred to hospital, or did not die.

From 2013 to 2016, 34.8 per cent of all ED presentations were considered potentially unnecessary. Triage category four and five presentations that were either completed and discharged represented one-third of all presentations, while triage category four and five presentations where the patient did not wait or left before completion of treatment represented an additional 2.8 per cent of all presentations as reported in Figure 94.

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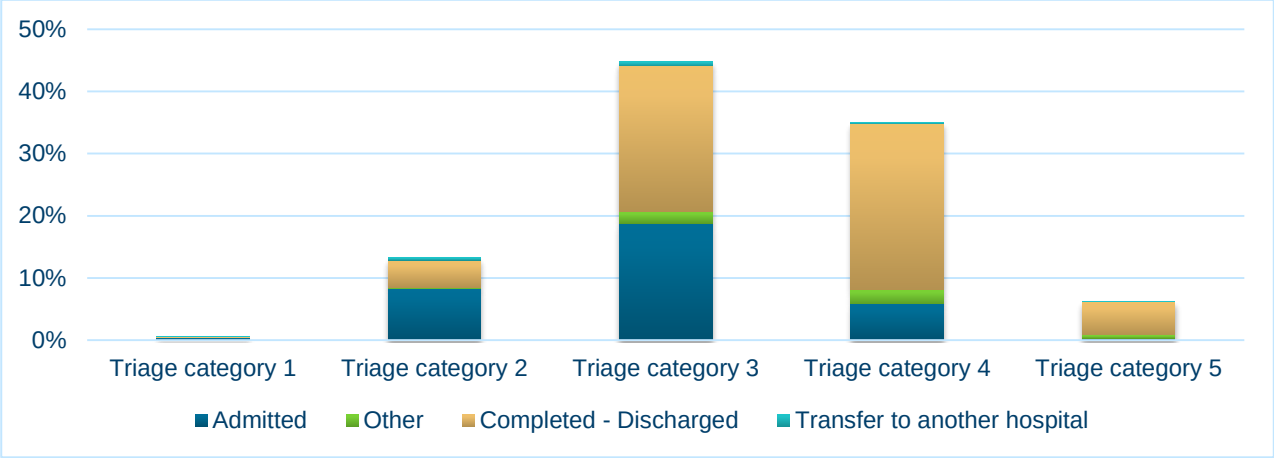
Figure 94: Potentially unnecessary ED presentations, by ED discharge destination and triage category, July 2013 – June 2016



Source: Queensland Health, 2016

Mode of arrival

While the criteria provides a good indicator of GP type ED presentations, not all presentations in this category may have been unnecessary. Arrival transport mode is another variable used to categorise potential primary care type ED presentations. The Royal Australian College of General Practitioners (RACGP) specifically excludes patients transported by ambulance to define primary care type ED presentations.

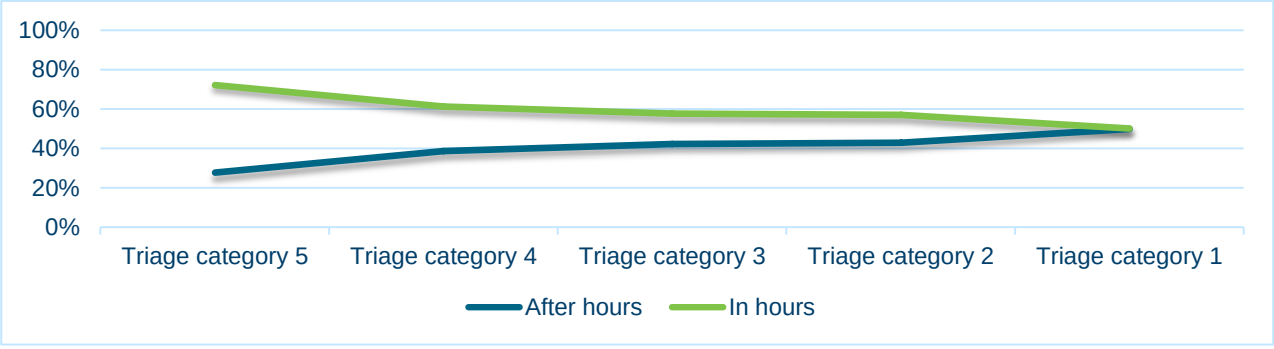
Between 2013 and 2016, 65.1 per cent of patients arrived at the emergency department via private or public transport with 33.5 per cent arriving by ambulance. One per cent of all emergency presentations arrived by police. 84.12 per cent of non-admitted category four and five presentations arrived via private or public transport with 15.3 per cent arriving by ambulance (Road). Less than one per cent (0.47 per cent) non-admitted category four and five presentations arrived by police.

This is also supported by that 97 per cent of patients were either self-referred or by family or friends. Less than two per cent (1.6 per cent) of referrals were from a GP.

Time of presentation

Figure 95 demonstrates that the greatest number of triage category four and five ED presentations occur within normal operating hours. As the triage priority increases so too does the demand on after-hours emergency department services.

Figure 95: Time of ED presentation, triage category four and five, July 2013 – June 2016



Source: Queensland Health, 2016

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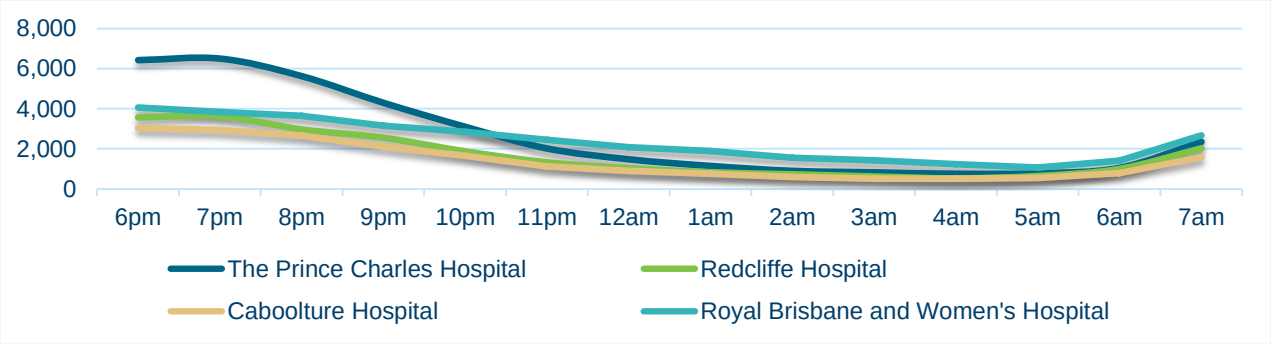
For all public hospitals in the region, the peak hours of non-admitted category four and five activity were mid-morning between 9am and 11am and early evening between 5pm and 8pm. This evening period account for 18.3 per cent of non-admitted category four and five activity and 44.5 per cent of all after-hours non-admitted category four and five presentations (Figure 96).

Figure 96: Non-admitted category four and five ED presentations, July 2013 – June 2016

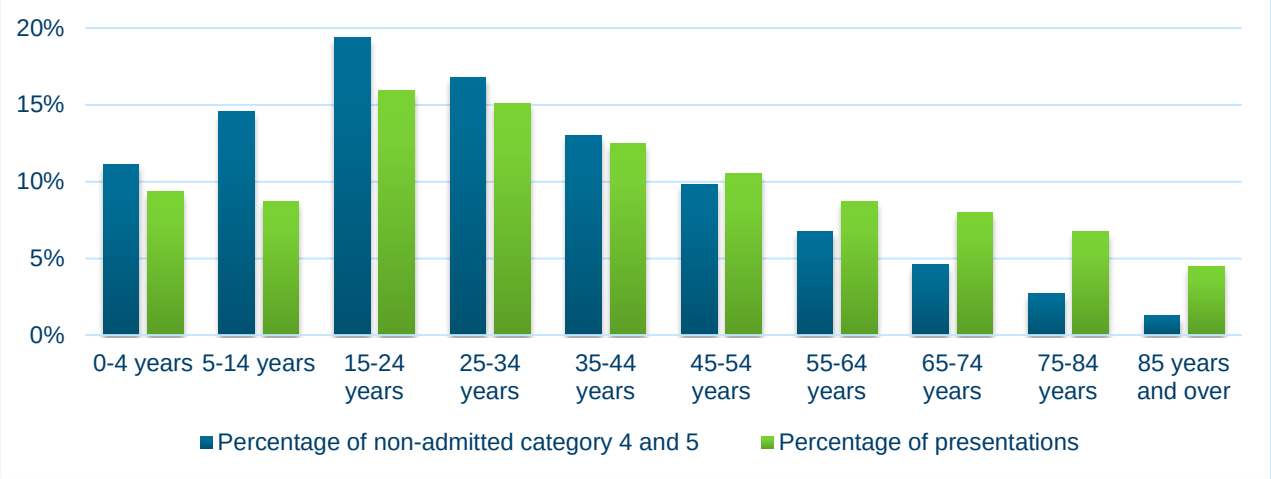


Source: Queensland Health, 2016

Demographics

The majority of presenters to EDs in the region were aged under 35 years of age with children aged under 15 years representing 18 per cent of all presentations (Figure 97). Non-admitted category four and five presentations tended to be represented by the younger age groups when compared to total presentations. Presenters aged between 15-24 years and 25-34 years represented 19.4 per cent and 16.8 per cent of all non-admitted category four and five presentations respectively. Children aged 5-14 years represented 14.5 per cent of all non-admitted category four and five presentations.

Figure 97: Non-admitted category four and five ED presentations by age, July 2013 – June 2016



Source: Queensland Health, 2016

Rates of presentation were similar for both males and females, although males are more likely than females to present to the ED, across all age groups. This is reflected in overall proportions with 52 per cent of presenting identifying as male compared to 48 per cent as female as seen in Figure 98.

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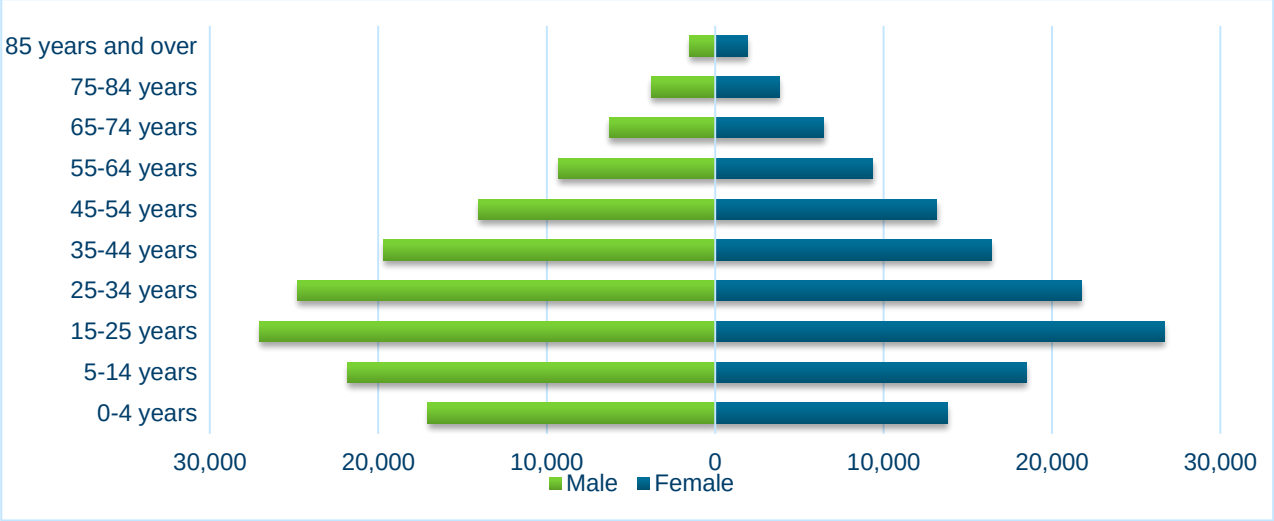
Figure 98: Non-admitted category four and five ED presentations by age, July 2013 – June 2016

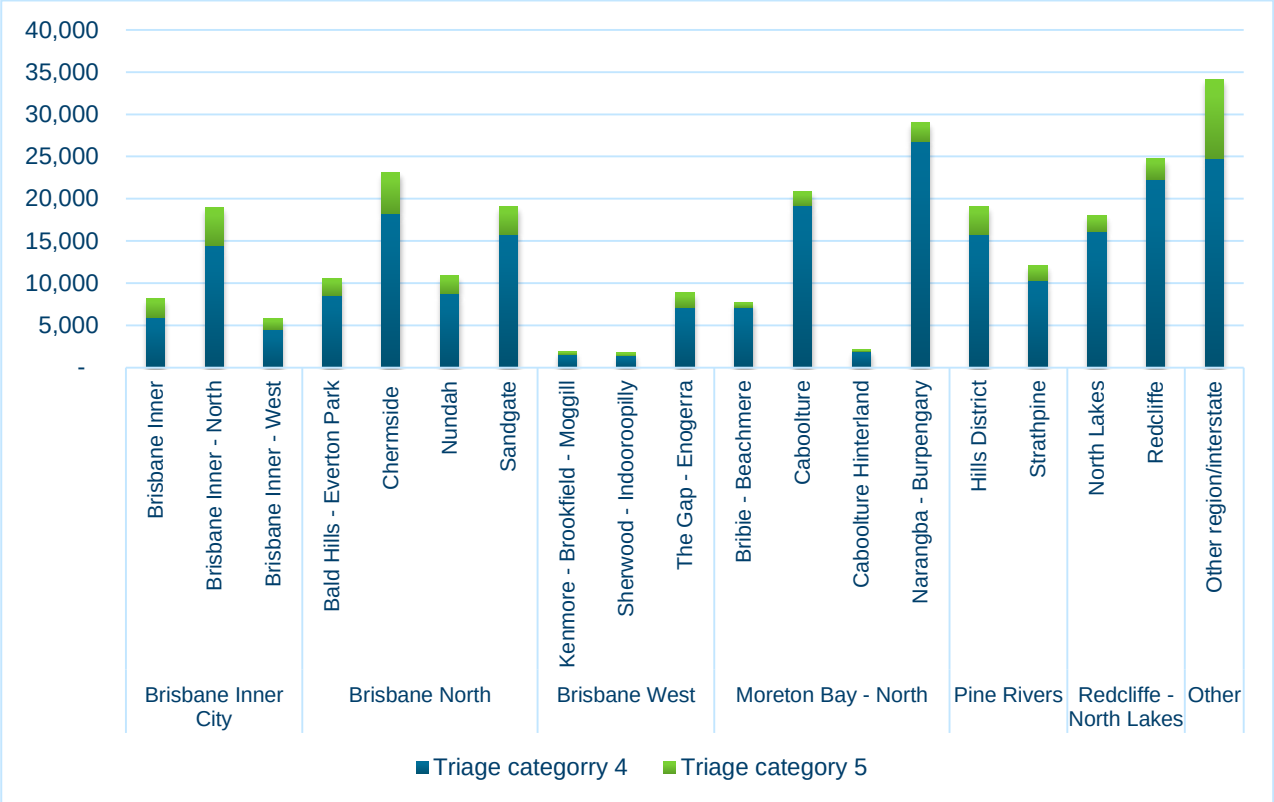


Source: Queensland Health, 2016

A large number of category four and five non-admitted ED presenters live in the northern parts of the region, with a large cohort residing in the areas of Narangba-Burpengary, Redcliffe, Chermside and Caboolture as shown in Figure 99.

Presentations are clustered among relatively few suburbs, with 30 per cent of all non-admitted category four and five non-admitted presenters residing in 15 suburbs, as highlighted in the graph. A large number of presentations are from people who reside outside the region with these presentations overwhelmingly occurring at the Royal Brisbane and Women's Hospital.

Figure 99: Non-admitted category four and five ED presentations by statistical area level three and sub region, July 2013 – June 2016



Source: Queensland Health, 2016

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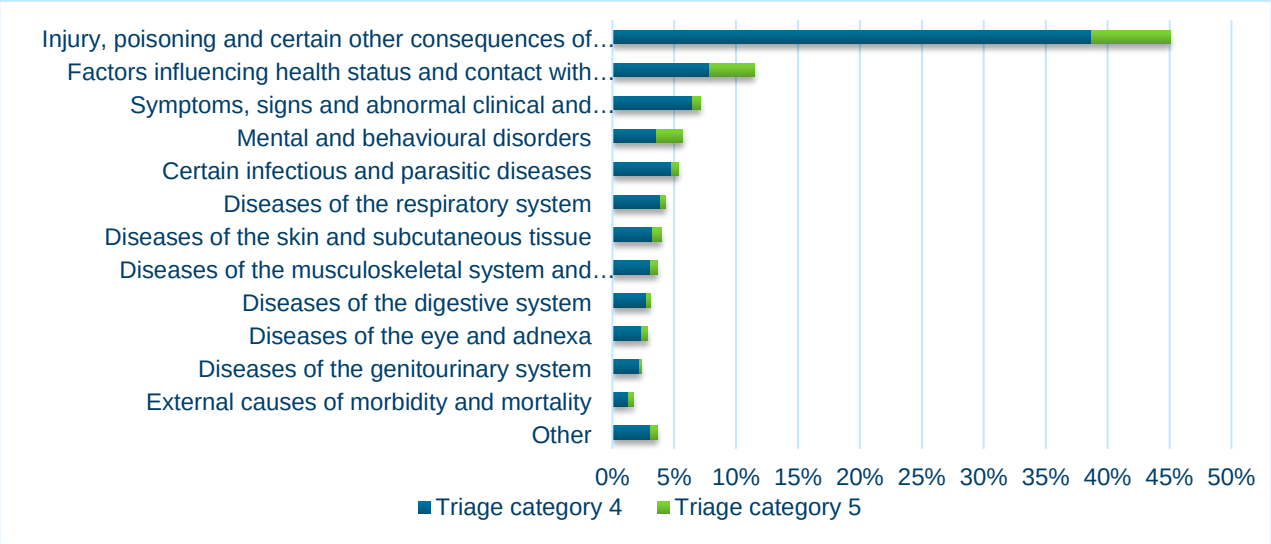
Diagnosis

Injury, poisoning and certain other consequences of external causes including burns represented the principal diagnosis category of non-admitted category four and five ED presentations (45 per cent). This is followed by factors influencing health status and contact with health services (11.5 per cent), symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified (7.1 per cent), mental and behavioural disorders (5.7 per cent) and certain infectious and parasitic diseases (5.3 per cent) as reported in Figure 100.

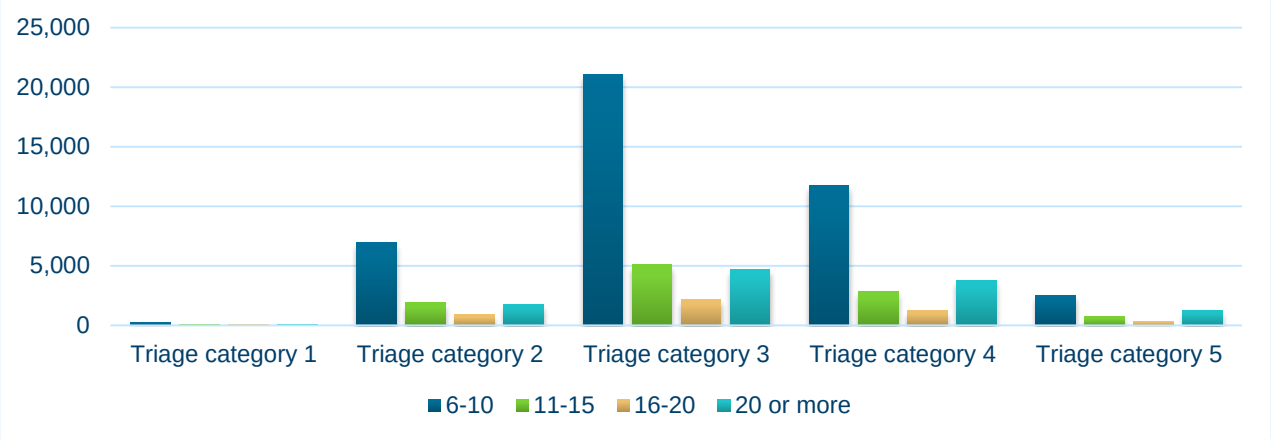
Figure 100: Top diagnosis (description) non-admitted category four and five ED presentations, July 2013 – June 2016



Source: Queensland Health, 2016

Frequent ED attenders ED presentations were divided by the total number of attendances per individual patient in a given year. Analysis on frequent attenders were based on any patient presenting to ED more than five times a year. Analysis shows that approximately nine per cent of all emergency presentations are from patients who attended more than five times in a year. The largest cohort of frequent attenders had a frequency of six to ten presentations in a year. This group represented approximately 61 per cent of frequent attenders. Most frequent attenders presenting to emergency departments were triaged as a category three presentation. This is reported in Figure 101.

Figure 101: Frequent ED attenders, by triage category, July 2013 – June 2016



Source: Queensland Health, 2016

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Hospital service use

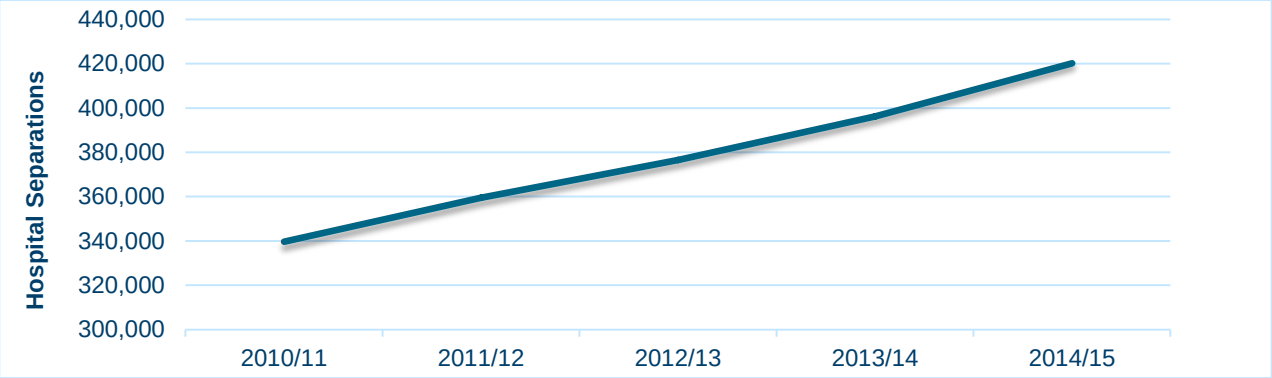
As a metropolitan centre, the region is relatively self-sufficient in acute healthcare with a number of quaternary, tertiary and secondary hospitals. In 2014 -15, there were 420,195 admitted hospital separations[24] from Queensland public and private hospitals for the region's residents. Approximately 87 per cent of these separations occurred in public and private hospitals in the region with the remaining 13 per cent of separations occurring in hospitals outside of the region.

Table 21: Total hospital episodes for all conditions, public and private hospitals, 2014-15

	Separations	Per cent
Resident separations in public and private hospitals	364,399	86.7%
Resident separations in hospitals outside of region	55,796	13.3%
Total	**420,195**	**100%**

Inpatient or admitted hospital activity is defined as a patient who is admitted to a hospital (either overnight or same day) through a formal admission process while receiving medical care or treatment. Over the last five years, hospital separations for residents of the region increased by 23.7 per cent (80,549 separations), as shown in Figure 102. During this same period the region's population increased by 7.6 per cent (67,384 people).

Figure 102: Total admitted hospital episodes (overnight and same day) for all conditions, region residents, public and private hospitals, 2010-11 to 2014-15



Source: Metro North Hospital and Health Service, 2016

Residents of the region on average utilised private hospitals slightly more than public hospitals with 51.5 per cent of all resident separations occurring in a private hospital. The percentage of resident separations at private hospitals has decreased over the last five years from 52.3 per cent of all separations in 2010-11.

Separations for residents of the region in public hospitals have increased 26 per cent (42,040 separations) over the last five years compared to 21.7 per cent (38,509 separations) growth in private hospital separations in the same period. Public hospital separations as a percentage of overall resident separations have increased from 47.7 per cent in 2010-11 to 48.5 per cent in 2014-15.

[24] Hospital separations refer to the cessation of an admitted patient episode. There are two types of separations, formal and statistical (Australian Institute of Health and Welfare, 2015). Analysis of hospital separations during a given time period provide insight into hospital load and capacity, while providing a context potential health issues impacting upon a population. Hospital separations capture episodes of admitted patient care, rather than individuals. As such, more than one separation may be attributable to an individual if they are admitted and discharged from hospital multiple times during a given reporting period

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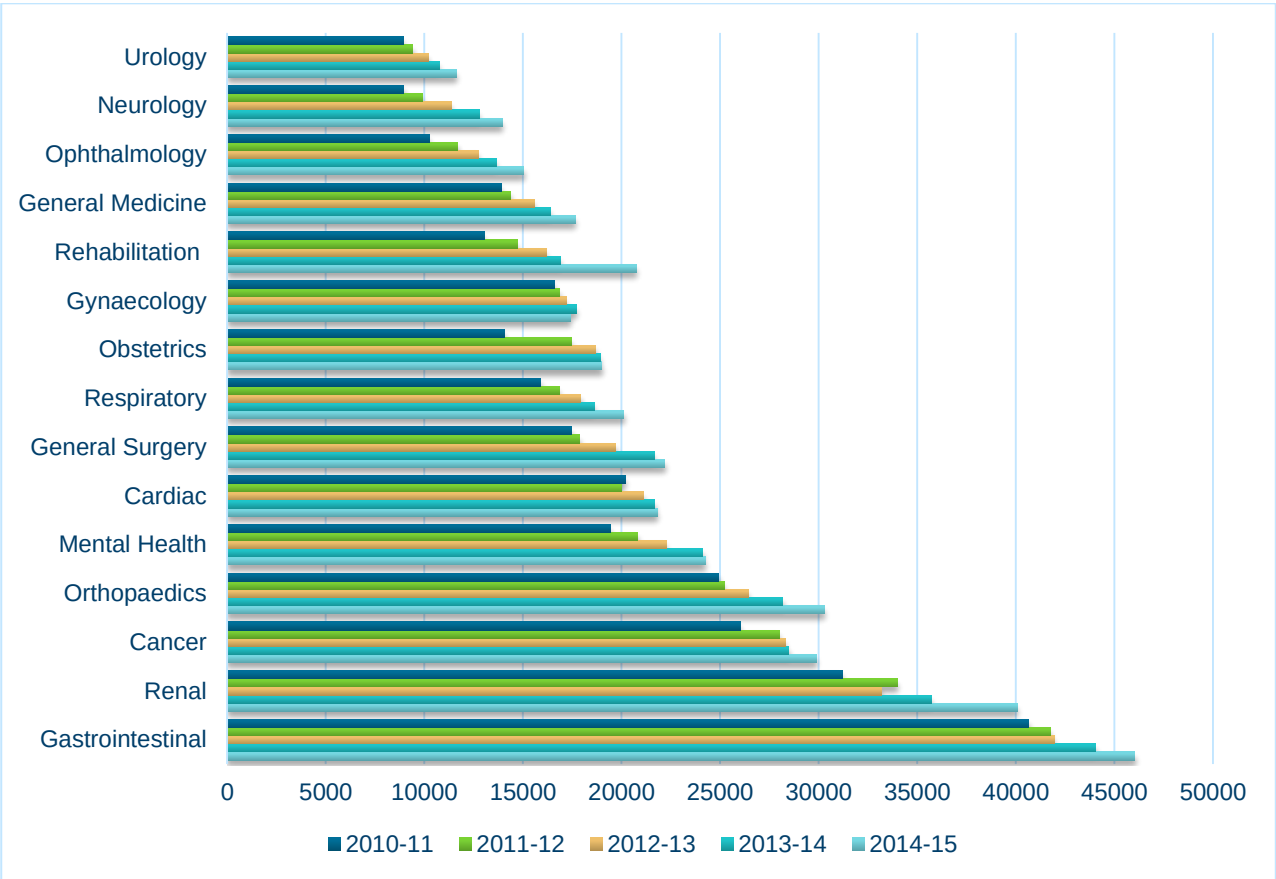
Figure 103: Total hospital separations for all conditions, region residents, public and private hospitals, 2010-11 to 2014-15

Source: Metro North Hospital and Health Service, 2016

Gastrointestinal conditions including diagnostic GI endoscopy accounted for the highest number of admitted resident separations from both public and private hospital in the region in 2014-15, followed by renal services including dialysis. A large number of admitted resident separations were also for orthopaedics and mental health. This is shown in Figure 104.

Figure 104: Top service related group , public and private hospital resident separations, 2010-11 to 2014-15



Source: Metro North Hospital and Health Service, 2016

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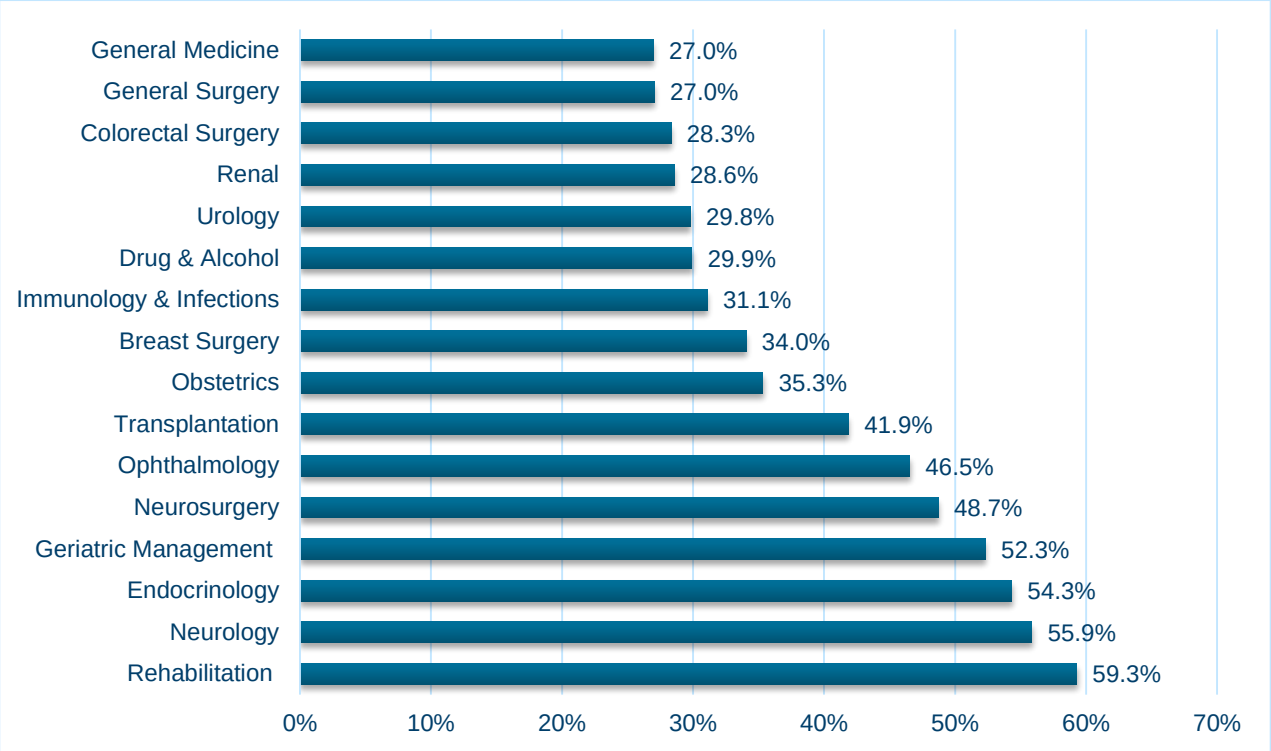
Rehabilitation was the fastest growing service related group for residents admitted to hospital increasing 59.3 per cent between 2010-11 and 2014-15. The next fastest growing areas were neurology (55.9 percent), endocrinology (54.3 per cent) geriatric management (52.3 per cent) and neurosurgery (48.7 per cent).

Figure 105: Top service related groups, growth in separations, public and private hospitals, 2010-11 to 2014-15



Source: Metro North Hospital and Health Service, 2016

Relative utilisation of admitted services

Relative utilisation is the ratio of the number of admissions to hospital for residents of a region (regardless of where they were admitted) to the expected number of admissions for those residents based on state admission rates. The state average is reflected as a score of 100. Relative utilisation is adjusted for age and sex and is impacted by many local factors such as:

- models of care or treatment method
- public and private service availability and accessibility
- local disease rates
- socioeconomic status of residents
- local admission policies.

In the region, overall relative utilisation rates for residents are slightly higher than the Queensland average, with a relative utilisation rate of 103.2.

Within the region, overall relative utilisation rates were highest for residents of the Brisbane North sub region (109.7) followed by residents of the Redcliffe – North Lakes sub region (108). Relative utilisation of private hospital services was highest in the Brisbane West sub region (162.1), followed by the Brisbane Inner City sub region (146.3). This is likely to be due to greater access to private hospital facilities in these areas.

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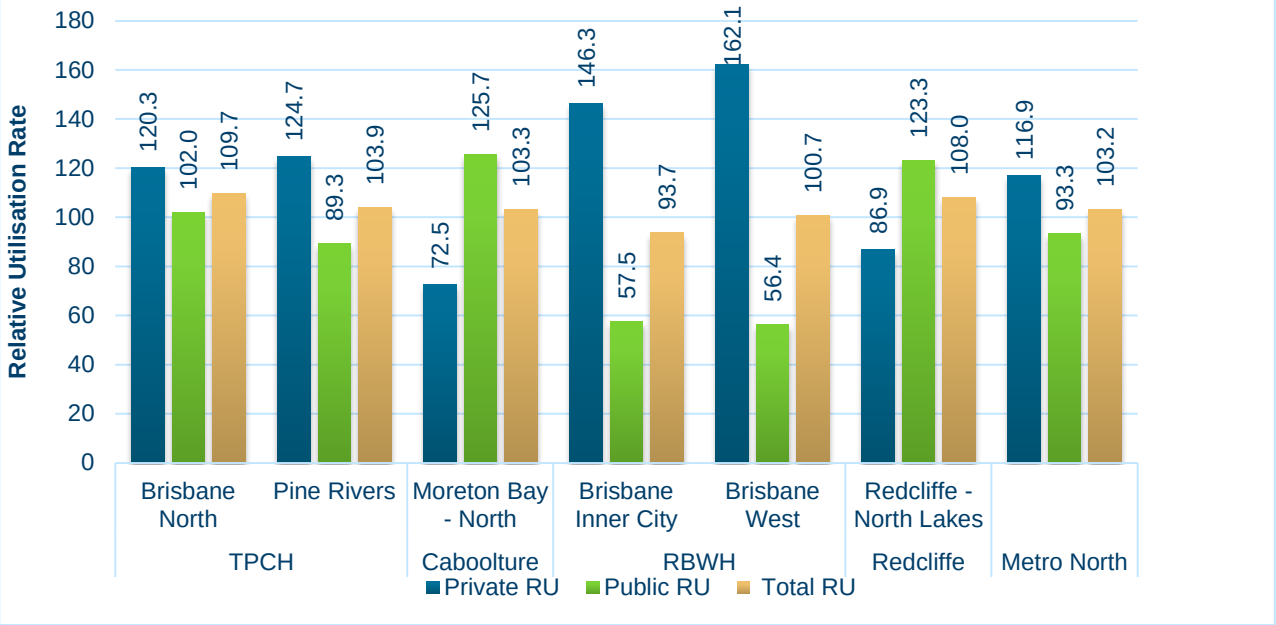
Relative utilisation of public hospital services was highest in the Moreton Bay North sub region (125.7), followed by the Redcliffe – North Lakes sub region (123.3). This is likely to be due to limited access to private hospital facilities and the presence of public hospital facilities in these areas. These areas also rated the lowest for socioeconomic disadvantage in the region. Relative utilisation rates for all sub regions can be seen in Figure 106.

Figure 106: Relative utilisation[25] of private and public hospital services by sub region and hospital catchment, 2014-15



Source: Metro North Hospital and Health Service, 2016

Overall hospital relative utilisation rates differ when comparing children to adults. Overall relative utilisation rates for residents of the region are slightly higher for children at 106.5 compared to adults at 102.9. This is shown in Table 22.

Moreton Bay North children (RU=116.3) had the highest relative utilisation in the region and were more likely to be public (132.7) than private (50.5). Similarly, children in the Redcliffe – North Lakes sub region 115.4, are again more likely to be public (124.4) than private (79.5).

[25] Relative utilisation rates exclude renal dialysis, diagnostic GI endoscopy, interventional cardiology, extensive burns, and transplantation due to a significant portion of this activity is delivered on a non-admitted basis, inconsistent admitted practices between facilities and/or Small numbers of separations for Queensland.

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Table 22: Relative utilisation of private and public hospital services, adults and children, 2014-15

Hospital catchments	Sub region	Adults			Children		
		Private RU	Public RU	Total RU	Private RU	Public RU	Total RU
TPCH	Brisbane North	120.5	101.3	109.7	117	108.1	109.9
	Pine Rivers	125	87.6	103.9	117.9	100.5	104
Caboolture	Moreton Bay – North	73.5	124.7	102	50.5	132.7	116.3
RBWH	Brisbane Inner City	144.9	56.4	93.6	191.3	70.6	94.7
	Brisbane West	161.7	54.6	101.7	171.2	70.2	90.4
Redcliffe	Redcliffe – North Lakes	87.3	123.1	107.4	79.5	124.4	115.4
Region total		**117**	**92**	**102.9**	**115.6**	**104.2**	**106.5**

Source: Metro North Hospital and Health Service, 2016

Overall, residents of the region are higher than average users of geriatric management services (164.1), rehabilitation (150.3), mental health (145.9), dermatology (121.4) and plastic and reconstructive surgery (118.9) with an overall relative utilisation rate (103.4).

Table 23 details the relative utilisation rates for the top 38 service related groups in the region.

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Table 23: Top service related groups by relative utilisation[26], public and private, 2014-15

Service Related Group	Private	Public	Grand Total
Geriatric Management	28.5	167.0	164.1
Rehabilitation	130.6	188.9	150.3
Mental Health	172.8	106.1	145.9
Thoracic Surgery	145.6	117.9	131.0
Dermatology	111.2	124.5	121.4
Plastic and Reconstructive Surgery	127.3	103.6	118.9
Colorectal Surgery	133.4	85.9	110.4
Drug and Alcohol	211.1	75.6	110.4
Cardiac Surgery	119.3	100.3	109.0
Qualified Neonate	120.9	106.5	108.9
Breast Surgery	111.9	98.5	107.7
Renal Medicine	119.8	102.0	107.4
Gynaecology	119.0	87.8	107.0
Medical Oncology	128.0	92.4	106.7
Head and Neck Surgery	108.4	101.7	105.6
Respiratory Medicine	113.1	101.4	105.1
Dentistry	121.3	63.2	104.6
Neurosurgery	111.6	99.1	104.0
Neurology	124.6	95.1	101.9
Gastroenterology	122.9	97.6	101.8
Urology	107.5	95.5	101.1
Endocrinology	111.7	94.7	99.1
Upper GIT Surgery	101.9	94.3	97.4
Immunology and Infections	127.5	81.9	97.0
Orthopaedics	99.4	92.7	96.0
Haematological Surgery	117.2	80.5	95.9
Vascular Surgery	109.4	84.1	95.7
Ophthalmology	100.5	79.0	95.2
Rheumatology	115.6	86.9	95.0
Haematology	118.6	61.8	94.4
General Medicine	101.2	87.9	92.8
Ear, Nose and Throat	98.7	86.9	92.1
Obstetrics	107.5	87.9	92.0
Cardiology	88.3	91.6	91.0
General Surgery	107.5	82.0	88.0
Palliative	100.2	82.9	86.7
Maxillo Surgery	80.8	66.7	73.2
Maintenance	63.2	57.7	58.6
Grand Total	**116.9**	**93.3**	**103.2**

Source: Metro North Hospital and Health Service, 2016

Table 24 and Table 25 represents the service related groups with the lowest and highest relative utilisation rates for admitted hospital services for each PHN residence group and hospital catchment. It is important to review in conjunction as low relative utilisation rates in private may be offset by a high public relative utilisation and vice versa.

[26] Relative utilisation rates exclude renal dialysis, diagnostic GI endoscopy, interventional cardiology, extensive burns, prolonged ventilation, and transplantation due to a significant portion of this activity is delivered on a non-admitted basis, inconsistent admitted practices between facilities and/or Small numbers of separations for Queensland.

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Maxillo surgery appeared in five of the six sub regions indicating residents in these areas utilise these services less than the average state population.

Table 24: Lowest five service related groups by total relative utilisation, public and private, 2014-15

Catchment	Sub Region	SRG	Private	Public	Grand Total
TPCH	Brisbane North	Maxillo Surgery	72.4	74.7	73.6
		Vascular Surgery	66.4	88.1	78.0
		Palliative	59.9	90.5	83.7
		General Surgery	112.4	83.7	90.9
		Drug and Alcohol	171.9	62.2	91.7
	Pine Rivers	Maxillo Surgery	66.4	46.4	55.8
		Palliative	67.0	70.2	69.5
		Rheumatology	124.4	47.2	69.6
		Ophthalmology	89.3	57.8	81.8
		Renal Medicine	105.7	78.1	86.7
Caboolture	Moreton Bay – North	Rehabilitation	44.1	79.0	55.6
		Maxillo Surgery	44.7	100.9	73.6
		Palliative	22.7	90.6	75.7
		Plastic and Reconstructive Surgery	60.4	118.1	80.2
		Cancer	69.5	100.8	83.9
RBWH	Brisbane Inner City	Cardiac	106.4	42.7	54.1
		Obstetrics	124.2	42.3	59.3
		General Surgery	122.0	43.5	61.6
		Gastrointestinal	111.4	43.1	63.0
		Endocrinology	134.6	51.5	74.3
	Brisbane West	Cardiac	120.9	42.7	58.0
		Maxillo Surgery	77.7	59.6	68.2
		General Surgery	144.8	43.1	68.7
		Gastrointestinal	135.9	42.0	70.3
		General Medicine	110.7	47.4	73.1
Redcliffe	Redcliffe – North Lakes	Maxillo Surgery	62.6	74.2	68.7
		Dentistry	72.1	92.3	76.9
		Cancer	69.6	96.0	81.8
		Plastic and Reconstructive Surgery	69.0	119.6	86.4
		Ophthalmology	101.8	75.6	95.7

Source: Metro North Hospital and Health Service, 2016

The highest total relative utilisation rates were dominated by subacute service related groups of geriatric management and rehabilitation due to high public relative utilisation. Comparatively Mental Health appeared in the top five service related group for four of the six sub regions, due to high relative utilisation rate for private facilities.

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Table 25: Top five service related groups by total relative utilisation, public and private, 2014-15

Catchment	Sub Region	SRG	Private	Public	Grand Total
TPCH	Brisbane North	Geriatric Management	20.3	197.6	193.6
		Rehabilitation	137.7	277.8	184.1
		Dermatology	140.2	156.6	152.5
		Mental Health	186.6	98.1	151.9
		Plastic and Reconstructive Surgery	145.4	130.9	140.4
	Pine Rivers	Geriatric Management	65.8	158.0	156.2
		Rehabilitation	128.2	187.9	148.2
		Mental Health	196.1	69.8	147.2
		Plastic and Reconstructive Surgery	140.4	95.4	124.7
		Colorectal Surgery	160.0	85.7	124.5
Caboolture	Moreton Bay – North	Geriatric Management	-	154.3	151.2
		Gastrointestinal	82.7	146.8	127.4
		Renal Medicine	84.8	144.7	125.4
		Cardiac	61.5	140.5	124.9
		Respiratory	87.8	139.5	119.8
RBWH	Brisbane Inner City	Rehabilitation	194.6	222.9	204.3
		Mental Health	215.6	131.0	180.8
		Geriatric Management	98.8	175.1	173.4
		Dermatology	112.1	173.7	158.4
		Plastic and Reconstructive Surgery	182.1	74.3	143.7
	Brisbane West	Rehabilitation	218.9	206.9	214.9
		Mental Health	226.6	70.9	166.7
		Drug & Alcohol	472.4	39.0	160.6
		Dentistry	190.0	35.9	153.0
		Plastic and Reconstructive Surgery	175.8	63.3	137.1
Redcliffe	Redcliffe – North Lakes	Geriatric Management	-	171.7	168.0
		Dermatology	59.0	159.1	134.5
		Gastroenterology	97.2	146.5	131.6
		Renal Medicine	110.9	136.5	128.3
		Neurology	75.9	140.2	124.7

Source: Metro North Hospital and Health Service, 2016

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Hospital access and patient flows

Self-sufficiency is an indicator of the local accessibility of health services. Self-sufficiency rates are used to describe the degree to which the population in a catchment area depends on a local facility. It is one way of estimating how well the facility meets the catchment's health service needs. Self-sufficiency can be influenced by the level of service available at the local hospital, referral patterns between health service providers such as general practice and private specialist referrals, and natural patient flow patterns due to travel time and cost of travel for the patient and preference. The region's capacity to meet public demand for hospital services arising from its residents is high with overall self-sufficiency rates 87.9 per cent in 2014-15. Self-sufficiency rates differ for adults and children with child self-sufficiency rates 54.6 per cent compared to 91.2 per cent for adults. This is due to the primary children's hospital being located in Brisbane South requiring patients with more complex needs to travel out of the region for care.

Self-sufficiency rates differ at a local hospital catchment level with residents from all catchments likely to flow to the regions primary tertiary hospital RBWH and to a lesser extent TPCH for more complex services. Over 70 per cent of adult residents of Brisbane Inner City (74.8 per cent) and Brisbane West (71 per cent) catchment are primarily treated at their local hospital, RBWH whilst few patients flow outwards to other hospitals (TPCH 14.8 per cent, out of HHS 13.4 per cent). Residents of Brisbane North (41.8 per cent) and Pine Rivers (39.1 per cent) are less likely to be treated at their local hospital, TPCH, and also are more likely to be treated at RBWH with 46.9 per cent and 44.7 per cent of patients flowing to the RBWH respectively.

In the north of the region, 42.8 per cent of residents of the Moreton Bay – North sub region are primarily treated at Caboolture Hospital while 23.3 per cent of the region's residents are treated at RBWH and 18.4 per cent are treated at Redcliffe Hospital. 51.1 per cent of residents of Redcliffe – North Lakes are primarily treated at Redcliffe Hospital while 29.1 per cent are treated at RBWH and 11.5 per cent are treated at TPCH.

As discussed earlier self-sufficiency rates differ for adults and children with child residents of Brisbane Inner City (84.9 per cent) and Brisbane West (48.9 per cent) and to a lesser extent residents of Brisbane North (46.3 per cent), Pine Rivers (46.4 per cent) all receiving the majority of their hospital treatment outside of the region. Only children of Redcliffe – North Lakes (49.4 per cent) and Moreton Bay – North (52.4 per cent) receive their treatment primarily within the region.

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Table 26: Self-sufficiency rates, public hospitals, 2014-15

	Region	Catchment	TPCH	RBWH	Redcliffe	Caboolture	Kilcoy	Out of region	Total Self Sufficiency
Adult	Brisbane North	TPCH	41.8%	46.9%	5.1%	0.3%	0.0%	5.9%	**94.1%**
	Pine Rivers	TPCH	39.1%	44.7%	8.9%	1.6%	0.1%	5.6%	**94.4%**
	Brisbane Inner City	RBWH	7.3%	74.8%	0.5%	0.2%	0.0%	17.2%	**82.8%**
	Brisbane West	RBWH	14.8%	71.0%	0.6%	0.2%	0.0%	13.4%	**86.6%**
	Redcliffe – North Lakes	Redcliffe	11.5%	29.1%	51.1%	3.6%	0.0%	4.7%	**95.3%**
	Moreton Bay – North	Caboolture	6.6%	23.3%	18.4%	42.8%	1.1%	7.8%	**92.2%**
Total			**20.6%**	**42.5%**	**16.6%**	**12.0%**	**0.3%**	**8.1%**	**91.9%**
Child	Brisbane North	TPCH	42.6%	7.4%	3.2%	0.4%	0.0%	46.3%	**53.7%**
	Pine Rivers	TPCH	39.7%	4.4%	7.7%	1.8%	0.0%	46.4%	**53.6%**
	Brisbane Inner City	RBWH	8.9%	5.9%	0.2%	0.1%	0.0%	84.9%	**15.1%**
	Brisbane West	RBWH	15.1%	5.8%	0.1%	0.1%	0.1%	78.9%	**21.1%**
	Redcliffe – North Lakes	Redcliffe	12.0%	2.0%	49.4%	5.3%	0.0%	31.2%	**68.8%**
	Moreton Bay – North	Caboolture	2.7%	1.2%	15.3%	52.4%	0.5%	27.9%	**72.1%**
Total			**20.2%**	**4.0%**	**14.7%**	**15.5%**	**0.2%**	**45.4%**	**54.6%**
Grand Total			**20.5%**	**38.4%**	**16.4%**	**12.3%**	**0.3%**	**12.1%**	**87.9%**

Source: Metro North Hospital and Health Service, 2016

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Hospital non-admitted service events

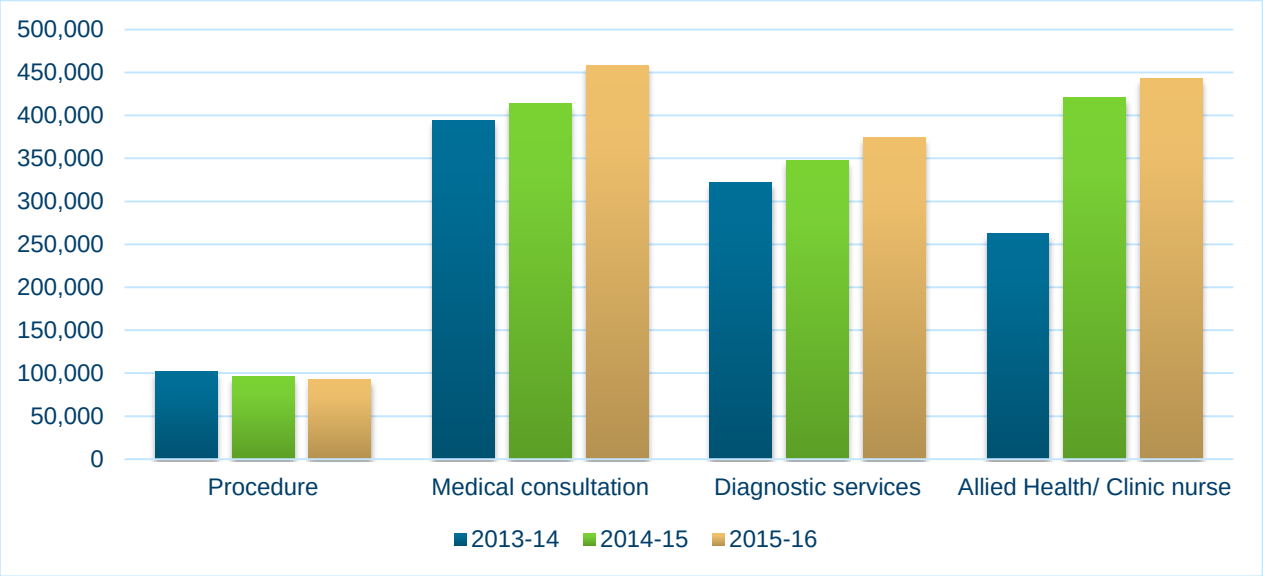
Non-admitted (outpatient) data presented in the section is for the period of July 2013 to June 2016, and includes:

- Caboolture Hospital
- Kilcoy Hospital
- Redcliffe Hospital
- Royal Brisbane and Women's Hospital
- The Prince Charles Hospital
- Community, Indigenous and Subacute Services (CISS) (established 2014-15)

The Independent Hospital Pricing Authority (IHPA) Tier 2 classification system categories each service event into a particular clinic based on the nature of the interaction, the clinical area and type of provider. Service events not classified against a Tier 2 clinic have been excluded from the analysis.

In 2015-16, there were approximately 1,370,000 non-admitted service events, a 27 per cent increase from 2013-14. Medical consultations and allied health/clinic non-admitted service events, contribute two thirds of all non-admitted service events in the region's hospitals.

Figure 107: Number of outpatient service events by clinic type, 2013-14 to 2015-16



RBWH provided 47.4 per cent of all non-admitted service events in 2015-16 and was the largest contributor across all clinic types. CISS non-admitted activity is predominantly limited to the allied health/ clinic nurse and with RBWH contributed over two thirds of this type of service event.

Table 27: Proportion of non-admitted service events by hospital and clinic type, 2015-16

Hospital	Procedure	Medical consultation	Diagnostic services	Allied Health/ Clinic nurse	Total
Caboolture	3.0%	7.2%	9.6%	8.4%	8.0%
CISS	0.0%	0.9%	0.0%	35.4%	11.8%
Redcliffe	9.7%	15.5%	18.8%	9.8%	14.2%
RBWH	75.5%	57.5%	41.9%	35.7%	47.4%
TPCH	11.8%	19.0%	29.7%	10.7%	18.7%

* includes Kilcoy Hospital non-admitted service events.

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Home and residential aged care

The Australian population is an ageing population, with almost 15 per cent of the population in 2014 aged 65 years and over (Australian Bureau of Statistics, 2015). In the region, 13.5 per cent of the population is aged 65 years and over, a total of over 129,000 people. This number has increased from 107,000 people in 2010, and the trend looks set to continue. People are also living longer, with an average life expectancy in the region of 83 years for females and 80 years for males.

One challenge of an ageing population is to ensure that people remain healthy as they age. Ageing is generally typified by an increasing burden of disease, which is tied to higher usage of the health system (Queensland Health, 2014). Therefore, maintaining good health is important to reducing the disease burden and ensuring a better quality of life for older people. Another challenge is to ensure that people have appropriate assistance and care available to them as they age.

Aged care in Australia is delivered across a continuum of care, consisting of a range of options that are designed to meet individual care needs (Australian Institute of Health and Welfare, 2015; Department of Health, 2016). There are two main types of aged care available for people across the continuum of care; community based aged care and residential aged care.

There are two main community-based aged care programs that deliver care:

- The Commonwealth Home Support Programme (CHSP) – provides entry level assistance and support to enable people to live independently at home
- Home Care Packages Programme – provides coordinated care at home for people who have more complex care requirements (Australian Institute of Health and Welfare, 2016, Department of Health, 2016).

Residential aged care is the provision of care and accommodation for older people who are no longer able to live independently in their own homes (Department of Health, 2016). In a residential aged care setting, care and assistance is provided so individual patient needs can be met. There are two main types of residential care:

- permanent care – ongoing accommodation and care for an individual
- respite care – temporary, short term care.

This section analyses the delivery of residential and community-based aged care in the region and estimates the unmet care needs of people who require aged care assistance. This section also analyses the health system usage of people within the aged care system, through primary care attendances and hospital admissions. Data is reported as of June 2015. Policy changes in aged care, which have taken effect since July 2015, have changed the way that aged care is delivered in the region, so that the estimates of unmet need may also have changed.

Aged care places – home and residential

Home Care Packages Programme

The Home Care Packages Programme provides individually tailored support to people aged 65 years and over to remain living independently at home (Department of Health, 2016). There are four levels of packages available which are based on the amount of care and services provided to an individual.

As of June 2015, there were a total of 2543 operational home care places in the region[27,] representing 21 home care places per 1000 people aged 65 years and over. This is consistent with the national rate of 20 home care places per 1000 people aged 65 years and over (Department of Health, 2016).

Within the region, the number of home care places varied from zero places in the Hills District to 360 places in the Caboolture statistical area. The Brisbane Inner statistical area is well serviced by home care places

27 Home care places that were allocated but not operational have been excluded.

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when compared to other statistical areas, with 84 home care places per 1000 people. The Nundah statistical area also had a high number of home care places per 1000 people as shown in Table 28. By comparison, although over one third of the region's population aged 65 years and over live in the Redcliffe, Kenmore – Brookfield - Moggill, Bald Hills - Everton Park, Hills District and Narangba – Burpengary statistical areas, these areas are underserviced by home care places.

Table 28: Home care places and rate per 1000 people aged 65 years and over, 2015

Sub region	Statistical area level three	Home care places	Number of home care places per 1000 people
Brisbane Inner City	Brisbane Inner	200	84
	Brisbane Inner - West	155	42
	Brisbane Inner - North	296	42
Brisbane North	Bald Hills - Everton Park	10	2
	Chermside	295	33
	Nundah	274	71
	Sandgate	120	14
Brisbane West	Kenmore - Brookfield - Moggill	20	3
	Sherwood - Indooroopilly	86	36
	The Gap - Enoggera	167	27
Moreton Bay North	Bribie - Beachmere	120	10
	Caboolture	360	41
	Caboolture Hinterland	58	21
	Narangba - Burpengary	0	0
Pine Rivers	Hills District	0	0
	Strathpine	65	12
Redcliffe – North Lakes	North Lakes	259	40
	Redcliffe	58	5
	Total region	**2543**	**21**

Source: Commonwealth Department of Health, 2016a

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Residential aged care

Residential aged care places are more common than home care places in the region, with 2.7 residential aged care places to every home care place. In 2015, there were a total of 6962 residential aged care places in the region, representing 58 residential aged care places per 1000 people in the region. This is slightly more than the national rate of 54 residential aged care places per 1000 people (Department of Health, 2016).

Within the region the number of residential aged care places varies from 962 in the Redcliffe statistical area to 60 in the Sherwood – Indooroopilly statistical area, as highlighted in Table 14. The Brisbane Inner and Sandgate areas are well serviced with residential aged care places, with a rate of 145 and 104 places per 1000 people aged 65 years and over respectively. By contrast, the Bribie – Beachmere and Hills District statistical areas have a low number of residential aged care places per capita, with 18 and 21 places per 1000 people aged 65 years and over respectively. The low number of overall aged care places in the Bribie – Beachmere statistical area is of concern, particularly as over 40 per cent of the population in this area is aged 65 years and over.

Table 29: Residential aged care places and rate per 1000 people aged 65 years and over, 2015

Sub region	Statistical area level three	Residential care places	Number of places per 1000 people
Brisbane Inner City	Brisbane Inner	347	145
	Brisbane Inner - North	335	47
	Brisbane Inner - West	188	51
Brisbane North	Bald Hills - Everton Park	321	60
	Chermside	440	49
	Nundah	304	79
	Sandgate	868	104
Brisbane West	Kenmore - Brookfield - Moggill	537	75
	Sherwood - Indooroopilly	60	25
	The Gap - Enoggera	533	86
Moreton Bay North	Bribie - Beachmere	226	18
	Caboolture	602	69
	Caboolture Hinterland	115	42
	Narangba - Burpengary	375	42
Pine Rivers	Hills District	170	21
	Strathpine	198	38
Redcliffe – North Lakes	North Lakes	381	58
	Redcliffe	962	84
	Total region	**6962**	**58**

Source: Commonwealth Department of Health, 2016a

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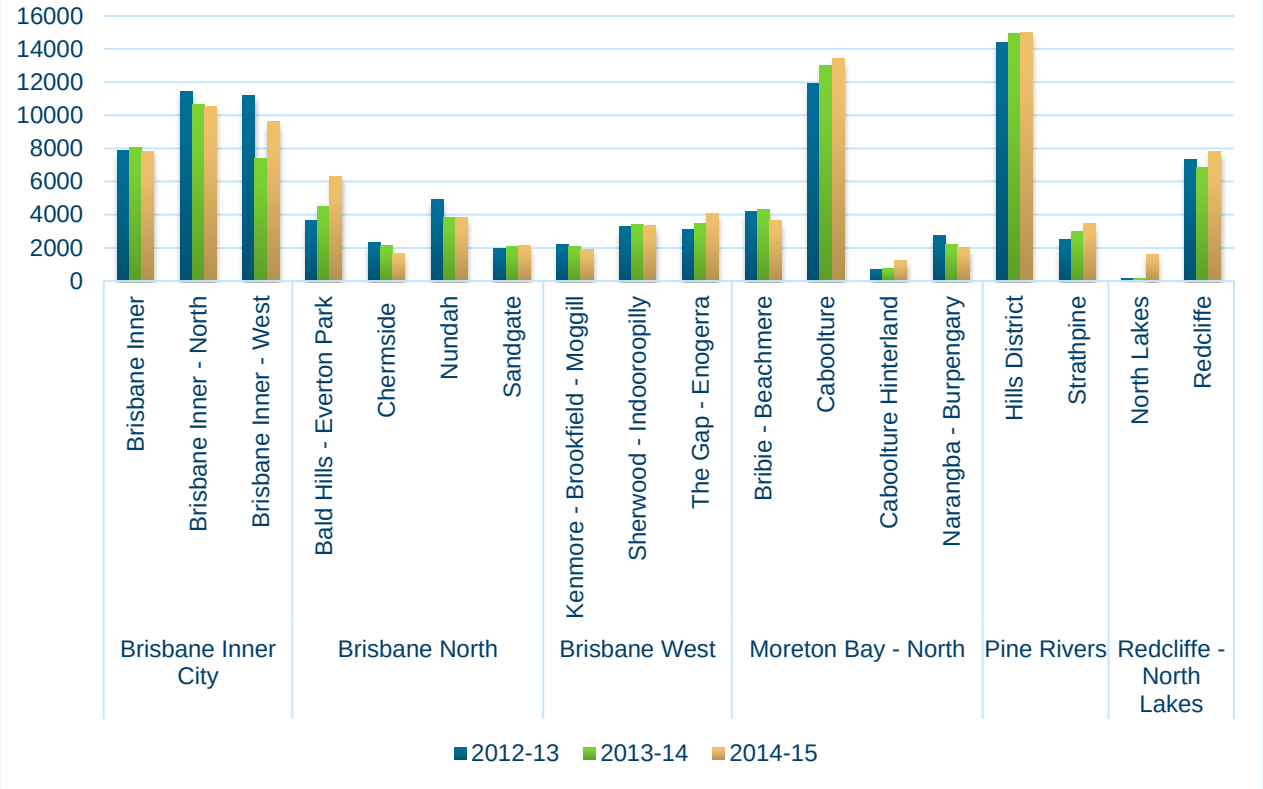
GP attendances to residential aged care

GP attendances to residential aged care facilities tend to be more complex than GP attendances in the general community, due to the more complex health needs of people living in a residential aged care environment (Gordon, Harrison and Miller 2015; O'Halloran, Britt and Valenti 2007). Analysis of GP attendances to residential aged care facilities assists in assessing the health status of people living in residential aged care.

In the years between 2012 and 2015, over 280,000 GP services were delivered in a residential aged care setting in the region (Medicare Benefits Schedule, 2016). This equates to an average of 96,145 services delivered to an average of 14,651 patients annually (almost seven services per patient).

Within the region, GP services to residential aged are most commonly delivered in the Hills District statistical area, followed by the Caboolture statistical area. The trend for both the Hills District and Caboolture areas is increasing, along with an observed increase in GP services to residential aged care in the Bald Hills – Everton Park statistical area. This is shown in Figure 108.

Figure 108: GP services to residential aged care facilities, by statistical area level three and sub region, 2012-2015



Source: Department of Health, 2016a

The high number of GP services in the Hills District and Caboolture areas is also associated with a relatively low rate of residential aged care places. This suggests that people living in residential aged care facilities in these areas have high health needs, or well established relationships between a general practitioner and a residential aged care facility that potentially reduce the need for more acute services.

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Health workforce

A properly trained and adequately sized workforce is critical to respond to the health needs of a population. Workforce shortages can lead to access issues, particularly among population groups that may already be vulnerable. This section analyses the registered health workforce in the region, within the context of existing health needs.

Overall, the region is relatively well serviced by health professionals. However, there is some disparity within the region, particularly among GPs, psychologists and specialists. The GP workforce is an ageing workforce, particularly in the Kenmore – Brookfield – Moggill, Caboolture Hinterland and Sandgate areas, where over half of the registered GP workforce are 55 years of age and over. There are also a low proportion of younger GPs across the region.

GPs in the northern areas of the region are more likely to work longer hours. This is associated with fewer GPs trying to meet higher need in areas such as Caboolture, Bribie – Beachmere and Redcliffe. The high GP workload in these areas is also associated with districts of workforce shortage.

Psychologists are not equally distributed throughout the region. Psychologists tend to be centrally located, contributing to access issues for people in Redcliffe, Narangba – Burpengary and Bribie–Beachmere, where there is a higher need for mental health services and low accessibility. There is also a slight association with the number of psychologists and average hours worked.

Allied health services as a whole tend to be lacking in the northern areas of the region, reinforcing service access issues. Distribution patterns for specialists are similar to psychologists; but the workload of specialists is of concern.

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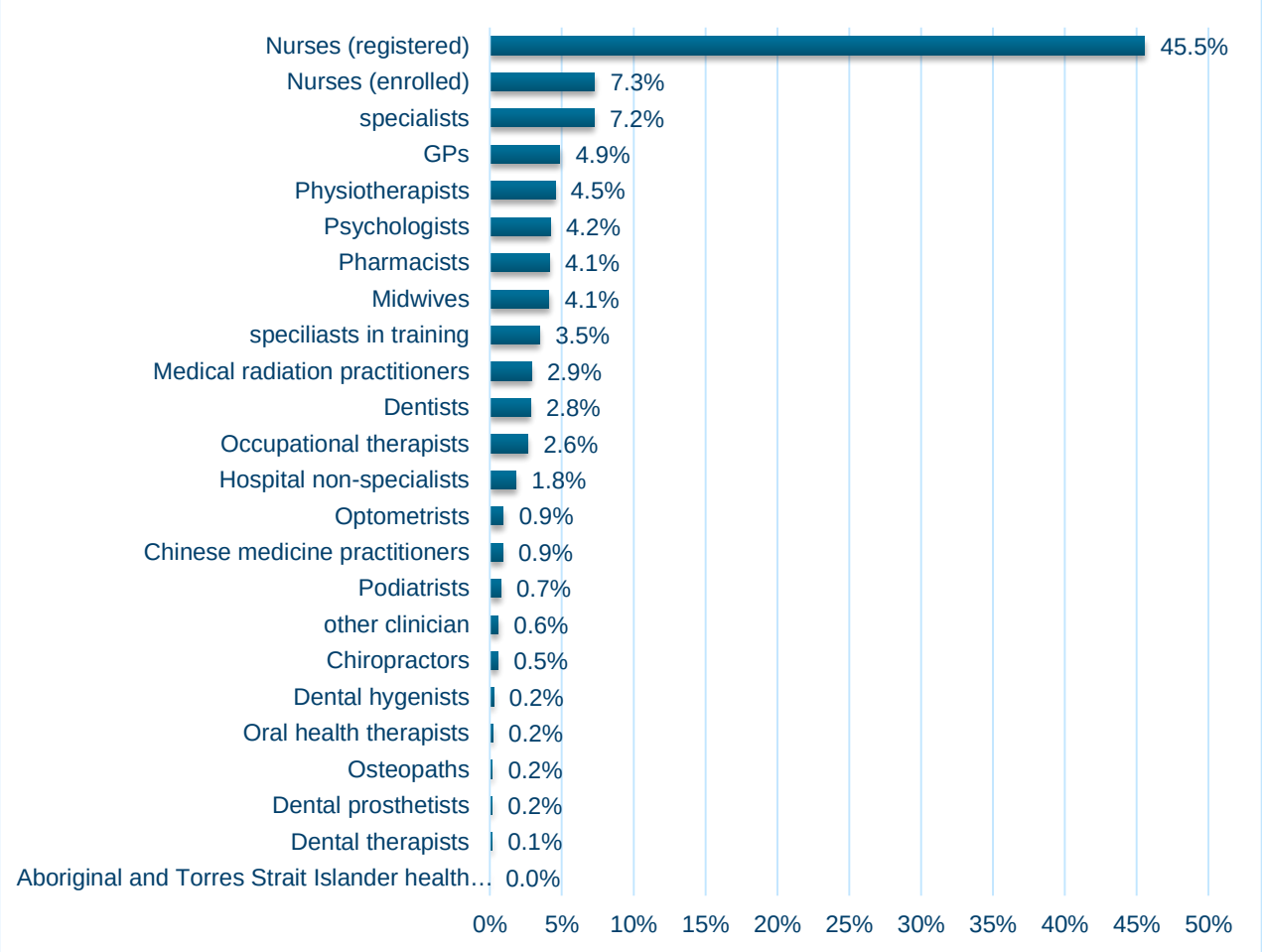
Total practitioners

In 2014, there were an estimated 23,547[28] registered health practitioners in the region. Registered nurses were the most common profession, comprising 45.5 per cent of the registered health workforce (10,726 practitioners). This was followed by enrolled nurses (7.3 per cent of the workforce) and specialists (7.2 per cent of the workforce). Nurse practitioners, which are registered nurses who have completed both advanced university study at a Masters Degree level and extensive clinical training to expand upon the traditional role of a registered nurse, are growing with 72 nurses practitioners working in the region as at December 2016.

There were an estimated 1144 GPs, comprising 4.9 per cent of the registered health workforce in the region. This is highlighted in Figure 109.

Figure 109: Registered health workforce by profession, 2014



Source: Australian Institute of Health and Welfare, 2015

[28] This figure may be an overestimate, as some people may be registered in more than one profession.

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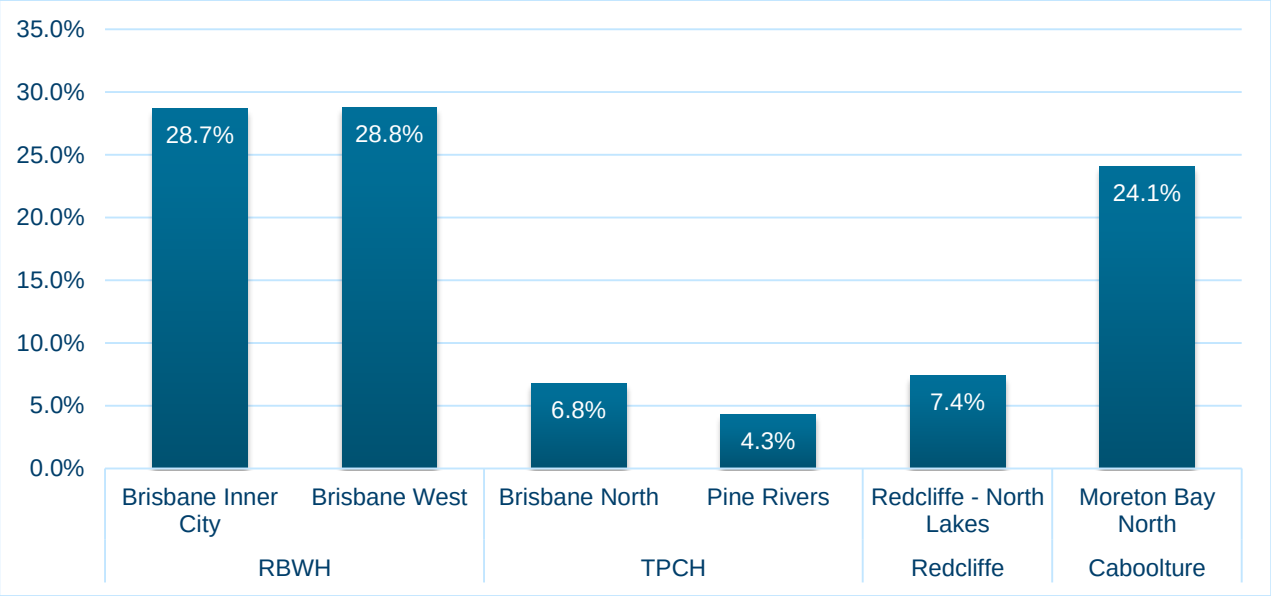
There is an uneven distribution of health practitioners in the region, with 57.5 per cent of all registered health practitioners located in the Brisbane North (28.8 per cent) and Brisbane Inner City (28.7 per cent) sub regions. A further 24.1 per cent of registered health practitioners are located in the Moreton Bay – North sub region. While the distribution of health practitioners is inconsistent throughout the catchment, it is however consistent with the location of large healthcare facilities including the Royal Brisbane and Women's Hospital and The Prince Charles Hospital. Figure 110 highlights the distribution of health practitioners by sub region.

Figure 110: Registered health practitioners by sub region and hospital catchment, 2014



Source: Australian Institute of Health and Welfare, 2015

Full-time equivalent rates

Full-time equivalent (FTE) rates of health practitioners in the region were analysed to better determine how well the region is serviced by the health workforce. FTE rates (per 100,000 people) indicate the true distribution of the workforce in the region. Due to reporting methods, FTE rates are reported for specific professions only.

Medical practitioners

In 2014, there was an average of 445.6 FTE medical practitioners per 100,000 people in the region. This consists of GPs specialists, clinicians and hospital non-specialists. The rate of FTE per 100,000 people in the region was higher than the Australian rate of 370.3 FTE per 100,000. This indicates that overall, the region is relatively well serviced for medical practitioners. The breakdown of FTE rates by medical practitioner type is shown in Figure 111.

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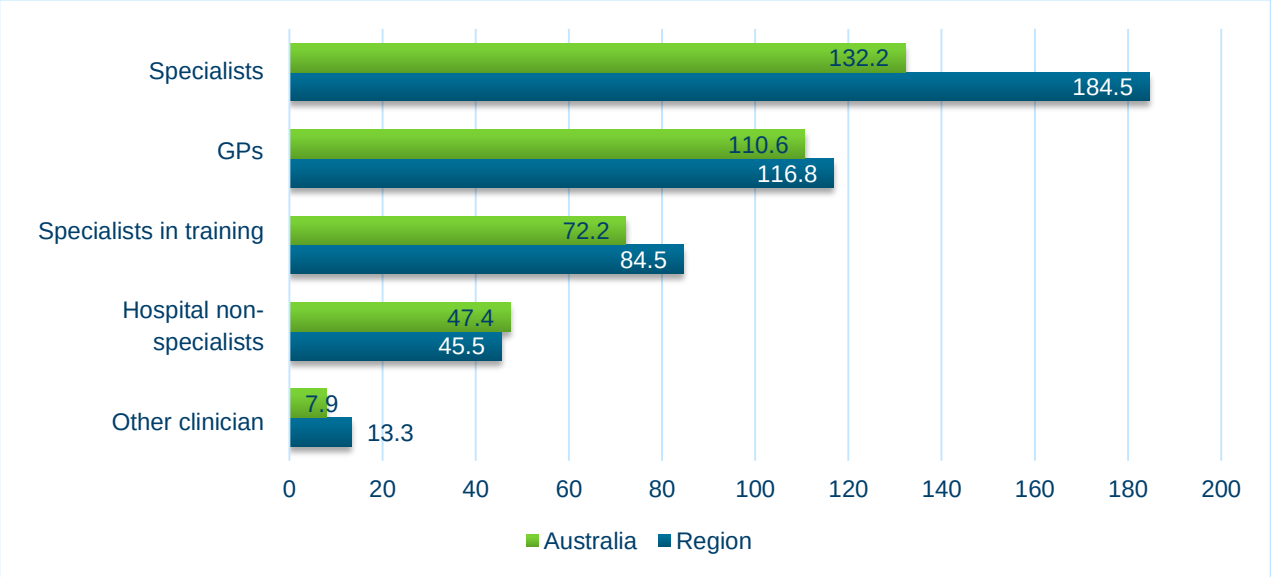
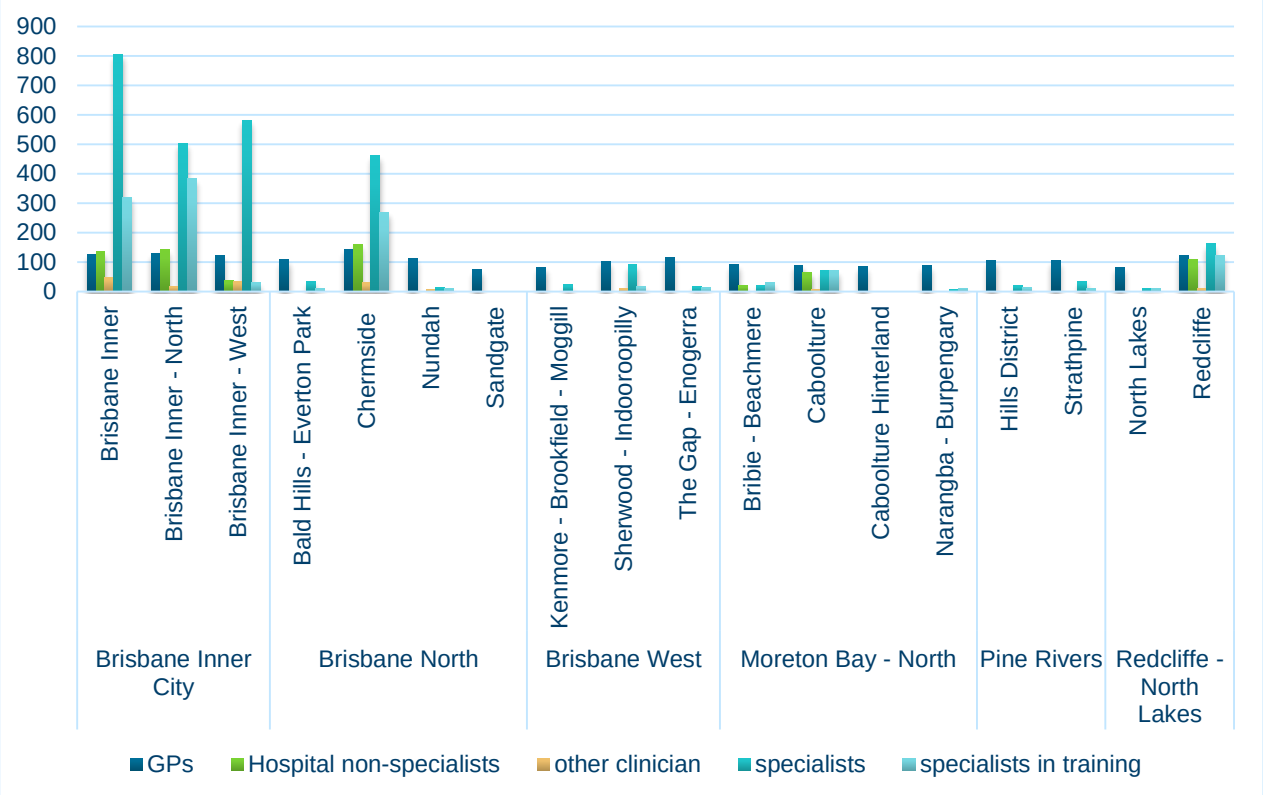
Figure 111: FTE rates per 100,000 people, medical practitioners, 2014



Source: Australian Institute of Health and Welfare, 2015

Within the region, rates of FTE per 100,000 people for medical practitioners varied considerably. FTE rates for specialists were highest in the Brisbane Inner, Brisbane Inner – West and Brisbane Inner – North statistical areas, contrasted by little or no FTE rates for specialists in the Sandgate, Caboolture Hinterland and Narangba – Burpengary statistical areas. This can be seen in Figure 112.

Figure 112: FTE rates per 100,000 people by statistical area level three and sub region, medical practitioners, 2014



Source: Australian Institute of Health and Welfare, 2015

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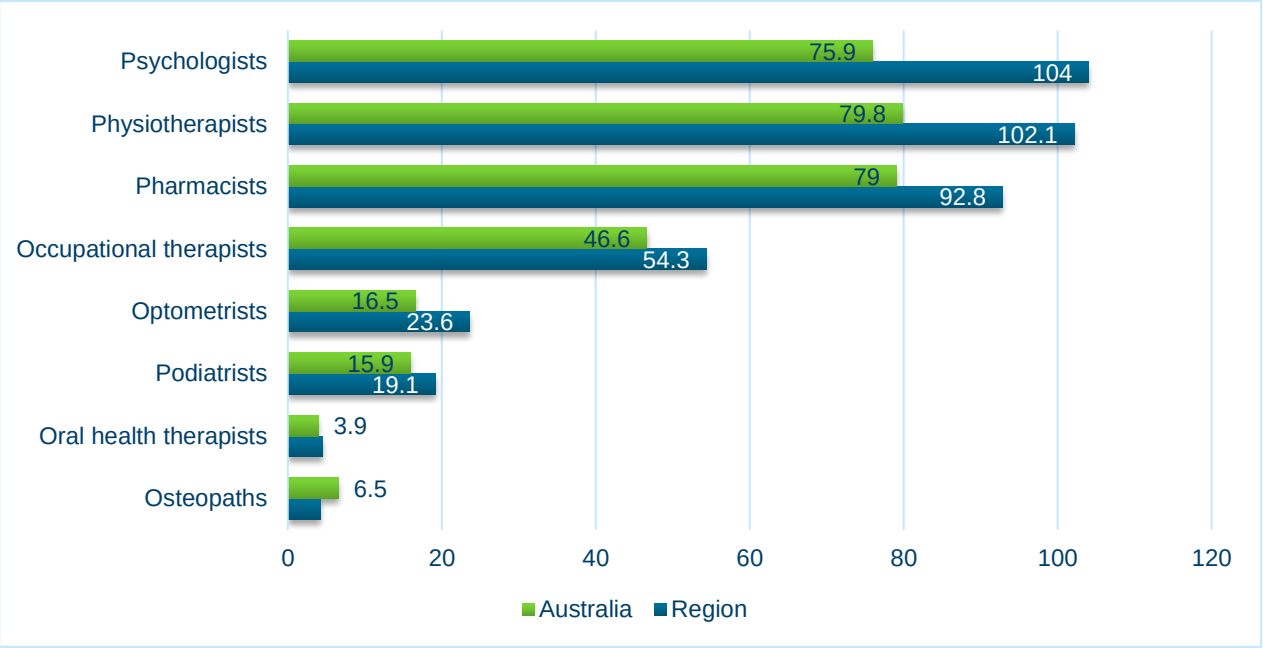
Allied Health practitioners

In the region, allied health practitioner FTE rates per 100,000 people were generally higher than the national FTE rate. The FTE rate for psychologists in the region was 1.4 times the national rate (104 per 100,000 and 75.9 per 100,000 respectively). Similar trends were observed for physiotherapists (1.3 times the national rate) and pharmacists (1.2 times the national rate). FTE rates for allied health practitioners in the region can be seen in Figure 113.

Figure 113: Allied health practitioner FTE rates per 100,000 people, 2014



Source: Australian Institute of Health and Welfare, 2015

Within the region, FTE rates per 100,000 people for psychologists varied considerably, with the FTE rate in the Brisbane Inner statistical area 15 times higher than the FTE rate in the Sandgate statistical area (298.4 per 100,000 people and 19.4 per 100,000 people respectively). FTE rates per 100,000 for psychologists were 3.4 times lower than the national average in Bribie – Beachmere (22.2 FTE per 100,000 people) and 3.2 times lower than the national average in Narangba – Burpengary (23.6 FTE per 100,000 people). FTE rates per 100,000 people for selected allied health professions are highlighted in Figure 114.

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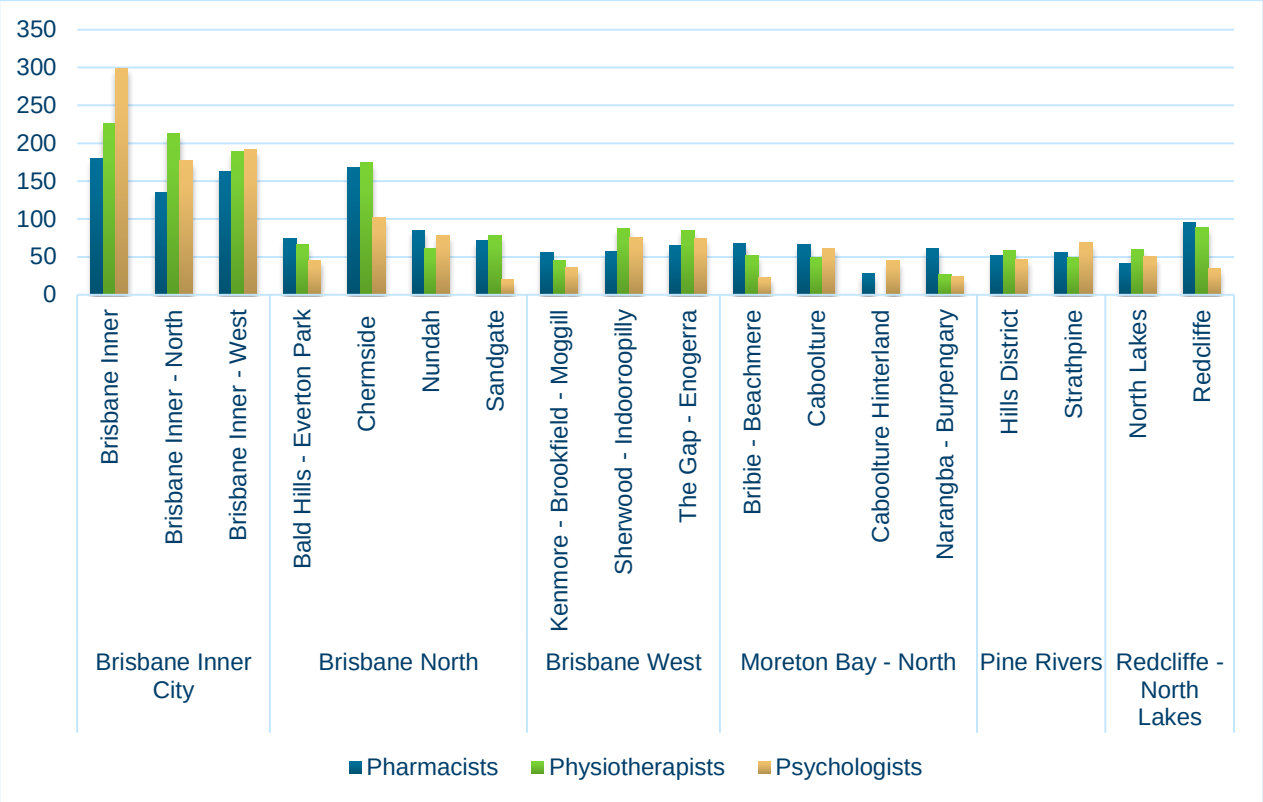
Figure 114: FTE rates per 100,000 people, selected allied health professions[29], statistical area level three and sub region, 2014



Source: Australian Institute of Health and Welfare, 2015

Figure 114 also highlights the unequal distribution of pharmacists and physiotherapists throughout the region. Higher FTE rates per 100,000 people for pharmacists and physiotherapists are present in the inner city statistical areas, and lower in the northern areas of the region, including Caboolture Hinterland and Narangba – Burpengary.

Nurses and midwives

In 2014, nurses and midwives comprised an estimated 1095.4 FTE per 100,000 people in the region. This was reasonably consistent with the national average of 1012.3 FTE per 100,000 people. The rate of FTE per 100,000 people for individual nursing professions was reasonably consistent with national FTE rates, as indicated in Figure 115. The distribution of nurses and midwives within the region was consistent with the location of major healthcare facilities, with higher than average FTE rates per 100,000 people observed in the Brisbane Inner (3068.6 FTE per 100,000 people), Chermside (2780.2 FTE per 100,000 people), and Brisbane Inner – North (2336.7 FTE per 100,000 people) statistical areas. High FTE rates per 100,000 people were also present in the Redcliffe (1548.9 FTE per 100,000 people) and Caboolture (941 FTE per 100,000 people) statistical areas.

[29] Allied health occupations with an FTE of greater than 90 FTE per 100,000 people

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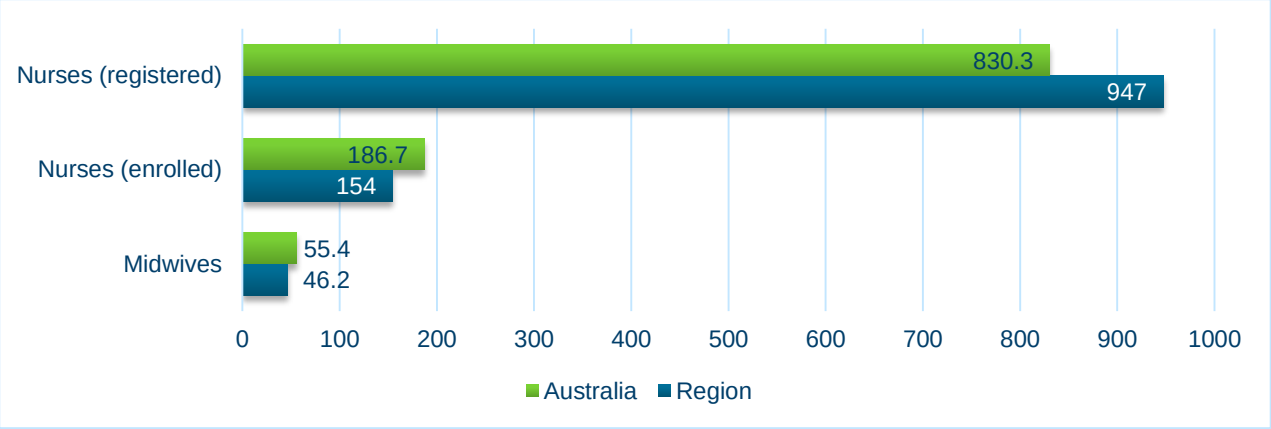
Figure 115: Nurse and midwife FTE rates per 100,000 people, 2014



Source: Australian Institute of Health and Welfare, 2015

Workforce characteristics

Identification of workforce trends, such as the average number of hours worked by GPs, along with measures including service utilisation rates and FTE rates, help triangulate potential workforce issues and service shortfalls. This section focuses on selected health professions in the primary and secondary care system; GPs, psychologists and specialists, as the impact and variation of these professions are the greatest in the region.

As GPs are the central component of the primary care system, identified workforce issues have the potential to impact on the accessibility of health services, particularly among more vulnerable populations. Similarly, potential workforce issues among psychologists and specialists have the potential to impact on the delivery of primary mental health and more specialist healthcare services.

General practitioners

Within the region, it is estimated that there are 1144 GPs active within the health workforce. This equates to 1.5 GPs per 1000 people. At a local level, the rate of GPs varies from 0.6 per 1000 people in Caboolture Hinterland to 3.4 GPs per 1,000 people in Brisbane Inner. The low rate of GPs in the Caboolture Hinterland is associated with the small number of general practices in this area.

In 2014, the FTE rate for GPs in the region was 116.8 FTE per 100,000 people. This was higher than the Australian average of 110.6 FTE per 100,000 people. While the region's FTE rate was higher than Australia, there was significant variation in FTE rates at the statistical area level 3. GP FTE rates were lowest in the Sandgate (73.5 FTE per 100,000), North Lakes (81.5 per 100,000) and Kenmore – Brookfield – Moggill (82.4 per 100,000) areas. Lower FTE rates are generally associated with the marginal areas of the region, and are highlighted in Figure 116.

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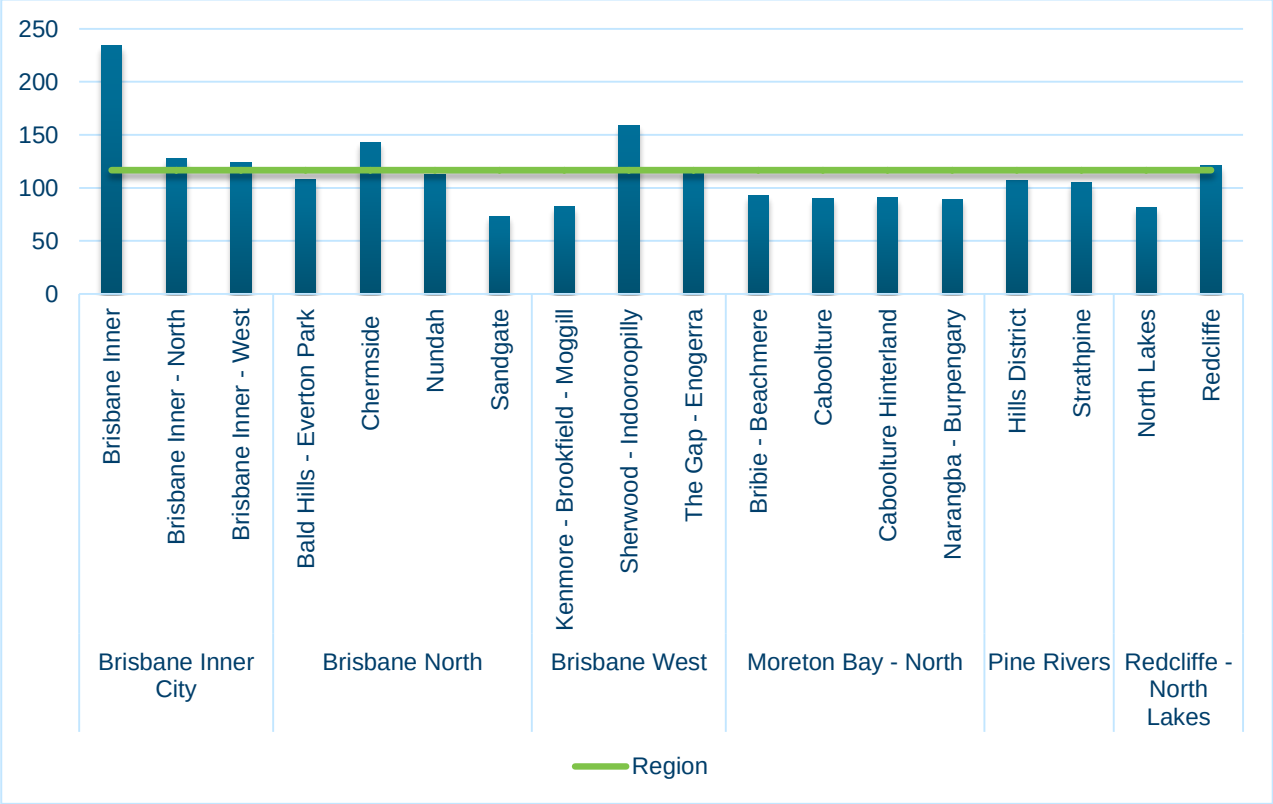
Figure 116: GP FTE per 100,000 people by statistical area level three and sub region, 2014



Source: Australian Institute of Health and Welfare, 2016

Nationally, the GP workforce is an ageing workforce, with 40.1 per cent of GPs in Australia aged 55 years and over in 2014. The percentage of GPs in the region aged 55 and over in 2014 was 40.2 per cent, which was consistent with the national rate (Australian Institute of Health and Welfare, 2015). This indicates that the GP workforce in the region is also an ageing workforce. In 2014, only 2.2 per cent of GPs in the region were aged 30 years and under, this is consistent with the national rate of 2.2 per cent.

Within the region, the age characteristics of the GP workforce varied from 29.1 per cent of GPs aged 55 years and over in Strathpine to 61.2 per cent of GPs aged 55 years and over in Sandgate. By contrast, the GP workforce aged 30 years and under ranged from 4.6 per cent in Kenmore – Brookfield – Moggill to zero per cent of the GP workforce in the Brisbane Inner – West statistical area. The age distribution of the GP workforce can be seen in Figure 117.

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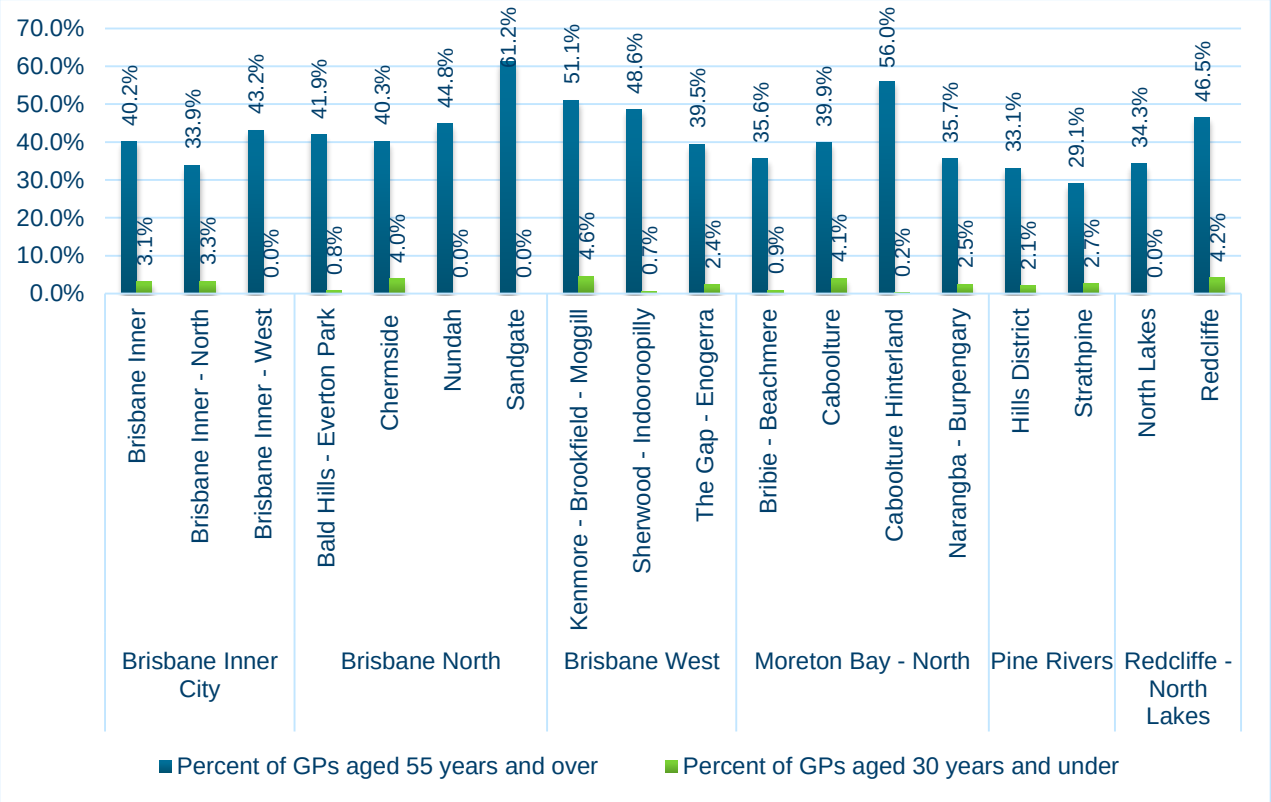
Figure 117: Age profile of the GP workforce by statistical area level three and sub region, 2014



Source: Australian Institute of Health and Welfare, 2015

In the region, GPs work an average of 36.9 hours per week. This is slightly less than the Australian average of 38.6 hours per week; however this is over the 35 hour part time/ full time threshold (Australian Institute of Health and Welfare, 2015; Australian Bureau of Statistics, 2013), indicating that GPs in the region are more likely to be working full time. Within the region, GPs in the northern areas of the region were more likely to work longer hours when compared to GPs in the more central areas of the region, with GPs working in the Caboolture Hinterland, Bribie – Beachmere, Caboolture, Narangba – Burpengary and Redcliffe statistical areas all working over 40 hours a week on average.

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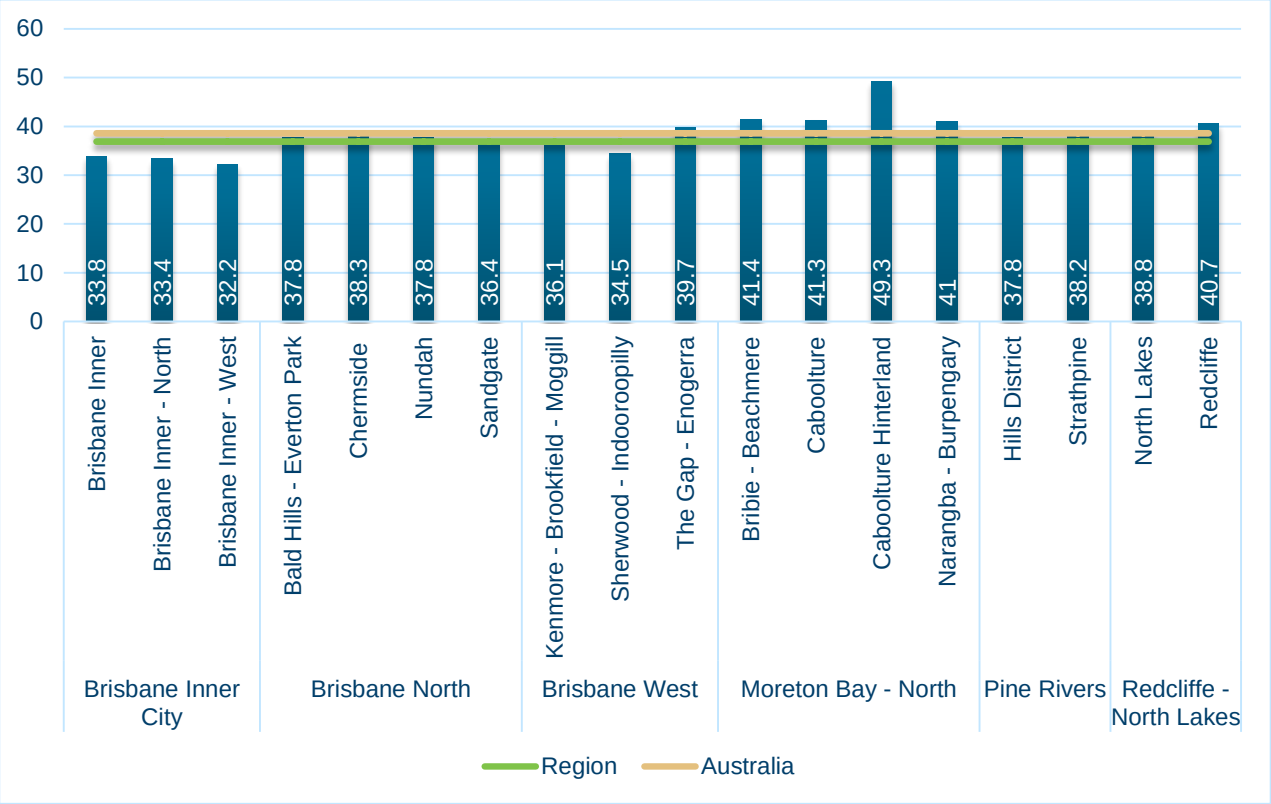
Figure 118: Average weekly hours worked by statistical area level three and sub region, GPs, 2014



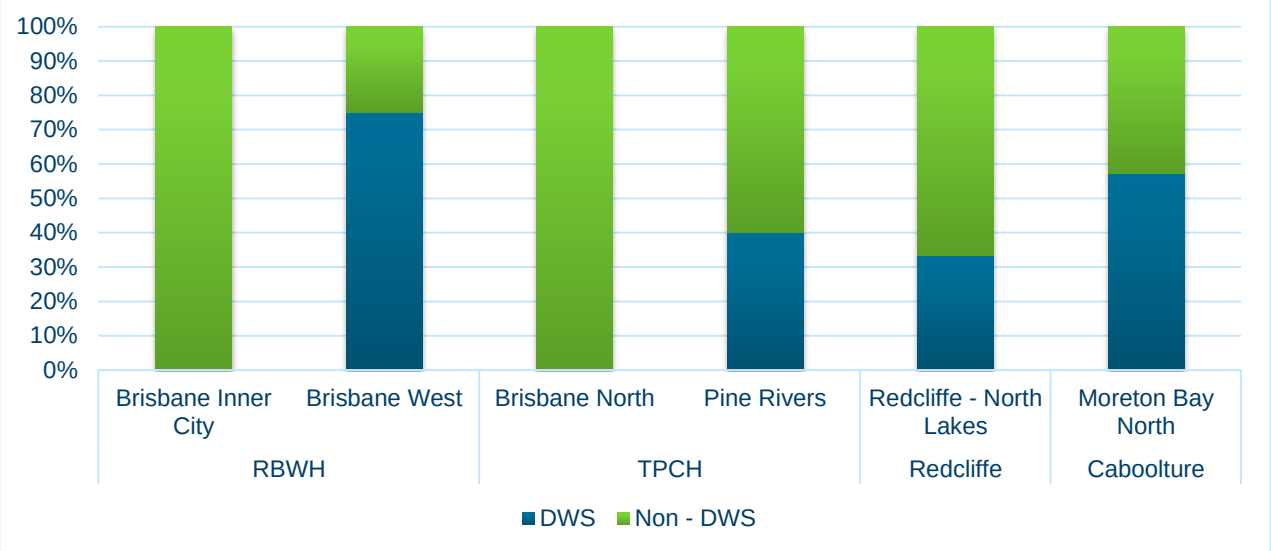
Source: Australian Institute of Health and Welfare, 2015

Districts of workforce shortage- GPs

As of April 2016, there are a number of districts of workforce shortage for GPs in the region. Districts of workforce shortage are identified by the Commonwealth Department of Health through analysis of Medicare billing statistics, estimates of the population and analysis of GP FTE to population ratios (Department of Health, 2015).

Identified districts of workforce shortage are more likely to be in the northern and western areas of the region, particularly in the sub regions of Brisbane West and Moreton Bay – North. The distribution of districts of workforce shortage by sub region can be seen in Figure 119.

Figure 119: Districts of workforce shortage (DWS) for general practice by sub region and hospital catchment, 2016



Source: Commonwealth Department of Health, 2016

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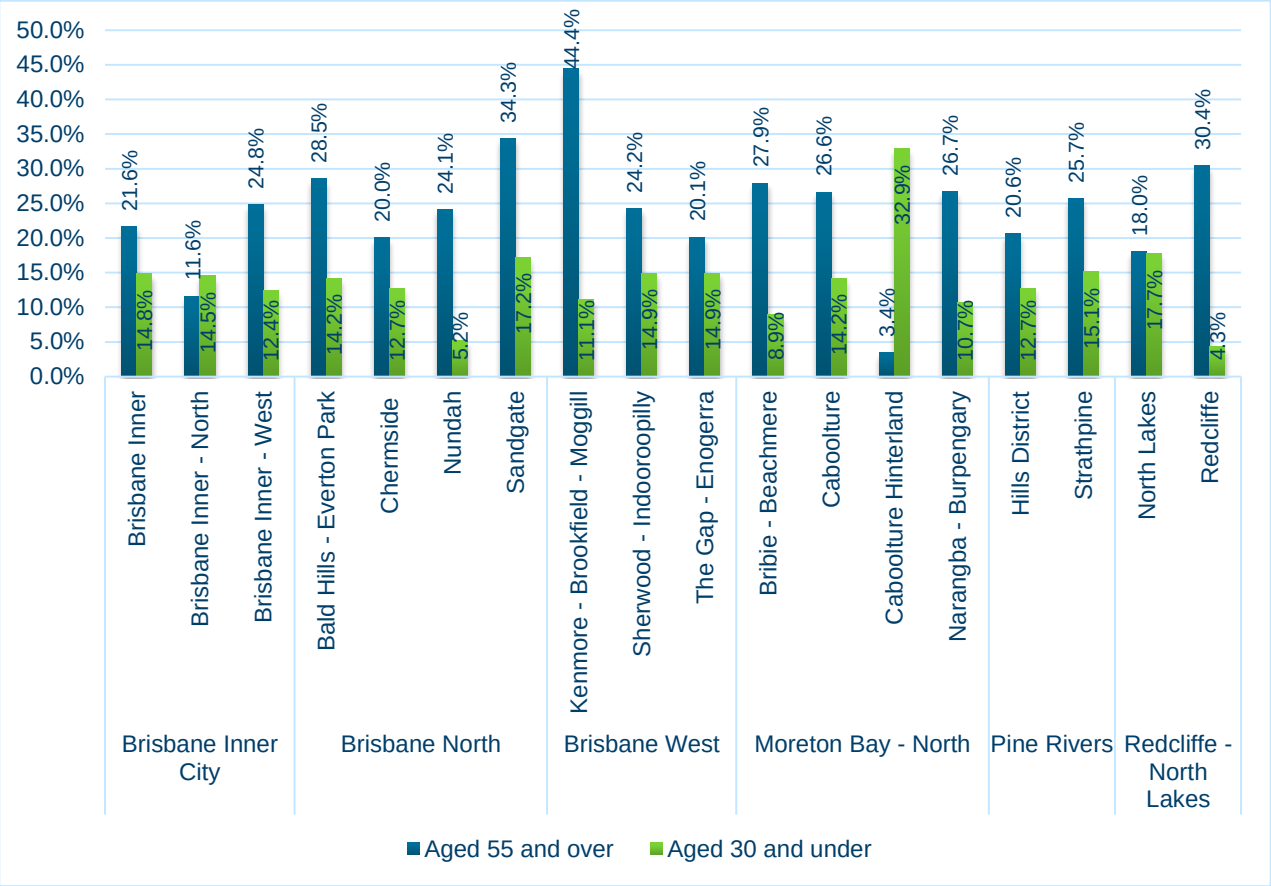
Psychologists

The age profile of psychologists indicates that the workforce is generally younger, particularly when compared to other health professionals such as GPs. In the region, 21.8 per cent of psychologists are aged 55 years and over, compared to 27.2 per cent of psychologists nationally. Within the region, the proportion of psychologists aged 55 years and over varied from 44.4 per cent in Kenmore – Brookfield – Moggill to 3.4 per cent in Caboolture Hinterland.

In the region, 13.7 per cent of psychologists are aged 30 years and under, a slightly larger proportion than the Australian average (11.4 per cent). Within the region, psychologists aged 30 years and under are more likely to be working in the statistical areas of Caboolture Hinterland (32.9 per cent), North Lakes (17.7 per cent) and Sandgate (17.2 per cent). The Sandgate statistical area also has a high proportion of psychologists aged 55 years and over, as highlighted in Figure 120.

Figure 120: Age profile of the psychologist workforce by statistical area level three and sub region, 2014



Source: Australian Institute of Health and Welfare, 2015

In the region, psychologists work an average of 33.8 hours per week, more than the Australian average of 32.5 hours per week but under the 35 hour per week full time/part time threshold (Australian Institute of Health and Welfare 2015, Australian Bureau of Statistics, 2013). Psychologists in the Hills District and Sherwood – Indooroopilly statistical areas were less likely to work long hours, with psychologists in these areas working an average of 28.9 and 29 hours per week respectively. This indicates that there may be a significant section of the psychologist workforce in the Hills District and Sherwood – Indooroopilly areas that have part time workloads. By contrast, psychologists in the Caboolture Hinterland and Brisbane Inner – West statistical areas are more likely to work longer hours, with psychologists in these areas working 36.3 and 36 hours a week on average. This is highlighted in Figure 121.

It must also be noted that psychologists working in multiple areas may be double counted.

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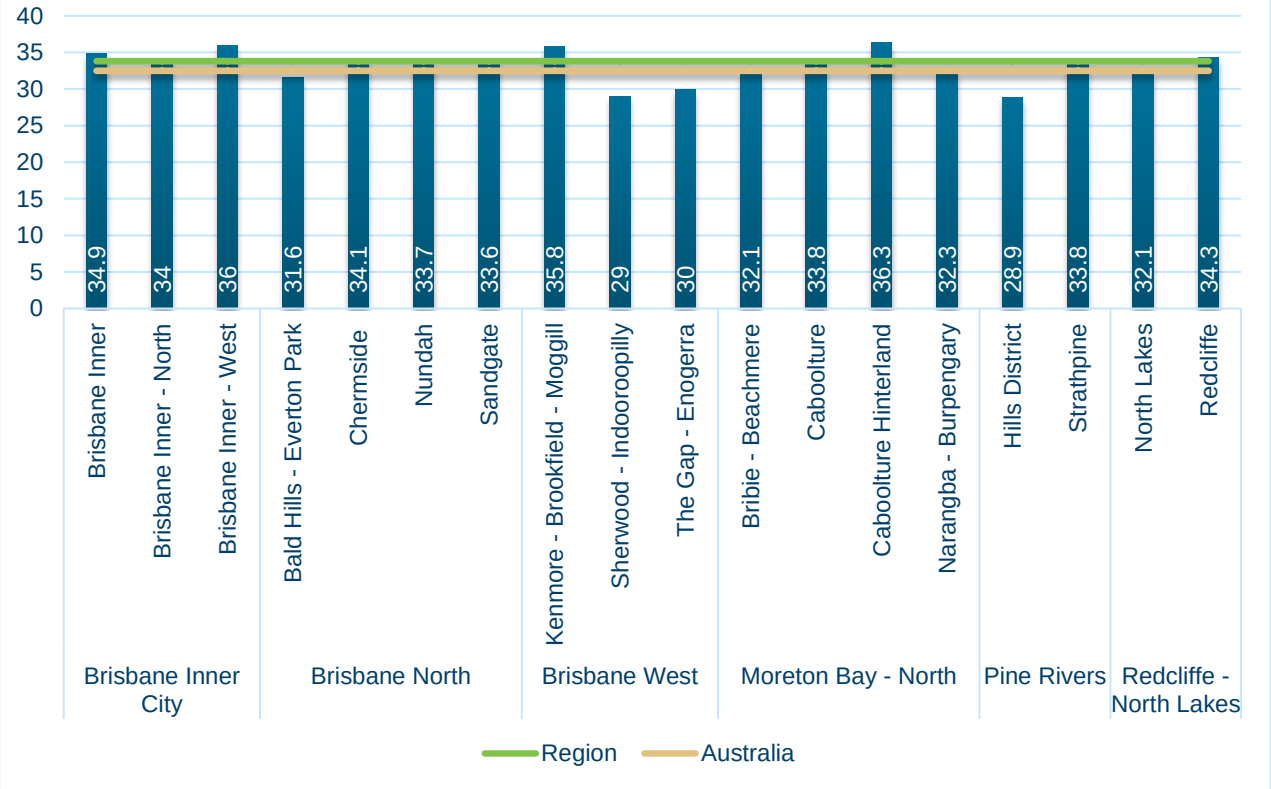
Figure 121: Average weekly hours worked by statistical area level three and sub region, psychologists, 2014



Source: Australian Institute of Health and Welfare, 2015

Specialists

Nationally, almost one third of practising specialists are aged 55 years and over (32.6 per cent). The proportion of specialists in the region that are aged 55 years and over is 32.9 per cent, consistent with the national average. While limited figures are available regarding the proportion of the specialist workforce aged 30 and under, available data indicates that the specialist workforce is an ageing workforce.

Within the region, the proportion of specialists aged 55 years and over ranged from 49.4 per cent of specialists in the North Lakes statistical area to 19.5 per cent of specialists in the Chermside statistical area. The distribution of specialists aged 55 years and over is shown in Figure 122.

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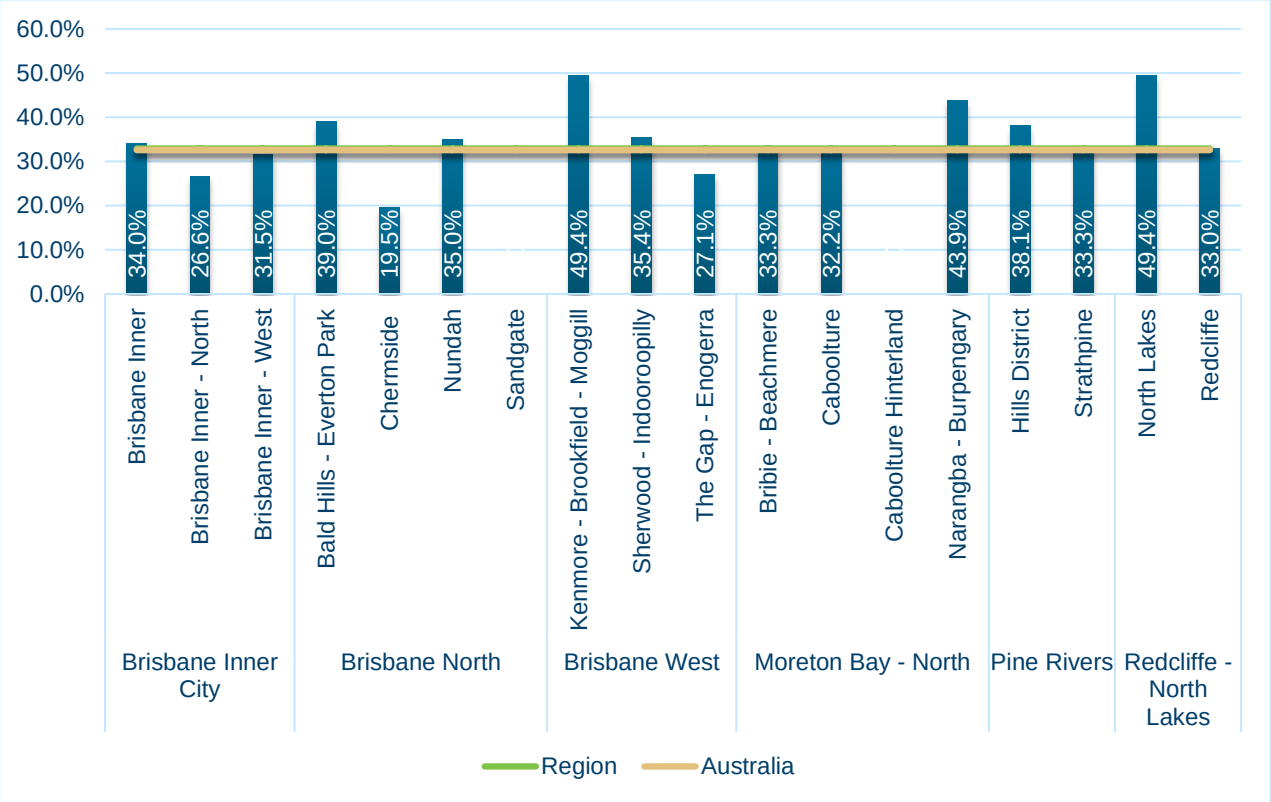
Figure 122: Specialists aged 55 years and over by statistical area level three and sub region, 2014[30]



Source: Australian Institute of Health and Welfare, 2015

Specialists in the region work an average of 44.3 hours per week, more than the national average of 43.7 hours per week. Within the region, specialists in the Brisbane Inner – West, Chermside and Brisbane Inner statistical areas are more likely to work longer hours than the region average (47.9, 46.8 and 44.9 hours per week respectively). The North Lakes area (28.9 hours per week) is the only statistical area in the region where specialists work less than 35 hours per week, as highlighted in Figure 123. The age makeup of the specialist workforce, coupled with the long hours worked on average may indicate potential access issues for patients and welfare issues for specialists working in the region. This issue may also be present on the national level.

[30] No data has been recorded for the Caboolture Hinterland and Sandgate statistical areas.

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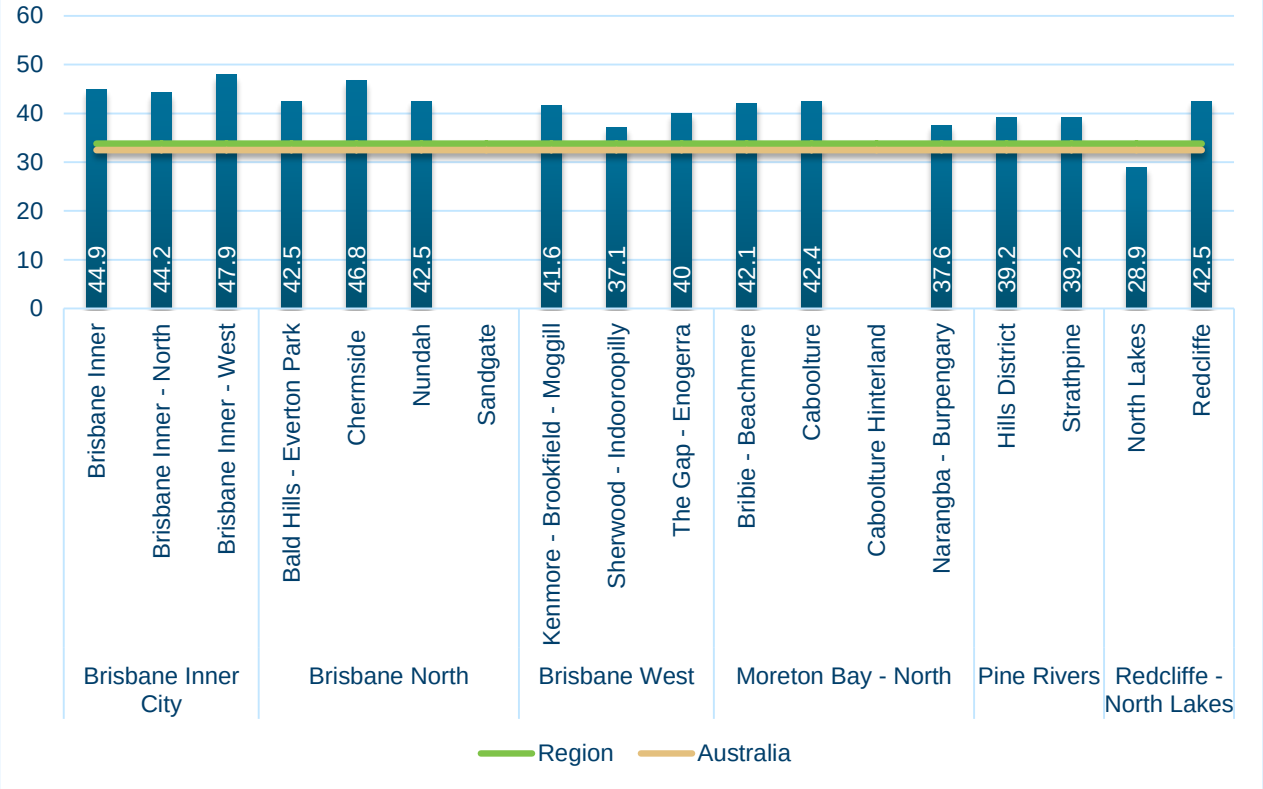
Figure 123: Average weekly hours worked by statistical area level three and sub region, specialists, 2014[31]



Source: Australian Institute of Health and Welfare, 2015

[31] No data has been recorded for the Caboolture Hinterland and Sandgate statistical areas.

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Appendix

Concordance split

The region is comprised of 18 statistical areas level three. While most statistical areas level three reside fully within the region, three statistical areas have been subject to a population based concordance split. These statistical areas and the proportion of each area that resides within the region is detailed in the following table. Further detail on the location of statistical areas level three can be found in the map below.

SA3	Concordance
Caboolture Hinterland	93.37%
Caboolture	100%
Bribie - Beachmere	100%
Narangba - Burpengary	100%
Redcliffe	100%
North Lakes	100%
Strathpine	100%
Hills District	100%
Sandgate	100%
Bald Hills - Everton Park	100%
Chermside	100%
Nundah	100%
Brisbane Inner - North	100%
Brisbane Inner	54.32%
Brisbane Inner - West	100%
The Gap - Enoggera	100%
Sherwood - Indooroopilly	65.10%
Kenmore - Brookfield - Moggill	100%

Sub regions and hospital catchment allocation

Sub regions have been constructed from statistical areas level three. However, the Narangba – Burpengary statistical area sits across the boundary of the Moreton Bay North and Redcliffe – North Lakes sub regions. As such, the Narangba – Burpengary statistical area has been subject to a concordance split where data has been arranged into sub regions. Statistical areas level three have been allocated to sub regions as follows:

SA3	Allocated sub region	Concordance
Caboolture Hinterland	Moreton Bay North	100%
Caboolture	Moreton Bay North	100%
Bribie - Beachmere	Moreton Bay North	100%
Narangba - Burpengary (part)	Moreton Bay North	62.86%
Narangba - Burpengary (part)	Redcliffe - North Lakes	37.14%
Redcliffe	Redcliffe - North Lakes	100%
North Lakes	Redcliffe - North Lakes	100%

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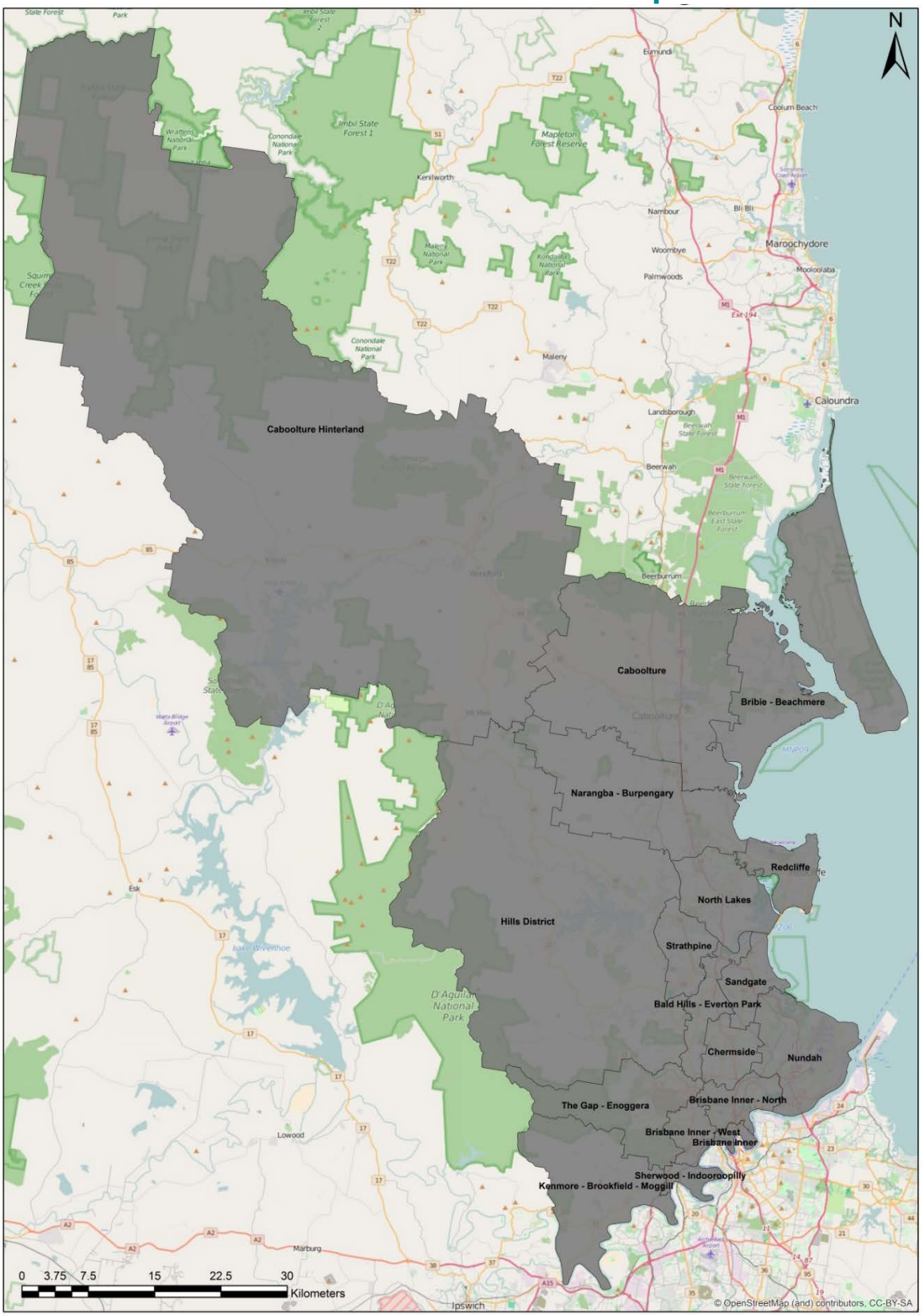
Strathpine	Pine Rivers	100%
Hills District	Pine Rivers	100%
Sandgate	Brisbane North	100%
Bald Hills - Everton Park	Brisbane North	100%
Chermside	Brisbane North	100%
Nundah	Brisbane North	100%
Brisbane Inner - North	Brisbane Inner City	100%
Brisbane Inner	Brisbane Inner City	100%
Brisbane Inner - West	Brisbane Inner City	100%
The Gap - Enoggera	Brisbane West	100%
Sherwood - Indooroopilly	Brisbane West	100%
Kenmore - Brookfield - Moggill	Brisbane West	100%

Hospital catchments have been allocated to sub regions as follows:

sub region	**Hospital catchment**
Moreton Bay North	Caboolture Hospital
Redcliffe – North Lakes	Redcliffe Hospital
Pine Rivers	The Prince Charles Hospital
Brisbane North	The Prince Charles Hospital
Brisbane Inner City	The Royal Brisbane and Women's Hospital
Brisbane West	The Royal Brisbane and Women's Hospital

Statistical areas level three used in this report



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