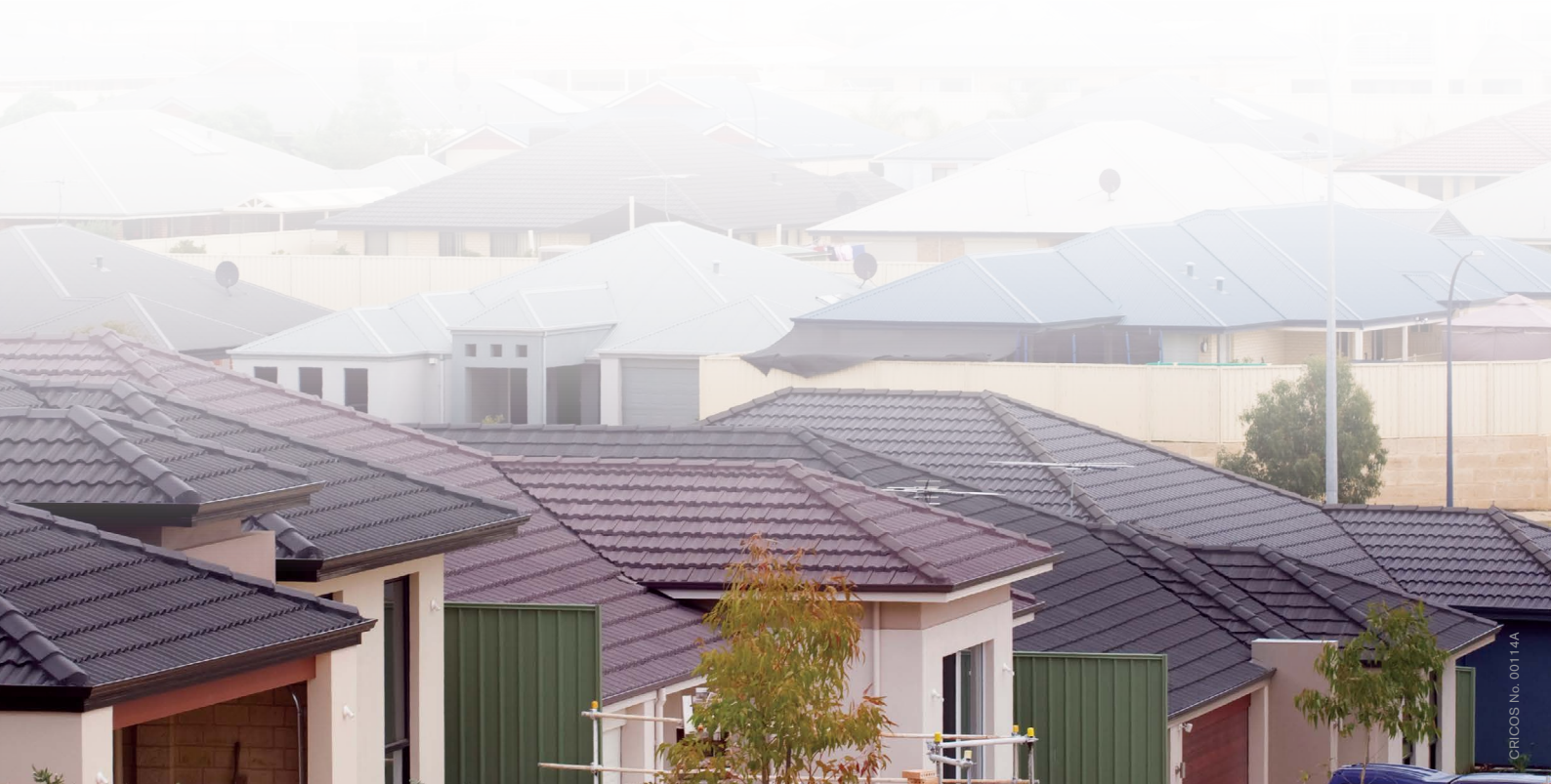


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# Healthy South: Population Health and Social Determinants in Southern Adelaide

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## Acronyms

ABS	Australian Bureau of Statistics
AIHW	Australian Institute for Health and Welfare
IEO	Index of Education and Occupation
IER	Index of Economic Resources
IRSD	Index of Relative Socio-economic Disadvantage
LGA	Local Government Area
LHN	Local Health Network
PHA	Population Health Area
PHN	Population Health Network
PHIDU	Public Health Information Development Unit
SALHN	Southern Adelaide Local Health Network
SAMSS	South Australian Monitoring and Surveillance System
SAPHS	South Australian Population Health Survey
SEIFA	Socio-Economic Indexes for Areas
SLA	Statistical Local Area

## Attribution Notice

Data sourced from the Adelaide PHN Community Profiles is compiled and presented by *.id—the population experts* id.com.au. The .id sourced content is a derivative of ABS Data from the Census of Population and Housing, which can be accessed from the Australian Bureau of Statistics at [www.abs.gov.au](http://www.abs.gov.au), and licenced on terms published on the ABS website. The authors have verified these data against the relevant ABS Census of Population and Housing statistics where relevant.

## Executive Summary

This report provides an epidemiological profile of the population of the South of Adelaide to describe disease patterns, health inequities and social determinants of health.

### Funding and governance

The report is part of the Healthy South project funded by the Medical Research Future Fund (MRFF) Rapid Applied Research Translation Program. This project was led by researchers at the Southgate Institute for Health, Society and Equity at Flinders University. Advice was received from the specially constituted Healthy South Steering group with representatives from local Government, SA Health, Wellbeing SA, and a range of non-government organisations. Further information about the Healthy South project and its outputs can be found here <https://www.flinders.edu.au/southgate-institute-health-society-equity/health-equity-policy>.

### Data sources

The epidemiological profile draws on data on demographics, life expectancy, premature mortality, non-communicable diseases, mental health, communicable diseases, risk factors and the social determinants of health. Quantitative data were obtained from multiple data sources and analysed to build a profile of demographic, social and economic factors known to influence health as well as the specific diseases, disease groupings and risk factors that are the biggest contributors to morbidity and mortality. Most data presented are no older than 2016 and so this report provides an accurate picture of the demographic and health make up of the South.

### Comparisons between Local Government Areas

The analysis throughout the report compares the prevalence of disease between the regions in Southern Adelaide, highlighting where there are significant differences in prevalence of disease in different areas. For the purposes of the Healthy South project, Southern Adelaide includes the LGAs of Holdfast Bay, Marion, Mitcham, Onkaparinga and Unley. Results from the analysis provide evidence of health inequities in mortality, morbidity and risk factors for disease that affect people living in disadvantaged circumstances at higher rates. Notable statistics include a higher median age of death in Holdfast Bay, Mitcham and Unley than in the rest of Southern Adelaide. Mitcham also has a markedly lower rate of premature mortality compared with the other four Southern Adelaide LGAs. The profiles of demographics and social determinants of health highlight the uneven and unequal distribution of resources both within Southern Adelaide LGAs and between them.

### Ageing population

The demographic profile indicates that the population in Southern Adelaide is older than for Adelaide and Australia and it is projected to age at a faster rate. There is a high and growing proportion of lone person households which are also concentrated in older age groups. These demographic trends are likely to result in a higher demand for health and support services

### Socioeconomic disadvantage

There are variations in the extent of socioeconomic disadvantage between LGAs and within LGAs, with some pockets of considerable socioeconomic disadvantage. Areas of concentrated disadvantage within Southern Adelaide have higher rates of people experiencing financial and housing stress, particularly in Marion and Onkaparinga.

The epidemiological profile highlights the worse health outcomes experienced by people living in disadvantaged circumstances. The major non-communicable diseases and risk factors affect people with lower socioeconomic status, lower income and/or lower education at higher rates. Median age of death is higher in Southern Adelaide than the median for Australia, and average rates of premature mortality are comparatively lower, but there is a social gradient in both health indicators. The epidemiological profile also illustrates the likely adverse implications of the ageing population for burden of disease in the South. Older age groups have higher rates of many chronic diseases. This report was completed amidst the COVID-19 pandemic and we note that the emerging evidence globally indicates that people with chronic disease are more vulnerable to suffering severe illness or dying following infection from the SARS-CoV-2 virus.

#### Social determinants of health and health inequity

The profile of social determinants of health sheds light on probable drivers of health inequities in Southern Adelaide.

- The reduction in the public housing stock in South Australia also occurred in Southern Adelaide, resulting in fewer households in social housing.
- Unemployment is higher in Marion and Onkaparinga than in the other Southern Adelaide LGAs, and the majority of people receiving an unemployment benefit are long-term unemployed.
- Southern Adelaide is an area with relatively high educational attainment but variations in rankings of the index of education and occupation within LGAs point to inequities in educational participation (with particular educational disadvantage in Onkaparinga).
- There is a higher proportion of low income households in Onkaparinga and Marion and almost 30 per cent of these low income households experience financial stress.

Higher variations in socioeconomic status, more limited access to resources and fewer social and economic opportunities can influence the health of people living in areas of disadvantage within these LGAs. There is a clear need to address equity and social determinants of health to improve population health in Southern Adelaide.

## Introduction

This report describes demographics, disease patterns and social determinants of health in southern Metropolitan Adelaide. The South of Adelaide is an area with relatively low average incidence of socioeconomic disadvantage, high average life expectancy and has areas with lower premature mortality than the South Australian average. The South is however, faced with challenges. The population in Southern Adelaide is older than the national average, older than Greater Adelaide, and the age profile is projected to become increasingly older at a faster rate than for the rest of the state. The older population brings an increasing burden of age-related diseases. Non-communicable diseases are on the rise, and variations in health outcomes result in people living in lower socioeconomic areas experiencing the poorest outcomes.

The South of Adelaide is comprised of four Local Government Areas (LGAs): Holdfast Bay, Marion, Mitcham and Onkaparinga. This is the government region definition and local health network classification. These classifications place the LGA of Unley as part of the Central Adelaide region but Unley's geographical location south of the city of Adelaide and the Unley-Mitcham regional approach to planning for public health situate Unley as part of Southern Adelaide. For these reasons this report profiles all five LGAs, examining differences between the Southern LGAs and differences between average characteristics in the South compared with Greater Adelaide, South Australia and Australia.

This report is part of the Healthy South project which was funded for 12 months in 2019 by the Medical Research Future Fund (MRFF) Rapid Applied Research Translation Program and led by the Southgate Institute for Health, Society and Equity at Flinders University. The purpose of this report is to provide an epidemiological profile of the population in Southern Adelaide to describe disease patterns and health inequities in order to inform health promotion efforts. It is structured in three parts each presenting a different profile:

- demographic profile
- epidemiological profile
- social determinants of health.

There are relationships and interdependencies between each part of the report, and the range of indicators and analysis of these indicators reflects this.



## Data Sources and Processes for Collection

This report draws primarily from publicly available data on demographics, disease and risk factors and social determinants of health. Primary data sources are small area level data from the ABS census, the Social Health Atlas developed by the Public Health Information Development Unit (PHIDU) and data from the Adelaide Primary Health Network (PHN). Data at local health network level from the SA Population Health Survey are also used along with publicly available reports and information provided by the Southern Adelaide Local Health Network (SALHN) and the Communicable Disease Control Branch.

Data were extracted from these publicly available databases to produce descriptive statistics for the demographic profile: the ABS Socio-Economic Indexes for Areas (SEIFA), the 2016 Census of Population and Housing and Adelaide PHN Community Profiles. Most of the small area data used in the epidemiological profile are derived from the 2014-15 Australian Health Survey and deaths data based on Cause of Death Unit Record Files supplied to PHIDU by the Australian Coordinating Registry (1). Statistics have also been produced from data supplied by SA Health (the 2018 South Australian Population Health Survey (SAPHS)) and the Communicable Disease Control Branch (CDCB). Data on trends in morbidity and risk factors were sourced from the 2017 South Australian Monitoring and Surveillance System (SAMSS) report, which is publicly available.

Data used to produce the profile of social determinants of health is primarily obtained either directly from the 2016 Census or indirectly through PHIDU data and Adelaide PHN data which is compiled using Census data. Data for all three profiles included in this document were supplemented by additional referenced sources of information located from an internet search, including sources from the ABS, the AIHW and the recent South Australian Chief Public Health Officer's Reports (2, 3).

Locating the most recently available statistics for small areas poses challenges due to limited data. Efforts were made to seek supply of data that were no older than the 2016 Census, and in some cases were as recent as 2018, to produce a profile that includes the current status of demographics, disease patterns and social determinants of health in Southern Adelaide. Older data are referenced to supplement the more current statistics where recent data were not available for small areas, but overall the epidemiological profile presents an analysis of current characteristics of Southern Adelaide.

## Demographic Profile

### Key findings: Demographic Profile

- LGAs in the South of Adelaide have differing levels of socioeconomic disadvantage but variations within LGAs show an unequal distribution of resources even within the most prosperous LGAs.
- Southern Adelaide has an older population than Greater Adelaide and Australia as a whole. Population projections suggest that the age profile of the Southern Adelaide population will become increasingly older and at a faster rate than Greater Adelaide or SA.
- There is a high and growing proportion of lone person households in Southern Adelaide. Lone person households are concentrated in older age groups. The rising proportion of people living alone heightens the risk of poverty and housing stress.
- LGAs in the South of Adelaide have higher labour force participation rates compared to the South Australian average. There is wider variation in education and occupational outcomes in Onkaparinga compared with the other four Southern Adelaide LGAs.

### The Area and Population

As per 2018 ABS estimates, the total resident population of Southern Adelaide is 407,277 (Table 1). The largest LGA in terms of both size and population is Onkaparinga. Unley and Holdfast Bay are the most densely populated LGAs, followed by Marion and then Mitcham. The traditional custodians of Southern Adelaide are the Kurna Aboriginal people.

**Table 1: Population, Land Area and Population Density of southern Adelaide LGAs, 2018** (Data source: Regional Population Growth, Australia, ABS, 2017-18)

	Population	Land Area (Km <sup>2</sup> )	Population Density (persons per Km <sup>2</sup> )
Holdfast Bay	37,032	13.8	2683.5
Marion	92,308	55.6	1660.2
Mitcham	67,253	75.5	890.8
Onkaparinga	171,489	518.1	331.0
Unley	39,145	14.3	2737.4
Southern Adelaide	407,277	677.3	601.3

Note: Population numbers are Estimated Resident Population

In the 2016 Census 51.5 per cent of people in Southern Adelaide were female and 48.5 per cent were male (4). There were 4,373 Aboriginal and Torres Strait Islander peoples, representing 1.1 per cent of the population. In Southern Adelaide 28.3 per cent of people were born overseas, and the highest proportions of overseas countries of birth were England, China (excluding SARs<sup>1</sup> and Taiwan), India, Scotland and New Zealand (4). Within Southern Adelaide the LGAs of Marion, Holdfast Bay and Unley are

<sup>1</sup> SARs are special administrative regions of China.

predominantly residential areas, while Mitcham is a residential and semi-rural area and Onkaparinga is an urban and rural area (5).

### Summary Measure of Socioeconomic disadvantage

#### Box 1.1: Interpreting SEIFA rankings

Higher scores in SEIFA rankings of disadvantage represent a lower level of disadvantage in an area. Higher rankings likewise represent a lower level of disadvantage. For example, an LGA that is ranked in the 94<sup>th</sup> percentile has lower disadvantage than 94 per cent of LGAs in Australia. Mitcham is ranked 67 out of 70 LGAs in Australia, which means that Mitcham has a incidence of disadvantage that is lower than 66 of the LGAs within South Australia.

The ABS Index of Relative Socio-Economic Disadvantage (IRSD) ranks areas in terms of relative socioeconomic disadvantage. A low score on this measure for an LGA indicates a high proportion of people living in relatively disadvantaged circumstances within that area. The ABS broadly defines relative socioeconomic disadvantage as “people’s access to material and social resources, and their ability to participate in society” (6). The IRSD is therefore a useful summary indicator of area disadvantage and can provide insights into socioeconomic disadvantage and its relation to social outcomes, which in turn influence the social gradient in health.

Table 2 presents IRSD scores and rankings for LGAs in the South of Adelaide in 2016. Higher IRSD rankings represent relatively lower incidence of disadvantage. There are 544 LGAs within Australia, and 70 LGAs within South Australia. Holdfast Bay, Mitcham and Unley are areas with a relatively low incidence of people living in disadvantaged circumstances. Unley, Mitcham and Holdfast Bay have very high IRSD rankings. All three LGAs are in the 10<sup>th</sup> (least disadvantaged) decile within South Australia, and Mitcham and Unley are both in the 10<sup>th</sup> decile within Australia. Onkaparinga and Marion have relatively lower IRSD rankings, but their scores still put them in the 6<sup>th</sup> and 7<sup>th</sup> deciles.

**Table 2: LGA Index of Relative Socio-economic Disadvantage for southern Adelaide LGAs, 2016** (Data Source: Socio-economic Indexes for Australia (SEIFA), ABS, 2016)

	Score	Ranking within Australia			Ranking within SA	
		Rank	Decile	Percentile	Rank	Decile
Holdfast Bay	1043	480	9	89	64	10
Marion	1001	377	7	70	48	7
Mitcham	1068	508	10	94	67	10
Onkaparinga	987	318	6	59	42	6
Unley	1066	507	10	94	66	10

Note: Higher numbers for both scores and rankings represent a lower incidence of relative disadvantage. There are 544 LGAs within Australia, and 70 LGAs within South Australia.

The IRSD scores provide an indication of the average relative levels of socioeconomic disadvantage for the five LGAs but there are variations in socioeconomic disadvantage within each LGA. The highest and lowest ranked SA2<sup>2</sup> in each LGA illustrates the uneven and unequal distribution of resources within LGAs (6).

#### Box 1.2: Interpreting deciles

Deciles divide the population areas into ten equal groups which are then ranked according to levels of disadvantage in each group. The 1<sup>st</sup> decile represents areas with the highest level of disadvantage while the 10<sup>th</sup> decile contains areas with the lowest level of disadvantage.

<sup>2</sup> SA2 is statistical areas level 2, an ABS classification that replaced statistical local areas (SLAs) in 2011. SA2s are designed to represent gazetted suburbs or rural localities.

- Plympton is the lowest ranked SA2 in Holdfast Bay, in the 5<sup>th</sup> decile of IRSD scores in Australia, and Marino-Seaview Downs is the highest ranked (the 8<sup>th</sup> decile).
- In Marion the SA2 of Mitchell Park is ranked in the 3<sup>rd</sup> decile, while Hallett Cove and Sheidow Park-Trott Park are both ranked in the 8<sup>th</sup> decile.
- Panorama is the lowest ranked SA2 in Mitcham (6<sup>th</sup> decile), compared with Belair, Blackwood and Coromandel Valley which are all ranked in the 10<sup>th</sup> decile.
- Christie Downs and Morphett Vale-West are ranked in the 1<sup>st</sup> decile in Onkaparinga, but the SA2 of Clarendon is also classed as within Onkaparinga and is ranked in the 10<sup>th</sup> decile of IRSD scores.
- The LGA of Unley has only two SA2s: Unley-Parkside which is in the 8<sup>th</sup> decile and Goodwood-Millswood in the 9<sup>th</sup> decile.

Earlier reports considered indicators of social distress, health, community safety, economics and education, and illustrate that degree of disadvantage can also differ for areas within LGAs, for example:

- The statistical local area (SLA) of Onkaparinga-North Coast was identified as an area of persistent concentrated disadvantage in 2007 and 2014 (7, 8)<sup>3</sup>.
- The SLA of Onkaparinga-Hackham was identified as an area of concentrated disadvantage in 2007 but not in 2014<sup>4</sup>. This is likely to have contributed to the comparatively lower IRSD ranking for the LGA of Onkaparinga however both the North Coast and Hackham SLAs were noted to have experienced improvements in the scale of disadvantage between 2007 and 2014 (8).
- Onkaparinga-North Coast experienced improvement on the indicators of short term unemployment, prison admission and mental health.
- Onkaparinga-Hackham experienced improvement in access to the internet, long term unemployment, household incomes and NAPLAN results (8). This has resulted in a reduction in vulnerability to disadvantage for these two SLAs (8).

## Age Structure

The age structure of a population and the change in this over time has important influences on the disease profile and health needs of that population. Figure 1 shows how the age profile of Southern Adelaide has changed between 2001 and 2016. The changes reflect decreases in the percentage share of younger age groups and increases for the oldest age groups.

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*There has been a marked increase in the population aged 50 and over, and the number of people aged 85 and over has grown by almost 70 per cent.*

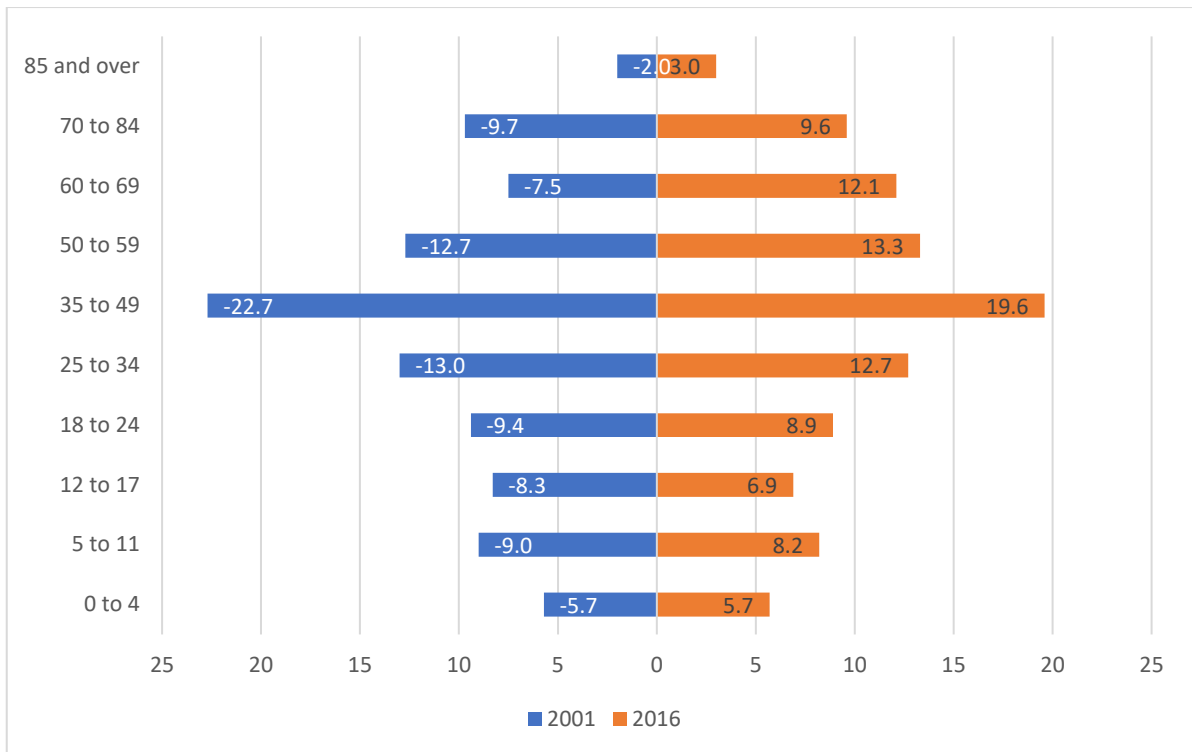
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The rapid increase in the number of older people can be attributed to ageing of the baby boomer generation (people born between 1946 and 1964) and increasing life expectancy since 1970 which has contributed significantly to the growth of the older population by adding to the life expectancy of men and women aged 50 (9).

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<sup>3</sup> The SLA of Onkaparinga-North Coast includes the suburbs of Lonsdale, Woodcroft, Christie downs, Christies Beach, Christies Beach North, O'Sullivan Beach, Port Noarlunga, Port Noarlunga South, Noarlunga Centre, and Onkaparinga Hills.

<sup>4</sup> The SLA of Onkaparinga-Hackham includes the suburbs of Hackham and Hackham West.



**Figure 1: Age Distribution of Southern Adelaide, 2001 and 2016** (Data source: Adelaide PHN Community Profile)

The population in Southern Adelaide was older than that for Greater Adelaide<sup>5</sup> and for Australia as a whole in 2016 (5). Population projections suggest that the age profile of the population in Southern Adelaide will become increasingly older<sup>6</sup>. The overall population is projected to increase by 10 per cent by 2031, but the 70 years and older age group is projected to increase by 62 per cent by 2031 (10) This is higher than the projected increase for Adelaide (52 per cent) or South Australia (51 per cent) (10).

There are differences in age structure of LGAs within Southern Adelaide. All five LGAs had a higher proportion of people in the older age groups aged 60 and over in 2016 compared to Greater Adelaide and Australia.

- Holdfast Bay had the oldest age profile (31.2 per cent aged 60 and over) followed by Unley and Mitcham (25.4 per cent aged 60 and over) (see Table A1 in Appendix 1).
- Holdfast Bay has been a growth area for populations of older persons as it is favoured for retirement migration and has a number of residential aged care facilities (9).
- The median age in the LGA of Holdfast Bay was 46, compared with a median age of 42 for Mitcham, 41 for Unley, 40 for Onkaparinga and 39 for Marion (4).

There are important differences in the age profile of some groups within the Southern Adelaide population. The median age of Aboriginal and Torres Strait Islander people was 21 years in 2016 (10).

### Household Types

A consideration of household types in conjunction with age structure provides a better picture of age-related demographics. The distribution of household type in Southern Adelaide in 2016 was similar to

<sup>5</sup> Greater Adelaide is the region bordered by Victor Harbor and Goolwa in the south, the Barossa Valley in the north, the Gulf of St Vincent in the West, and the River Murray in the East.

<sup>6</sup> Projections are for the Southern Adelaide Local Health Network area and therefore exclude Unley.

that for Greater Adelaide (Table 3). The high proportion of lone person households is noteworthy, particularly given the ageing population that suggests an increase in the number of older people living alone. The baby boomer generation is the first generation with high rates of separation and divorce which has resulted in a higher proportion entering their older years without a spouse (9).

There was a higher proportion of lone person households in Southern Adelaide (26.1 per cent) compared to the Australian average of 22.8 per cent. The proportion of lone person households in Australia increased between 1986 and 2016, from 19 per cent to 24 per cent (11).

The proportion of couple families has fallen, and there has been an increase in single parent families in Australia, from 6.5 per cent in 1976 to 10 per cent in 2016 (11).

**Table 3: Household Type in Southern Adelaide, Greater Adelaide and Australia, 2016** (Data Source Adelaide PHN Community Profile)

Household type	Southern Adelaide		Greater Adelaide	Australia
	Number	%	%	%
Couples with children	45,479	28.8	28.7	30.3
Couples without children	40,912	25.9	24.8	24.8
One parent families	16,719	10.6	11.1	10.4
Other families	1,728	1.1	1.2	1.2
Group household	5,451	3.5	3.8	4.0
Lone person	41,190	26.1	26.2	22.8
Other not classifiable	5,126	3.2	3.4	4.8
Visitor households	1,309	0.8	0.9	1.7
Total households	157,914	100.0	100.0	100.0

Note: Enumerated households. Excludes persons counted in non-private dwellings (e.g. residential aged care facilities)

Holdfast Bay had the highest share of lone person households of the five Southern Adelaide LGAs in 2016 (Table A2 in Appendix 1).

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*A third of all households in Holdfast Bay were lone person households, much higher than the average for Greater Adelaide and Australia. Unley and Marion also had relatively high shares of lone person households (29 per cent a 28 per cent respectively) (5). Onkaparinga had the highest proportion of single parent families in Southern Adelaide, at 12.7 per cent (5). This is also higher than the average for Greater Adelaide and for Australia.*

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Mitcham had the highest share of couples with children in Southern Adelaide (34 per cent) (5). These differences in distribution of household type between LGAs have implications for social determinants of health and will be discussed further later in the report.

The trend of more people living alone, especially with age, has been noted as of particular concern as this heightens risk of poverty and housing stress (12). The proportion of the baby boomer generation living alone is twice as high as the previous generation (9). Baby boomers have lower rates of home ownership compared to the previous generation, resulting in a higher percentage who are renting than was the case

for the previous generation (9). Baby boomers who are renting are also significantly more likely to be in the lowest income quintiles (9). Table 4 presents the age distribution of people who were living alone in 2016 for the LGAs within Southern Adelaide. The table shows that lone person households are concentrated in older age groups, with at least 70 per cent of lone persons aged 50 and over in each LGA. Mitcham and Holdfast Bay have the highest proportions of lone persons aged 70 and over.

**Table 4: Lone Persons in Southern Adelaide by Age Group and LGA, 2016** (Data Source: Census of Population and Housing, 2016, TableBuilder)

Age group	Holdfast Bay	Marion	Mitcham	Onkaparinga	Unley
Under 30	8.2	8.0	7.3	6.9	9.7
30 to 49	20.2	21.4	18.2	23.3	23.4
50 to 59	15.2	17.5	14.7	18.6	14.3
60 to 69	19.0	21.4	19.5	22.1	19.3
70 plus	37.2	31.7	40.4	29.1	33.1
Total	100.0	100.0	100.0	100.0	100.0

Notes: Persons Place of Usual Residence, Persons who responded lone person as relationship in household.

### Dwelling Types and Housing Tenure

Dwelling types in an area are related to population density. Tables 5 and 6 show the numbers and proportions of different dwelling types overall and by LGA in 2016. Southern Adelaide had a higher proportion of separate houses in 2016 compared with Greater Adelaide and the Australian average (Table 5). Holdfast Bay, Unley and Marion have higher proportions of townhouses and semi-detached dwellings. The larger share of separate houses in Onkaparinga and Mitcham can be attributed to rural areas within these LGAs. Diversity in types of housing and sufficient density per hectare within neighbourhoods contributes to walkability and access to services.

**Table 5: Dwelling Type in Southern Adelaide, Greater Adelaide and Australia, 2016** (Data Source: Adelaide PHN Community Profile)

Dwelling type	Southern Adelaide		Greater Adelaide	Australia
	Number	%	%	%
Separate house	129,571	74.9	73.1	71.1
Semi-detached, townhouse, etc.	39,363	22.7	23.9	17.9
Flat or apartment	3,004	1.7	2.3	9.1
Caravans, cabin, houseboat	436	0.3	0.2	1.0
Other	192	0.1	0.2	0.5
Not stated	464	0.3	0.3	0.5
Total Private Dwellings	173,030	100.0	100.0	100.0

Note: Enumerated dwellings

**Table 6: Dwelling Type in Southern Adelaide LGAs, per cent, 2016** (Data Source: Adelaide PHN Community Profile)

Dwelling type	Holdfast Bay	Marion	Mitcham	Onkaparinga	Unley
Separate house	49.1	67.6	78.8	88.1	57.1
Semi-detached, townhouse, etc.	38.7	31.9	20.0	10.9	38.6
Flat or apartment	11.4	0.0	0.6	0.2	3.9
Caravans, cabin, houseboat	0.2	0.1	0.0	0.5	0.0
Other	0.3	0.1	0.1	0.1	0.1
Not stated	0.3	0.3	0.4	0.2	0.2
Total Private Dwellings	100.0	100.0	100.0	100.0	100.0

Note: Enumerated dwellings

Housing tenure in an area can be an indicator of housing affordability and socioeconomic status. The level of outright home ownership in Southern Adelaide in 2016 was a little higher than that of Greater Adelaide and the Australian average, and Southern Adelaide had a slightly higher proportion of households with a mortgage (Table 7). The proportion who are renting in Southern Adelaide was lower than for Greater Adelaide and the Australian average, and particularly for private rental. This may reflect a mix of age structure, household types and dwelling types. Lower density housing can be associated with a lower share of renters, and an older population composed of older couples and families might indicate a larger proportion purchasing or owning their home. The decline in home ownership in Southern Adelaide between 2001 and 2016 followed the national and South Australian trend and was only partially offset by an increase in the proportion of households with a mortgage (4). The increase in the total share of households renting (private and social housing) has been driven by an increase in households in the private rental market. The level of social housing fell in Southern Adelaide between 2001 and 2016, again mirroring the national and South Australian trend.

**Table 7: Housing Tenure in Southern Adelaide, 2001 and 2016** (Data source: Adelaide PHN Community Profile)

Tenure type	2001		2016		2016	
	Number	%	Number	%	Greater Adelaide %	Australia %
Fully owned	55,141	39.3	48,721	30.8	29.6	29.6
Mortgage	46,387	33.0	58,179	36.8	35.1	32.4
Renting-All	32,645	23.2	39,648	25.1	28.0	29.4
Social Housing	9,549	6.8	7,880	5.0	6.2	4.0
Private	22,586	16.1	31,202	19.8	21.4	24.9
Other tenure type	2,255	1.6	2,780	1.8	1.6	0.9
Not stated	4,050	2.9	8,601	5.4	5.7	7.7
Total	140,478	100.0	157,929	100.0	100.0	100.0

Note: Enumerated households

Housing tenure by Southern Adelaide LGAs in 2016 is included in Appendix 1 (Table A3). There are higher shares of outright home ownership in Mitcham (37.1 per cent), Holdfast Bay (34.7 per cent) and Unley (33.3 per cent), which are much higher than the average for Greater Adelaide or for Australia.

Onkaparinga has a higher proportion of households with a mortgage compared with the other Southern Adelaide LGAs (41.4 per cent). Holdfast Bay, Unley and Marion have higher shares of renters, but the composition of renters differs between the LGAs. Marion has the highest share of households renting social housing of the four LGAs (9 per cent), while Holdfast Bay and Unley have higher shares of private



renters (26.3 per cent and 26.1 per cent respectively). The figures for Holdfast Bay and Unley may in part reflect higher density of housing in these LGAs, particularly the much higher share of high density housing compared with the other Southern Adelaide LGAs.

It was estimated that 1,041 people were homeless in Southern Adelaide in 2016 (13). A ranking of all LGAs by greatest number of homeless people puts Onkaparinga fourth highest within South Australia, with an estimated 485 homeless people in 2016 (13). Half of all homeless people in South Australia have a personal income below \$400 per week.

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*Aboriginal and Torres Strait Islander peoples are overrepresented, comprising 15 per cent of South Australia’s homeless (compared with representing 2 per cent of the South Australian population) (13).*

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Men make up 60 per cent of South Australia’s homeless people, and almost a quarter of all homeless people are aged 18 or younger (13). Although a large proportion of the homeless are younger people, there are growing concerns about the risk of homelessness for older people. Sixteen per cent of South Australia’s homeless are aged 55 and over (13). The reduction in public housing stock and lower home ownership rates in South Australia compared with 2001 are contributing to rental stress and homelessness amongst older people (12).

### Income and Housing Costs

Median income, mortgage repayments and rent provide some insight into affordability of housing and the standard of living in an area. All five Southern Adelaide LGAs had a median weekly household income in 2016 that was approximately equal to or higher than that for Greater Adelaide (Table 8). South Australia was below the national average for every indicator of income in 2015-16 (14). It is therefore unsurprising that median household incomes in all Southern Adelaide LGAs except Mitcham and Unley are below the Australian average. Onkaparinga has relatively lower household income but also has the lowest median mortgage repayments and rent in the south. Onkaparinga has comparatively lower mortgage repayments than Greater Adelaide and median rent equal to that of Greater Adelaide. Median mortgage payments and rent are above the Greater Adelaide median for each of the other four southern Adelaide LGAs. Mitcham and Unley have higher median weekly mortgage repayments than the Australian median, offset by higher incomes.

**Table 8: Median Weekly Household Income, Mortgage Repayment and Rent in Southern Adelaide LGAs, 2016** (Data Source: Census of Population and Housing, 2016)

	Median Weekly Household Income	Median Weekly Mortgage Repayment	Median Weekly Rent
Holdfast Bay	\$1,359	\$397	\$313
Marion	\$1,260	\$375	\$302
Mitcham	\$1,601	\$417	\$306
Onkaparinga	\$1,190	\$330	\$289
Unley	\$1,629	\$449	\$321
Greater Adelaide	\$1,261	\$354	\$288
Australia	\$1,438	\$393	\$335

Relatively lower average housing costs in parts of Southern Adelaide compared with Australia suggest better average access to economic resources than other areas within South Australia, particularly given average or above average median weekly household incomes in comparison with Greater Adelaide. SEIFA 2016 contains an Index of Economic Resources (IER) and an Index of Education and Occupation (IEO) in addition to the Index of Relative Socio-Economic Disadvantage (IRSD). Higher scores on the IER represent greater access to economic resources, summarising indicators of high and low income and high or low wealth (6). Table 9 contains 2016 IER scores and rankings for LGAs in the south of Adelaide.

**Table 9: LGA Index of Economic Resources for Southern Adelaide LGAs, 2016** (Data Source: Socio-economic Indexes for Australia (SEIFA), ABS, 2016)

	Score	Ranking within Australia			Ranking within SA	
		Rank	Decile	Percentile	Rank	Decile
Holdfast Bay	996	342	7	63	46	7
Marion	971	207	4	38	30	5
Mitcham	1043	490	9	90	67	10
Onkaparinga	987	299	6	55	38	6
Unley	1014	419	8	77	58	9

Note: Higher scores and rankings represent a lower incidence of relative disadvantage. There are 544 LGAs within Australia, and 70 LGAs within South Australia.

The rankings of IER scores do indicate relatively good average access to but significant variation in access to economic resources in Southern Adelaide in 2016. Mitcham has a very high IER ranking, in the 9<sup>th</sup> decile and 90<sup>th</sup> percentile within Australia and in the top decile within South Australia. Unley is ranked in the 8<sup>th</sup> decile within Australia and the 9<sup>th</sup> decile in South Australia while Holdfast Bay is in the 7<sup>th</sup> decile within Australia and South Australia. Marion’s IER ranking is below the average. The IER rankings for Unley and Holdfast Bay are lower than the IRSD rankings of incidence of socioeconomic disadvantage in these LGAs. This is due to the construction of the two indices. The IRSD only identifies incidence of disadvantage, the variables underlying the index do not capture advantage (6). The IER is a summary measure of both advantage and disadvantage.

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*The rankings within LGAs reveal inequalities in Southern Adelaide that are masked by the average figures. There is higher variation in the Index of Economic Resources (IER) rankings by SLA2 (areas within LGAs) compared with the Index of Relative Socio-Economic Disadvantage (IRSD) measure of socioeconomic disadvantage.*

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The variation in the Index of Economic Resources (IER) rankings by SLA2 (areas within LGAs) in Southern Adelaide include:

- Plympton is again the lowest ranked SLA2 in Holdfast Bay, in the 2<sup>nd</sup> decile of IER in Australia. Marino-Seaview Downs is the highest ranked (the 8<sup>th</sup> decile), but Glenelg also has a low rank in the 4<sup>th</sup> decile.
- In Marion the SLA2 of Mitchell Park is in the 1<sup>st</sup> decile of IER, Edwardstown and Warradale are only ranked in the 2<sup>nd</sup> decile in contrast with the SLA2 of Hallett Cove which is ranked in the 8<sup>th</sup> decile.

- The pattern continues in Mitcham where Panorama is only ranked in the 4<sup>th</sup> decile of the IER in stark contrast to Belair which is ranked in the 10<sup>th</sup> decile.
- Onkaparinga has the same extreme variation in IER rankings as was observed in the IRSD rankings. The SLA2s of Christie Downs and Hackham West-Huntfield Heights are ranked in the 1<sup>st</sup> decile, but Clarendon is again ranked in the 10<sup>th</sup> decile.
- Even in the prosperous LGA of Unley the SLA2s of Goodwood-Millswood and Unley-Parkside are both only ranked in the 6<sup>th</sup> decile of the IER in Australia.

## Education

The Index of Education and Occupation (IEO) scores and rankings for 2016 are presented in Table 10. This is a summary measure of educational and occupational aspects of socioeconomic advantage and disadvantage and focuses on the skills of people within the LGA, including both formal qualifications and skills required to perform different occupations (6). Four out of the five Southern Adelaide LGAs have relatively high average IEO scores and rankings. High scores represent a high incidence of people with high qualifications and/or highly skilled jobs within an area (6). Onkaparinga is in the 5<sup>th</sup> decile within Australia, suggesting a relatively average proportion of people without qualifications, without jobs and/or with low skilled jobs. Onkaparinga's IEO ranking rose between 2011 and 2016, from the 46<sup>th</sup> percentile within Australia to the 50<sup>th</sup> and from the 5<sup>th</sup> decile and 32<sup>nd</sup> rank within South Australia to the 6<sup>th</sup> decile and 36<sup>th</sup> rank (out of 70).

**Table 10: LGA Index of Education and Occupation for Southern Adelaide LGAs, 2016** (Data Source: Socio-economic Indexes for Australia (SEIFA), ABS, 2016)

	Score	Ranking within Australia			Ranking within SA	
		Rank	Decile	Percentile	Rank	Decile
Holdfast Bay	1074	490	9	90	62	9
Marion	1015	440	9	81	59	9
Mitcham	1101	503	10	93	66	10
Onkaparinga	958	272	5	50	36	6
Unley	1127	517	10	95	67	10

Note: Higher scores and rankings represent a lower incidence of relative disadvantage. There are 544 LGAs within Australia, and 70 LGAs within South Australia.

There is lower variation in IEO rankings by SLA2 within each LGA compared with the IRSD and the IER. All SLAs in Holdfast Bay are ranked in the 8<sup>th</sup> decile in Australia with the exception of Plympton which is ranked in the 7<sup>th</sup> decile. Most SLAs in Marion are ranked in the 6<sup>th</sup> decile, and the highest ranked SLA in Marion is Marion-Seaview Downs (ranked in the 8<sup>th</sup> decile). All SLAs in Mitcham and Unley are ranked in either the 9<sup>th</sup> or 10<sup>th</sup> decile with the exception of the SLA of Panorama in Mitcham (ranked in the 7<sup>th</sup> decile). Onkaparinga is the only LGA with wide variation in IEO rankings. Christie Downs, Morphett Vale-West and Hackham West-Huntfield Heights are the lowest ranked SLAs in this LGA (all ranked in the 1<sup>st</sup> decile). The other SLAs in Onkaparinga have a range of rankings placing them in the 2<sup>nd</sup> through to the 9<sup>th</sup> decile (the highest ranked SLA is Coromandel Valley).

**Table 11: Educational Attainment and Labour Market Indicators for Southern Adelaide LGAs, Per cent, 2016** (Data Source: Census of Population and Housing, 2016)

	Tertiary qualification	Vocational qualification	Unemployment rate	Labour force participation rate
Holdfast Bay	27.2	17.1	5.7	58.7
Marion	22.1	19.7	7.0	60.7
Mitcham	35.1	14.3	6.0	61.6
Onkaparinga	13.4	25.8	7.7	59.8
Unley	40.7	10.5	5.8	61.9
South Australia	18.5	20.1	7.5	58.3
Australia	22.0	18.8	6.9	60.3

Educational attainment and labour market indicators for Southern Adelaide support the IEO rankings (Table 11).

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*All five Southern Adelaide LGAs had higher labour force participation rates in 2016 compared with the average for South Australia, and Holdfast Bay, Marion, Unley and Mitcham had relatively lower unemployment rates and higher attainment of tertiary qualifications.*

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Holdfast Bay, Unley and Mitcham also had better educational attainment and employment outcomes than the Australian average. Onkaparinga had a comparatively lower proportion with tertiary qualifications but a much higher share of the population held a vocational qualification.

## How Healthy is the South?: Distribution of Mortality and Disease

This section describes overall life expectancy, the causes and patterns of mortality and patterns and distribution of diseases in the south of Adelaide. Technical notes on the data are available in Appendix 2.

### Key findings: Distribution of Mortality and Disease

- The overall health outcomes for Southern Adelaide are positive: Median life expectancy is higher than the Australian median in four out of the five LGAs in Southern Adelaide, and in Onkaparinga it is equal to the Australian median.
- Rates of premature mortality in the South of Adelaide are equal to or below the average rates for Greater Adelaide, South Australia and Australia.
- Rising health inequities in South Australia and a social gradient in life expectancy results in worse outcomes for people living in disadvantaged circumstances. The rate of premature mortality in Mitcham is markedly lower than the other four Southern Adelaide LGAs. There is a clear social gradient in premature mortality, even steeper than that for life expectancy.
- Many chronic conditions affect older age groups at higher rates, indicating that the ageing population in Southern Adelaide is likely to result in an increase in the burden of disease. Higher rates of disease also suggest older people have a higher likelihood of comorbidity that may also worsen with population ageing.
- In Southern Adelaide, each of the major diseases and risk factors for disease affect people living in disadvantaged circumstances at higher rates. There is a social gradient in Southern Adelaide by socioeconomic status, income and/or education for all major non-communicable diseases and risk factors.

### Life Expectancy

Life expectancy is a vital measure of population health. It provides a summary measure of average length of life. Life expectancy has been increasing in Australia. This is reflected in the median age of death by gender for Southern Adelaide LGAs (Table 12). Median age at death has increased between 2003 and 2007 and 2010 and 2014 for all LGAs. All five Southern Adelaide LGAs have a median age of death that is equal to or above the Australian average. Holdfast Bay, Unley and Mitcham have higher median age of death than both the South Australian average and the average for Greater Adelaide. Life expectancy for women is three years higher than for men in Unley in 2010 to 2014 and four years higher than for men in Holdfast Bay, Marion and Mitcham. In Onkaparinga women have a median age of death that is 6 years higher than that observed for men.

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*Although median age at death has risen in Southern Adelaide, the gap between median age of death for people living in the most disadvantaged areas and people living in the least disadvantaged areas has risen (15).*

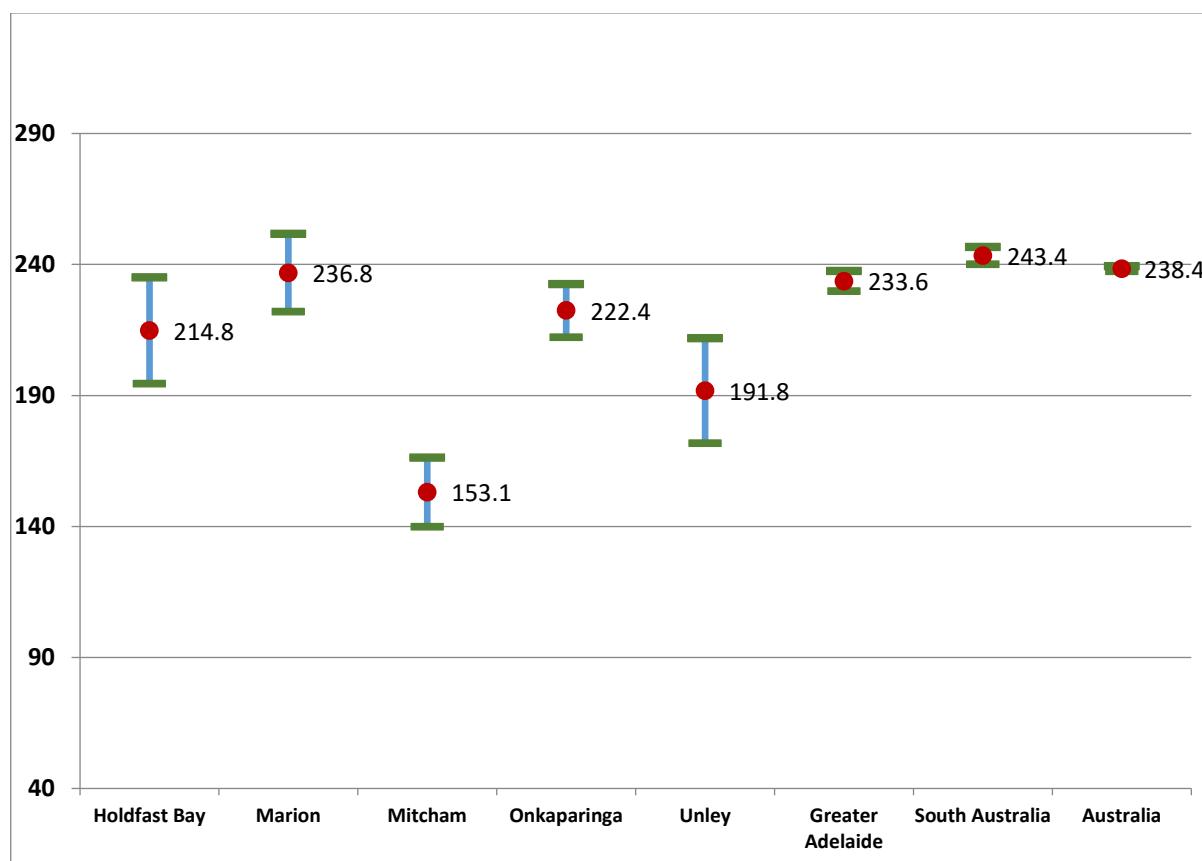
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**Table 12: Median age at death of males and females, 2003 to 2007 and 2010 to 2014** (Data source: Social Health Atlas, PHIDU, 2019)

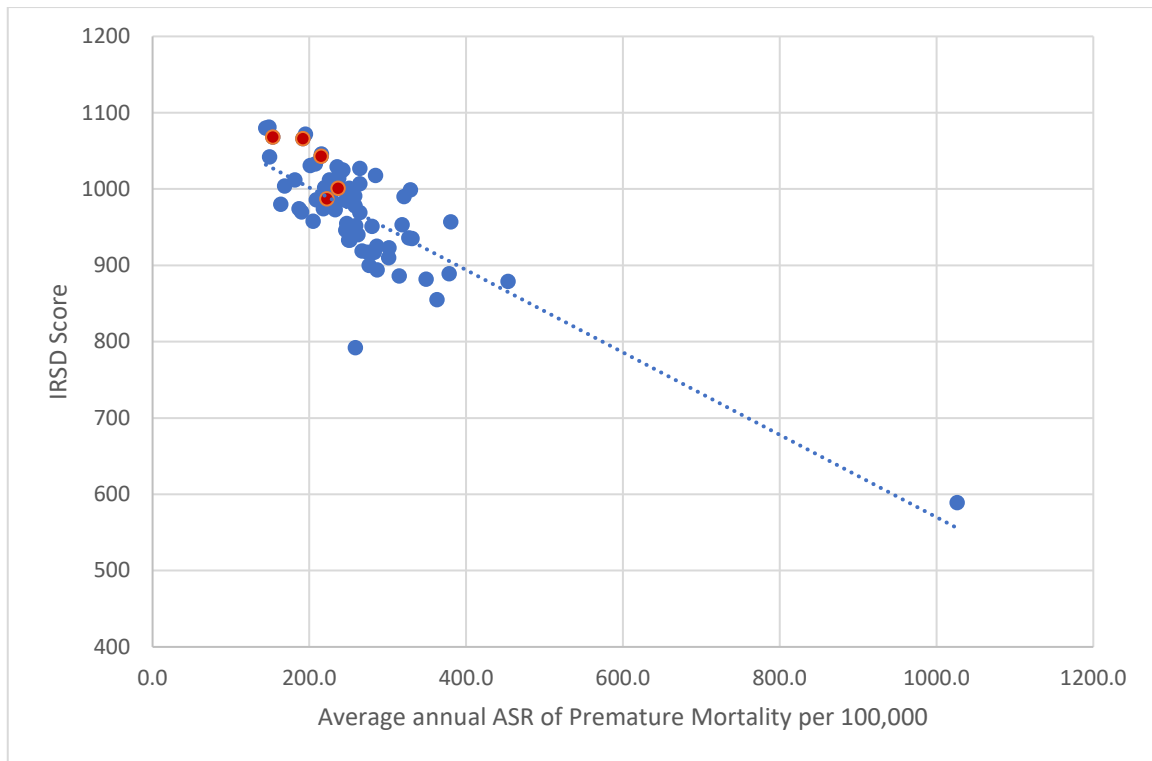
	Male		Female	
	2003 to 2007	2010 to 2014	2003 to 2007	2010 to 2014
Holdfast Bay	81.0	83.0	85.0	87.0
Marion	78.0	81.0	82.0	85.0
Mitcham	80.0	83.0	86.0	87.0
Onkaparinga	76.0	78.0	82.0	84.0
Unley	81.0	85.0	86.0	88.0
Greater Adelaide	78.0	80.0	83.0	85.0
South Australia	77.0	79.0	83.0	85.0
Australia	76.0	78.0	83.0	84.0

### Premature Mortality

Data on mortality provide important information on the leading diseases and patterns of disease that cause death. Examining data on premature mortality can help explain differences in health status between areas, and changes in health status, enabling evaluation and formation of strategies to improve health. Increasing life expectancy since 1970, particularly for people aged 50, has resulted from reduced premature mortality as it has increased the number of people surviving to old age (9).



**Figure 2: Average Annual Age-Standardised Rates of Premature Mortality per 100,000 persons, Persons aged 0 to 74, 2011 to 2015, mean and 95 per cent confidence intervals** (Data source: Social Health Atlas, PHIDU, 2019)



**Figure 3: Score on Index of Relative Socio-economic Status versus Average Age-Standardised Rate of Premature Mortality per 100,000 persons for 2011-2015, South Australian LGAs** (Data sources: SEIFA, ABS, 2016 and Social Health Atlas, PHIDU, 2019) Red dots are Southern Adelaide LGAs

Average annual age-standardised rates of premature mortality for the Southern Adelaide LGAs are equal to or below the average rates of premature mortality for Greater Adelaide, South Australia and Australia between 2011 and 2015 (Figure 2)<sup>7</sup>. The rate of premature mortality in Mitcham is markedly lower than all other premature mortality rates reported in Figure 2. The high life expectancy in Mitcham and relatively low incidence of socioeconomic disadvantage are likely to have contributed to lower premature mortality, but these are only partial explanations given that other Southern Adelaide LGAs share these characteristics.

Figure 3 presents a scatter plot of the relationship between average age-standardised rates of premature mortality and scores on the ABS IRSD for all LGAs in South Australia<sup>8</sup>. There is a negative relationship between premature mortality and IRSD scores. LGAs with lower incidences of people living in disadvantaged circumstances (represented by higher IRSD scores) have lower rates of premature mortality. The dotted line shows the strong trend in the relationship. The red data points in Figure 3 are the Southern Adelaide LGAs. All five LGAs in the South of Adelaide have both high IRSD scores and low premature mortality compared with all South Australian LGAs. The rates of premature mortality are an average for each LGA, but the demographic profile revealed that there is an uneven distribution of resources within LGAs. People living in disadvantaged circumstances experience worse outcomes, which is masked in the average figures for each LGA.

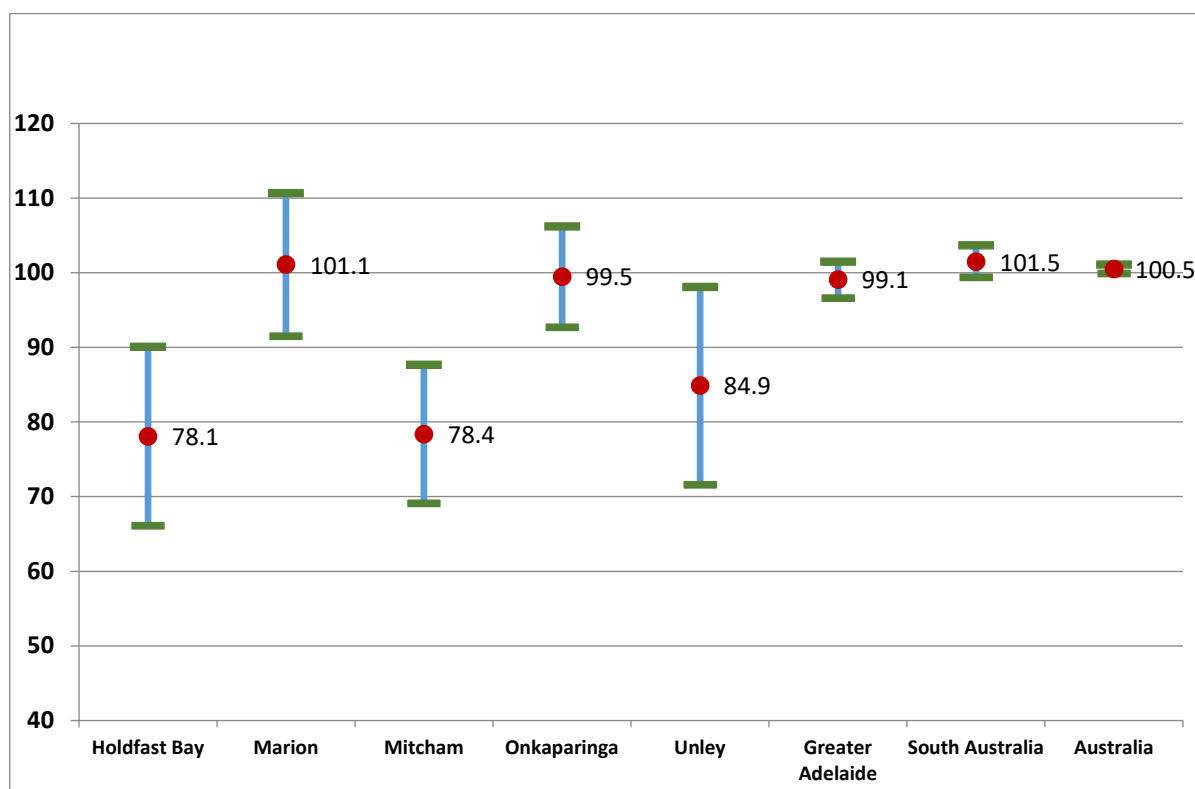
<sup>7</sup> See technical notes in Appendix 2 for an explanation of age-standardisation.

<sup>8</sup> The outlier in Figure 3 is the LGA of Anangu Pitjantjatjara is a large, sparsely populated Aboriginal LGA in the remote North-West of South Australia.

## Premature Mortality by Cause<sup>9</sup>

### Cancer Mortality

Cancers are the leading cause of premature mortality in Southern Adelaide, followed by circulatory system diseases, external causes and respiratory system diseases (16). Cancers accounted for 45 per cent of premature deaths in Southern Adelaide from 2011 to 2015 (16). The small numbers associated with data for small areas prevented disaggregation of deaths attributed to cancers into specific types of cancer such as lung cancer. Lung cancer, colorectal cancer and breast cancer are the leading causes of premature mortality amongst deaths by cancer Australia-wide (17).



**Figure 4: Average Annual Age-Standardised Rates of Premature Mortality from Cancer per 100,000 persons, Persons aged 0 to 74, 2011 to 2015, mean and 95 per cent confidence intervals (Data source: Social Health Atlas, PHIDU, 2019)**

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*Average annual age-standardised rates of premature mortality from cancer for the Southern Adelaide LGAs are equal to or below the average rates for premature mortality from cancer in Greater Adelaide, South Australia and Australia between 2011 and 2015 (Figure 4). This corresponds with the comparative rates for overall premature mortality in these areas.*

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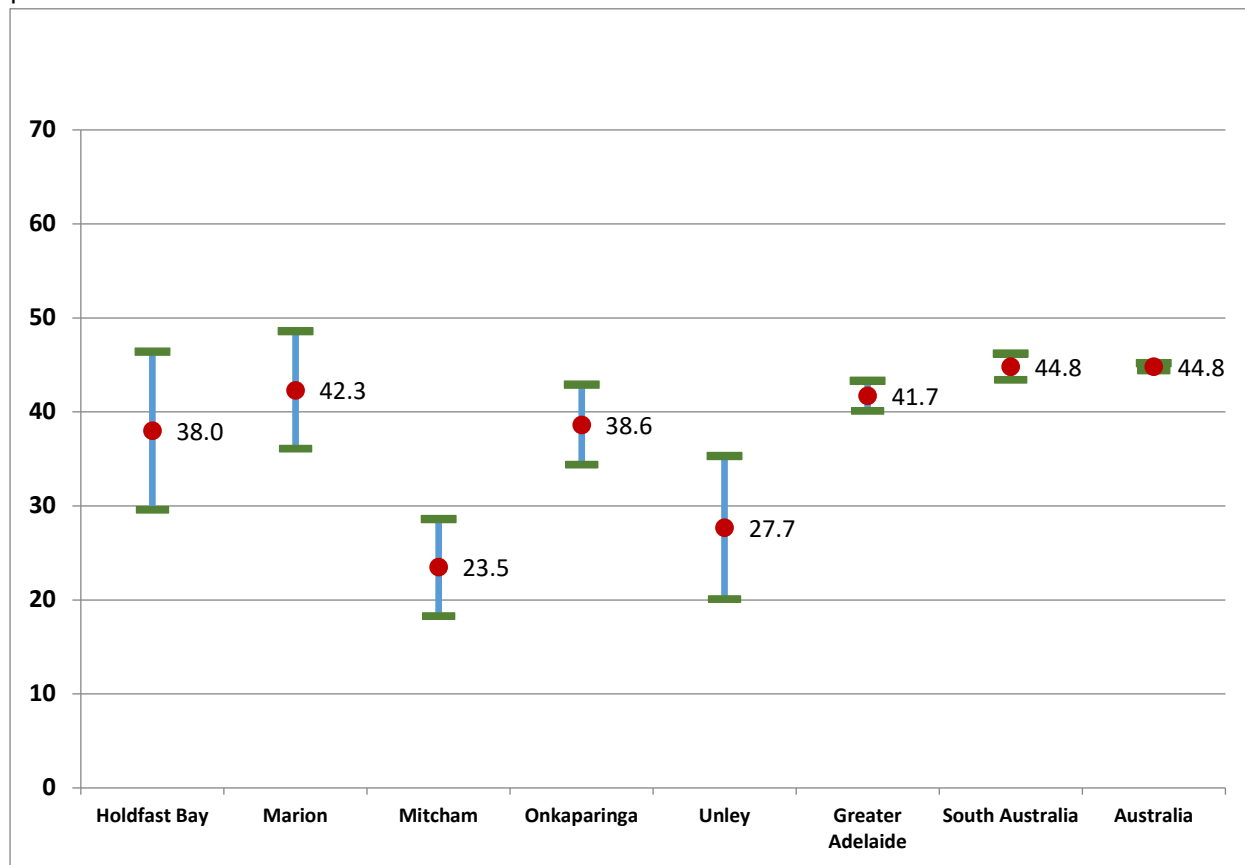
<sup>9</sup> See technical notes in Appendix 2 for an explanation of grouping of causes of diseases.



The rate of premature mortality from cancer is significantly lower in Holdfast Bay, Unley and Mitcham<sup>10</sup>. There are large socioeconomic disparities in mortality from cancer (16). Australians living in lower socioeconomic status areas have higher rates of mortality from cancer than people living in higher socioeconomic areas (16).

#### Circulatory-System Disease Mortality

Circulatory system diseases caused 17.2 per cent of premature deaths (16). Coronary heart disease (one of the major circulatory system diseases) is cited as the leading underlying cause of premature death in Australia in classifications where diseases are not grouped (17). Rates of premature mortality from coronary heart disease have fallen in Australia due to increased use of statins and anti-hypertensive medication reducing high blood pressure and high cholesterol, both risk factors for the disease (17). Despite these improvements coronary heart disease continues to be a leading cause of premature mortality, accounting for 10 per cent of all premature deaths in Australia (17) and 9.2 per cent in Southern Adelaide (16). External causes (injuries of all types, suicides, poisoning) represented 12 per cent of deaths in Southern Adelaide (16). Respiratory system diseases accounted for almost 6 per cent of premature deaths.



**Figure 5: Average Annual Age-Standardised Rates of Premature Mortality from Circulatory System Diseases per 100,000 persons, Persons aged 0 to 74, 2011 to 2015, mean and 95 per cent confidence intervals (Data source: Social Health Atlas, PHIDU, 2019)**

Circulatory system diseases include acute rheumatic fever, chronic rheumatic heart disease, hypertensive diseases, coronary heart diseases, pulmonary heart disease and other diseases of pulmonary circulation, cerebrovascular diseases (e.g. stroke), and other forms of heart disease and diseases of veins, arteries

<sup>10</sup> See technical notes in Appendix 2 for an explanation of the method used to identify significant differences between areas.

and lymph nodes (18). Most deaths from circulatory system diseases occur among older people (19). Aboriginal and Torres Strait Islander people and people with lower socioeconomic status are at higher risk of dying from circulatory system diseases (17). The rates of premature mortality in Southern Adelaide LGAs are equal to or below the average rates for Greater Adelaide, South Australia and Australia (Figure 5).

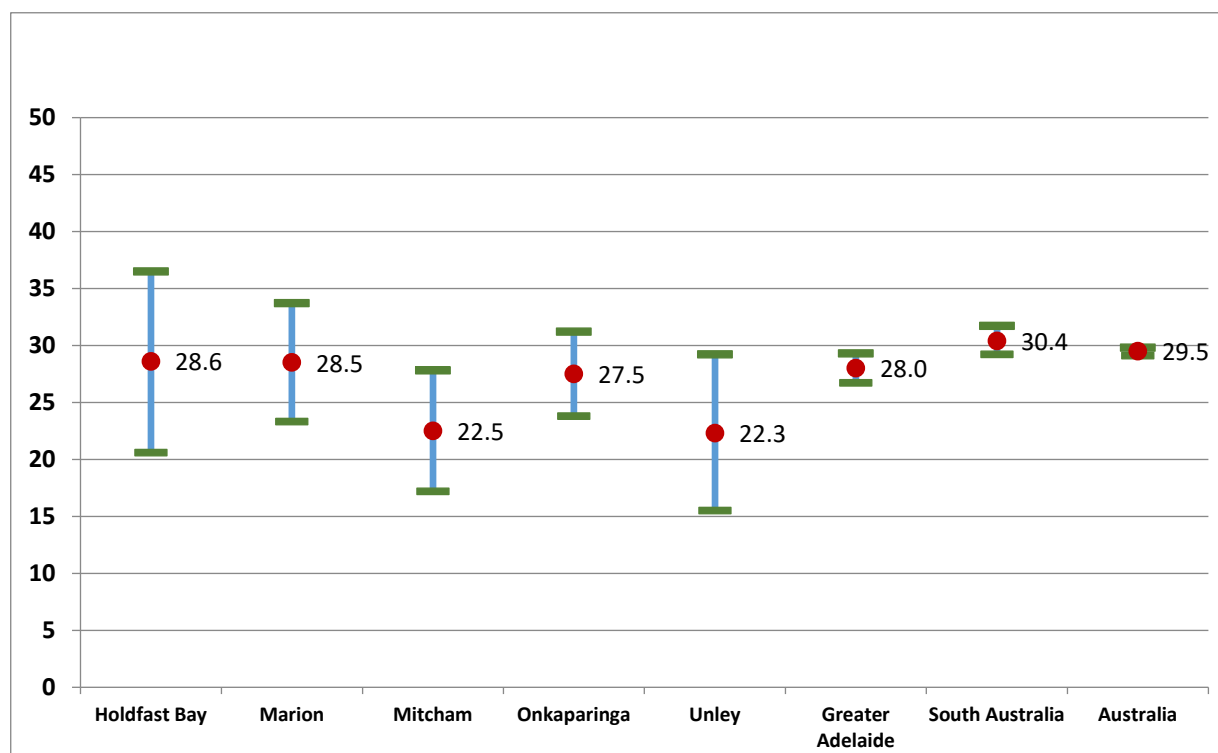
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*The overall percentage of premature deaths attributed to circulatory system diseases is lower in Southern Adelaide than for Australia as a whole, 17.2 per cent compared with 22 per cent (16).*

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### Accidents and Injury Mortality

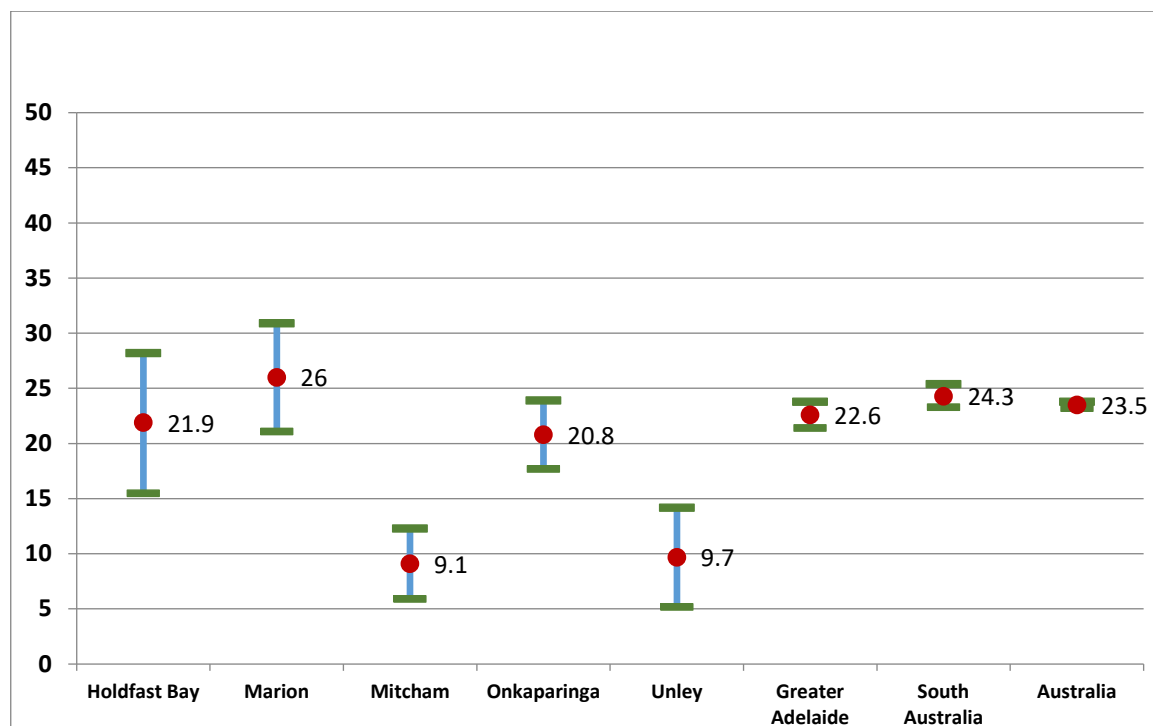
External causes are commonly described as deaths from accidents and injury, intentional and unintentional, resulting from environmental factors or circumstances external to the body (16). These include road, land, water and air transport-related injuries (pedestrians, pedal cycles, all vehicle types), falls, drowning, assault, intentional self-harm as well as various other types of injury and poisoning (18). External causes are the leading cause of death among people aged 1 to 44 (20). The average annual age-standardised rates of premature mortality from external causes in the five Southern Adelaide LGAs are not significantly different to the rates in Greater Adelaide, South Australia or Australia (Figure 6). There is also little difference between the rates in the five LGAs. Premature mortality from external causes represented a slightly higher percentage of all premature deaths in Mitcham. In Mitcham 13.3 per cent of premature deaths were attributed to external causes compared with an average of 11.9 per cent for the South of Adelaide and 11.7 per cent for South Australia (16).



**Figure 6: Average Annual Age-Standardised Rates of Premature Mortality from External Causes per 100,000 persons, Persons aged 0 to 74, 2011 to 2015, mean and 95 per cent confidence intervals (Data source: Social Health Atlas, PHIDU, 2019)**

### Coronary Heart Disease Mortality

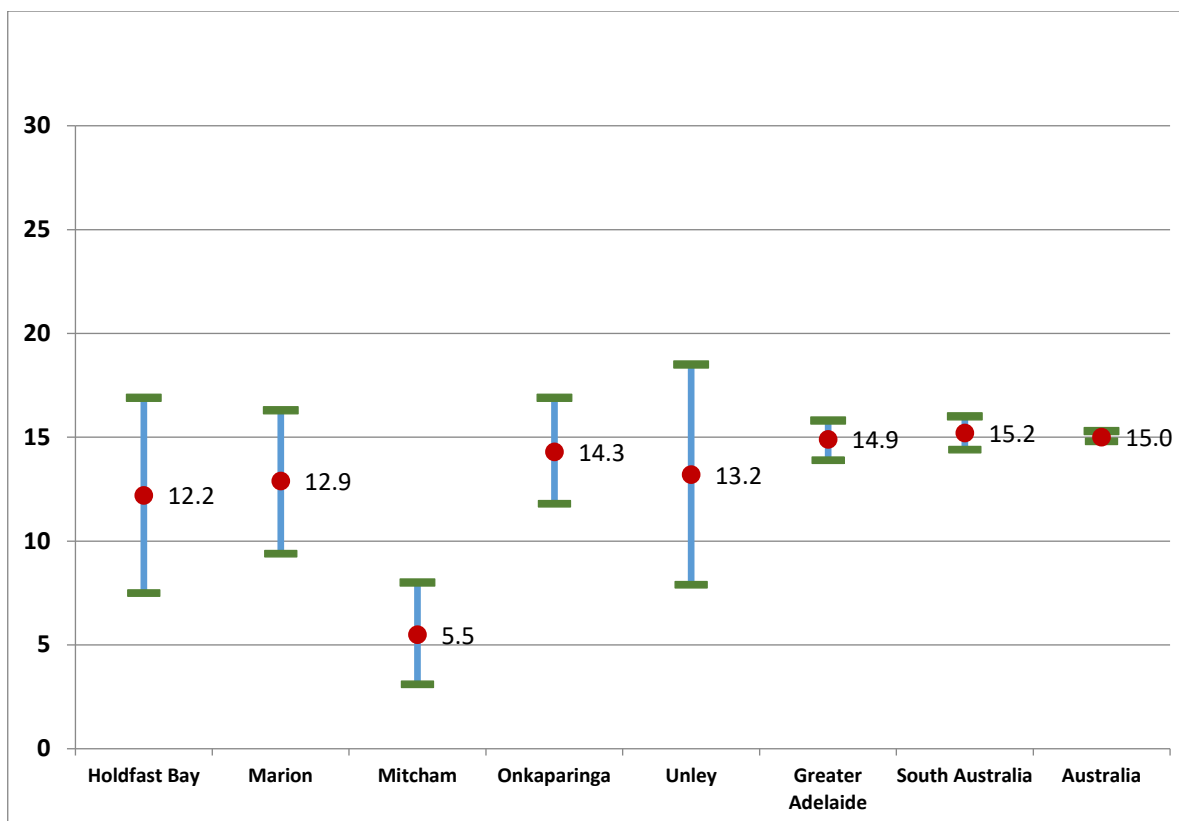
The average annual age-standardised rates of premature mortality from coronary heart disease in 2011 to 2015 were significantly lower in Mitcham and Unley compared with the other Southern Adelaide LGAs and Greater Adelaide, South Australia and Australia (Figure 7). The rates in Holdfast Bay, Marion and Onkaparinga were comparable with the average rates in Greater Adelaide, South Australia and Australia. The lower rates of premature mortality from coronary heart disease in Mitcham and Unley translate into coronary heart disease representing a lower share of all premature deaths in these LGAs (6.2 per cent and 5.1 per cent respectively) (16).



**Figure 7: Average Annual Age-Standardised Rates of Premature Mortality from Coronary Heart Disease per 100,000 persons, Persons aged 0 to 74, 2011 to 2015, mean and 95 per cent confidence intervals**  
(Data source: Social Health Atlas, PHIDU, 2019)

### Respiratory Disease Mortality

The two most common chronic respiratory system diseases in Australia are chronic obstructive pulmonary disease (COPD) and asthma (21). Although asthma is no longer a major cause of death and the rates of COPD are declining, respiratory system diseases continue to comprise a significant burden of disease (21). Mitcham had a significantly lower age-standardised rate of premature mortality among the five Southern Adelaide LGAs in 2011 to 2015 (Figure 8). The rates for the other four LGAs in the South were not significantly different to the average rates for Greater Adelaide, South Australia and Australia.



**Figure 8: Average Annual Age-Standardised Rates of Premature Mortality from Respiratory System Diseases per 100,000 persons, Persons aged 0 to 74, 2011 to 2015, mean and 95 per cent confidence intervals (Data source: Social Health Atlas, PHIDU, 2019)**

The Adelaide PHN Local Health Matrix for premature mortality by cause ranked Population Health Areas (PHAs) within LGAs for each of the causes included in PHIDU using data from 2009 to 2013 (22). The PHAs that correspond with the SA2s that were identified as having higher levels of socioeconomic disadvantage in the demographic profile tended to be ranked as higher prevalence for premature mortality for the main causes of premature mortality.

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*The Population Health Areas (PHAs) of Plympton in Holdfast Bay and the PHAs of Christie Downs/Hackham West-Huntfield Heights and Christies Beach/Lonsdale in Onkaparinga had higher rankings for several causes of premature mortality compared with the other PHAs in Southern Adelaide (22). In addition, the PHAs of Hackham – Onkaparinga Hills/Seaford and Morphett Vale-East/Morphett Vale-West had higher rankings for premature mortality from respiratory diseases and COPD than other PHAs in Southern Adelaide (22).*

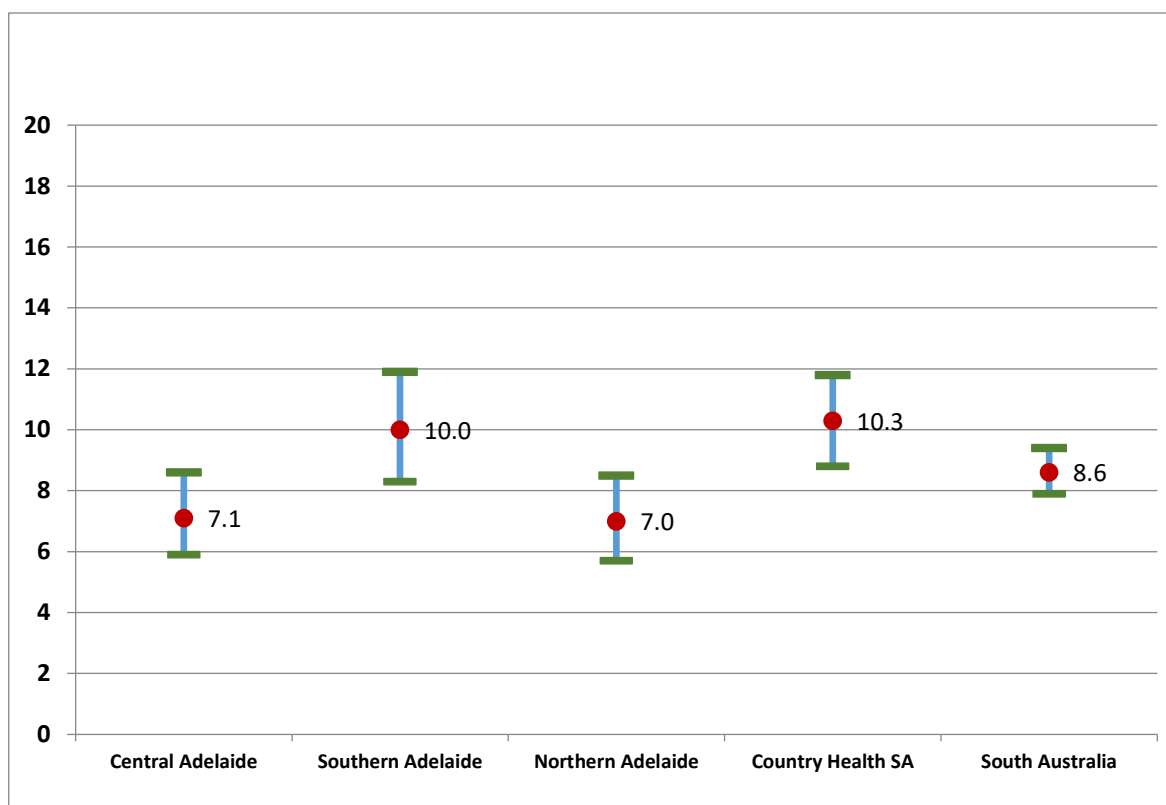
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## What Makes People Sick in the South?<sup>11</sup>

Overwhelmingly, the burden of disease in Australia is from non-communicable diseases, including mental illness. The four main types of non-communicable diseases are cancer, chronic respiratory diseases, diabetes and cardiovascular diseases (23). The diseases included in this section fall within those four main types but also consider osteoporosis, arthritis, asthma and the rates of co-morbidity of non-communicable diseases. This report was completed amidst the COVID-19 pandemic and we note that the emerging evidence globally indicates that people with chronic disease are more vulnerable to suffering severe illness or dying following infection from the SARS-CoV-2 virus. Multiple chronic diseases especially of the cardio-vascular system appears to make people particularly vulnerable to COVID-19 (24, 25).

### Cancer

There are several hundred types of cancer and it is one of the leading causes of morbidity in South Australia (3, 19). The average age of diagnosis is 55.1 years and there are much higher rates of cancer amongst older age groups (26). In 2018 a total of 10 per cent of respondents reported ever having cancer in Southern Adelaide (Figure 9). The rate for Southern Adelaide was comparable with the rate in Country SA and higher than the rates in Central Adelaide and North Adelaide. People in lower income groups and people with lower educational attainment reported higher rates of cancer (26).



**Figure 9: Proportion of Respondents (all ages) who had ever been told they had Cancer by Local Health Network Region, 2018, mean and 95 per cent confidence intervals (Data source: South Australian Population Health Survey, 2018)**

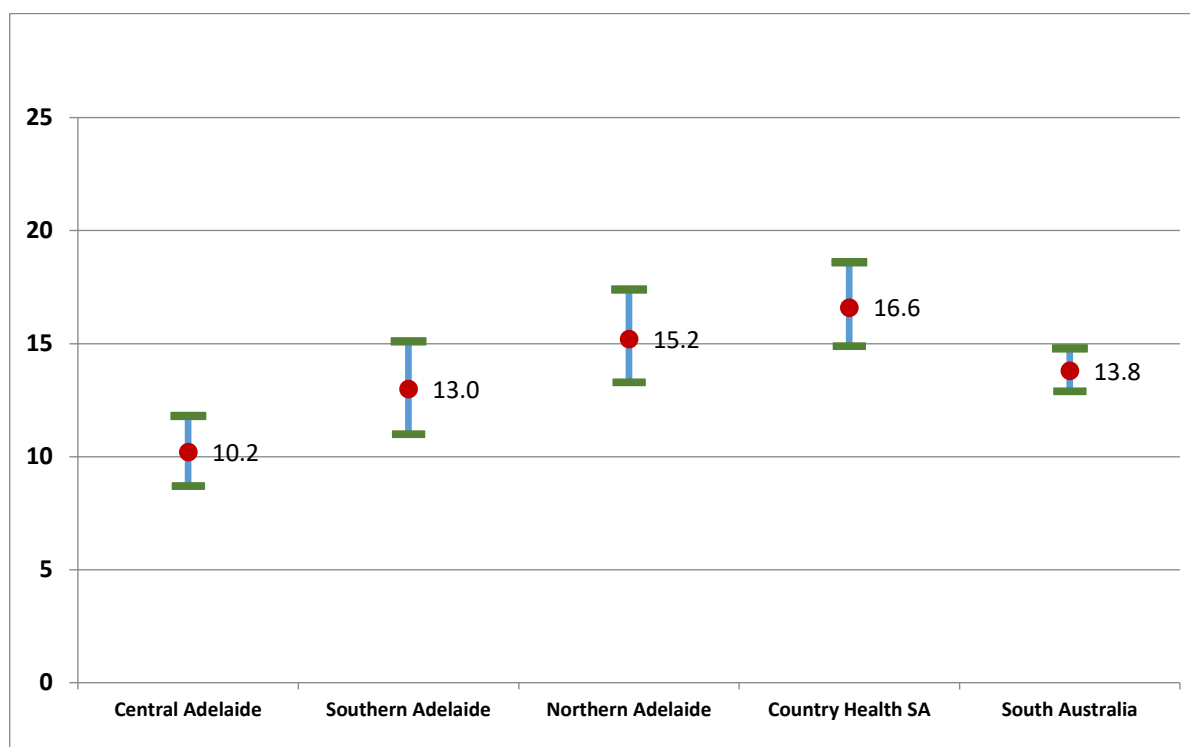
<sup>11</sup> See technical notes in Appendix 2 for an explanation of data sources used in this section and the comparability of these data sources.

## Chronic Obstructive Pulmonary Disease

Chronic Obstructive Pulmonary Disease (COPD) describes long term lung conditions including chronic bronchitis and emphysema (2, 26). Five per cent of respondents in Southern Adelaide reported having COPD in 2018 (27). Prevalence of COPD is strongly related to smoking trends (19). The percentage of South Australian adults who reported having COPD decreased from 6.1 per cent in 2005 to 5.3 per cent in 2017 (26). There is little difference between the proportion in Southern Adelaide who reported having COPD in 2018 and the proportion reporting having the disease in the other South Australian regions (27). Modelled estimates of the 2014-15 age-standardised rate of COPD by LGA do suggest that the rates of COPD in Unley and Mitcham are significantly lower than the rate in Onkaparinga (16). This may be partly due to the large relative socioeconomic inequality in rates for COPD. People living in the most disadvantaged areas in South Australia have a prevalence of COPD that is five times higher than the prevalence of COPD for people living in the least disadvantaged areas (16).

## Asthma

Asthma can affect people of all ages, but the age of diagnosis is most commonly among younger age groups. The average age of diagnosis is 21.4 years (26) and asthma is the main cause of disease burden in boys aged 5 to 14 and the second highest cause of disease burden in girls aged 5 to 14 (17). The proportion of respondents age 2 years and over in Southern Adelaide in 2018 who reported having asthma is 13 per cent (Figure 10). The proportion of people reporting having asthma in Southern Adelaide is higher than in Central Adelaide but lower than in Northern Adelaide or Country SA. There is no significant difference between the proportion reporting having asthma in Southern Adelaide and the average for South Australia. A comparison of the most recently available age-standardised rates of asthma by LGA did not reveal any significant difference between the five LGAs in the South of Adelaide (16). People living in higher socioeconomic areas and people with a degree or higher level of education were less likely to report having asthma (26).



**Figure 10: Proportion of Respondents (16 years and over) with Asthma by Local Health Network Region, 2018, mean and 95 per cent confidence intervals** (Data source: South Australian Population Health Survey, 2018)

## Cardiovascular Disease

Cardiovascular disease includes all diseases and conditions of the heart and blood vessels and is more common in older age groups (2). The average age of diagnosis is 68.6 years (26).

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*A total of 8.4 per cent of respondents in Southern Adelaide reported having cardiovascular disease in 2018 (27).*

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This proportion was not significantly different to reported rates of the disease in the other regions in South Australia (27). There was also no significant difference between the most recently available estimated rates of heart, stroke and vascular disease for the five Southern Adelaide LGAs (16). People living in lower socioeconomic areas, people with lower household income and those with lower educational attainment were more likely to report having cardiovascular disease (26).

The Australian Heart Foundation provides statistics on heart-related hospital admissions and the heart disease mortality rate by LGA, based on data from the AIHW National Hospital Morbidity Database and Mortality over Regions and Time books (28)<sup>12</sup>. Table 13 presents these rates for the five LGAs in the South of Adelaide and the rates for Southern Adelaide, South Australia and Australia. The rate of heart-related hospital admissions is lower in Southern Adelaide than for South Australia and Australia, and the heart disease mortality rate is also lower for Southern Adelaide. Mitcham and Unley have lower rates of heart-related admissions compared with Holdfast Bay, Onkaparinga and Marion. Mitcham and Holdfast Bay have lower heart disease mortality rates compared with Marion and Onkaparinga. Unley has the highest mortality rate from heart disease of the five LGAs, higher than Southern Adelaide, South Australia and Australia.

**Table 13: Average Age-Standardised Rates of Heart Related Hospital Admissions and Heart Disease Mortality, 2012 to 2016** (Data source: Heart Foundation Australian Heart Maps, Local Heart Health Profile)

	Heart-Related Hospital Admissions (per 10,000 persons)	Heart Disease Mortality Rate (per 100,000 persons)
Holdfast Bay	44.1	50.9
Marion	45.9	67.4
Mitcham	39.7	49.0
Onkaparinga	45.5	71.4
Unley	40.0	85.2
Southern Adelaide <sup>1</sup>	43.8	62.7
South Australia	49.1	70.2
Australia	49.1	68.3

<sup>1</sup> Southern Adelaide refers here to the SA4 geographical classification which excludes Unley. Unley is classed as being part of the Central Adelaide and Hills SA4 region.

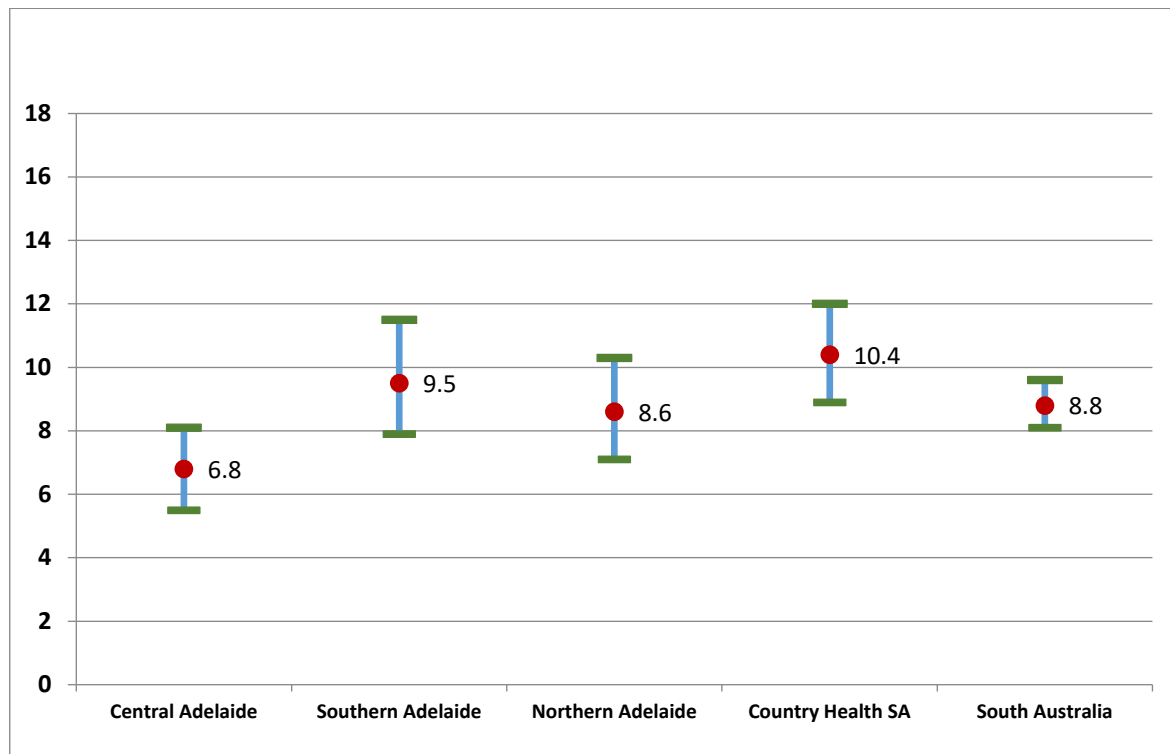
## Diabetes

Diabetes is a risk factor for coronary heart disease, stroke, peripheral vascular disease and dementia and it can lead to a number of complications that reduce life expectancy (2, 3, 19). There are three main types of diabetes: type 1, type 2 and gestational. Type 2 is the most common, comprising almost 86 per cent of all reports of diabetes in South Australia in 2017 (26). Figure 11 shows that the reported rate of diabetes

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<sup>12</sup> Heart disease is more specific than cardiovascular disease, referring only to diseases relating to the heart.

for the Southern Adelaide was higher than in Central Adelaide and Northern Adelaide, but the difference is not significant. A total of 9.5 per cent of respondents in the Southern Adelaide reported having diabetes. Modelled estimates of the 2014-15 age-standardised rate of type 2 diabetes by LGA suggest that the rates of this type of diabetes are significantly lower in Holdfast Bay, Mitcham and Unley when compared with the rate of type 2 diabetes in Onkaparinga (16). Rates of diabetes increase with age and are higher for people with lower educational attainment and lower household income (26).



**Figure 11: Proportion of Respondents (2 years and over) with Diabetes by Local Health Network Region, 2018, mean and 95 per cent confidence intervals** (Data source: South Australian Population Health Survey, 2018)

### Arthritis

The proportion of people aged over 16 in the Southern Adelaide Local Health Network (SALHN) region in 2018 who reported they had ever been told by a doctor that they had arthritis is 25.5 per cent (Figure 12). A comparison of the most recently available age-standardised rates of arthritis by LGA revealed no significant difference in rates of arthritis between the five LGAs in the South of Adelaide (16).

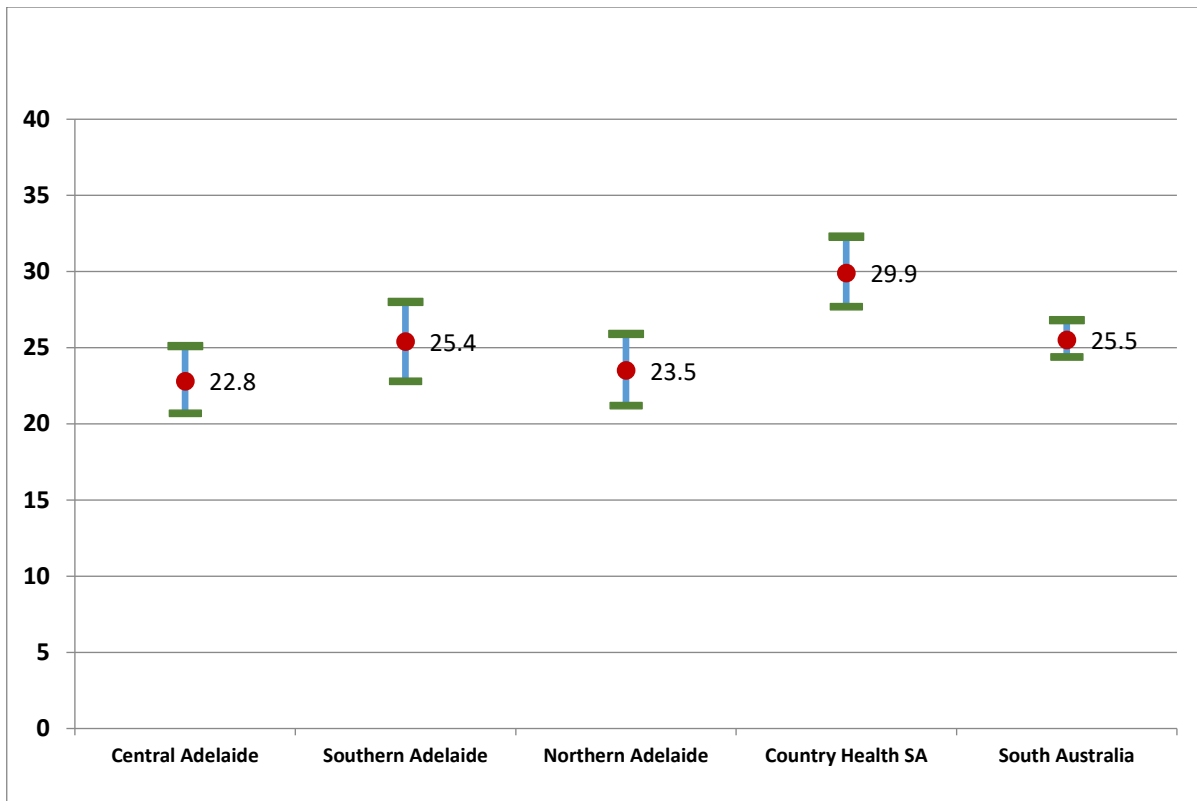
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*People earning \$40,000 or less per year were much more likely to report arthritis than people earning higher incomes (26). Women, people in older age groups and people living in lower socioeconomic areas also reported higher rates of arthritis (26).*

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The proportion of people in Southern Adelaide reporting that they had arthritis is lower than in Country SA but is not significantly different to all other metropolitan regions and the average for South Australia.





**Figure 12: Proportion of Respondents (16 years and over) with Arthritis by Local Health Network Region, 2018, mean and 95 per cent confidence intervals** (Data source: South Australian Population Health Survey, 2018)

### Osteoporosis

Osteoporosis affects over one million Australians, the majority of whom are women and aged 70 years and over (2). The prevalence of this disease will increase with population ageing. An ageing-related increase in the total percentage of South Australians reporting that they had osteoporosis has already occurred, from a total of 3.5 per cent in 2002 to 5.9 per cent in 2017 (26). There is little difference between the proportion in Southern Adelaide who reported that they had osteoporosis in 2018 and the rate of reports in the other regions within South Australia (27). An exception is Holdfast Bay, which was previously noted to have reported the highest level of osteoporosis of the metropolitan planning areas between July 2012 and June 2014 (3). This higher level is likely attributable to the older age profile in Holdfast Bay. People with lower incomes and people with lower educational attainment are more likely to report having osteoporosis (26).

### Multiple Chronic Conditions

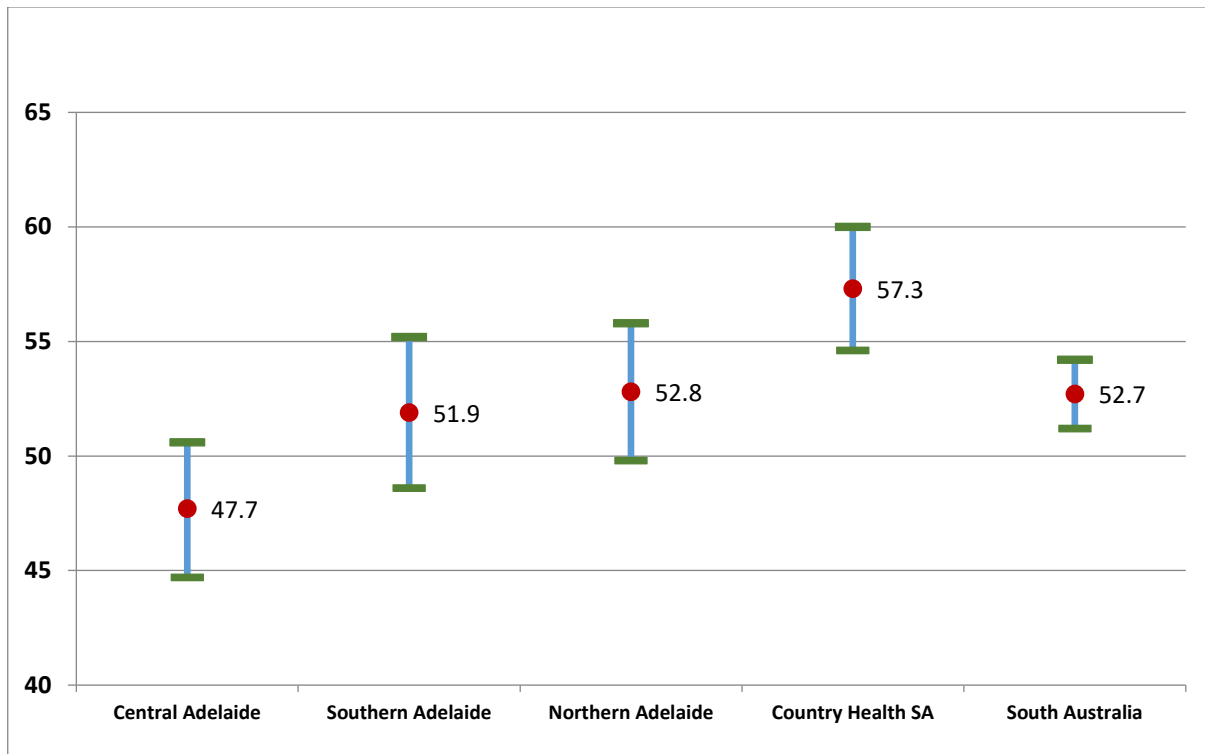
The discussion in this section thus far has focused on presenting estimates of the rate of individual diseases. The total burden of non-communicable diseases is far greater than any one chronic disease, as shown by examining how many people have at least one chronic condition (Figure 13).

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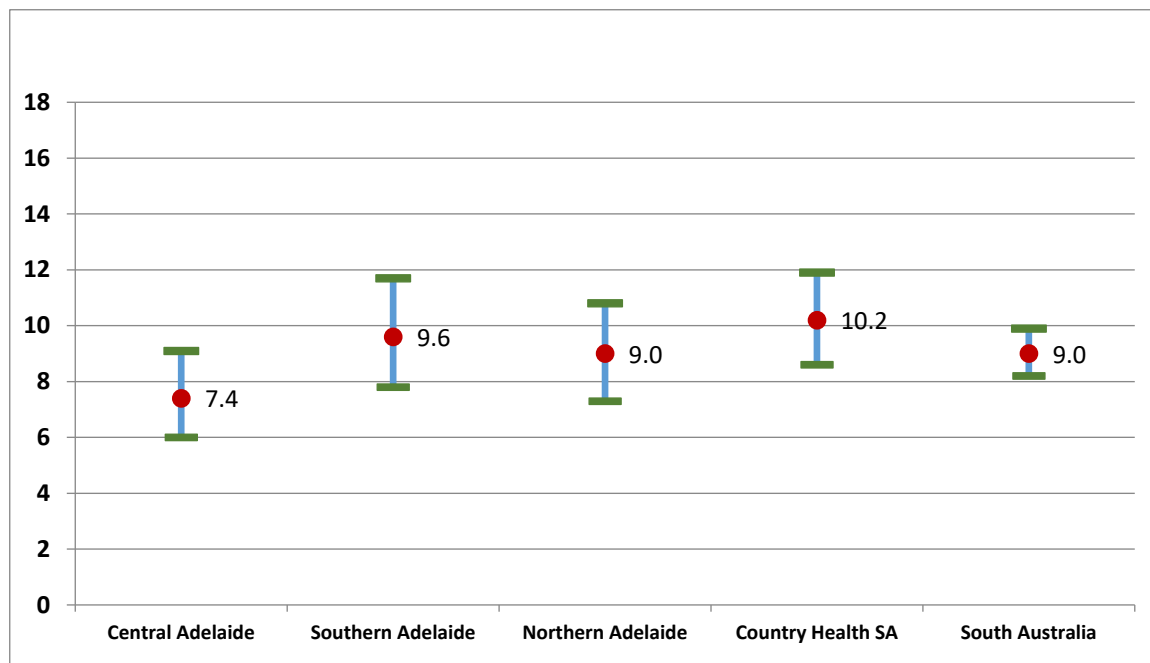
*Almost 52 per cent of respondents in Southern Adelaide had at least one chronic condition in 2018.*

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There are differences in the proportion with at least one chronic condition between regions in South Australia –the rate in Central Adelaide is lower and the rate in Country SA is higher –but these differences are not statistically significant compared with the rate in Southern Adelaide.



**Figure 13: Proportion of Respondents (16 years and older) who had at least one chronic condition by Local Health Network Region, 2018, mean and 95 per cent confidence intervals (Data source: South Australian Population Health Survey, 2018)**



**Figure 14: Proportion of Respondents (16 years and older) who had three or more chronic conditions by Local Health Network Region, 2018, mean and 95 per cent confidence intervals (Data source: South Australian Population Health Survey, 2018)**

The prevalence of the most common chronic conditions and the relationships between different diseases and risk factors results in people experiencing multiple chronic conditions (3, 19). It was previously noted that having diabetes increases the risk of a number of linked diseases, but people with asthma are also at higher risk of developing COPD, and cancer, COPD, diabetes, and cardiovascular disease have common risk factors that result in comorbidity (17, 19). Figure 14 presents the proportion of respondents who had at least three chronic conditions in 2018 (out of diabetes, asthma, cardiovascular disease, arthritis, osteoporosis, COPD, and cancer).

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*A total of 9.6 per cent of respondents in Southern Adelaide reported having three or more chronic conditions.*

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There are no significant differences in the reported rates by Local Health Network region in Figure 14.

The Adelaide PHN Local Health Matrix for Chronic Conditions ranked Population Health Areas (PHAs) within LGAs by prevalence relative to the Adelaide PHN average using data from 2011 to 2013 (29). PHAs within the LGAs of Holdfast Bay, Marion, Mitcham and Unley were ranked as very low prevalence for diabetes, circulatory system diseases, respiratory system diseases, asthma, COPD, musculoskeletal diseases and arthritis (29).

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*Most PHAs within the LGA of Onkaparinga were ranked as low prevalence but the PHA of Christie Downs/Hackham West – Huntfield Heights was ranked as high prevalence for COPD and had higher rankings for arthritis and diabetes compared to the other PHAs within the South of Adelaide (29). The PHA of Christies Beach/Lonsdale within Onkaparinga also had a higher ranking for arthritis compared to the other Southern Adelaide PHAs (29).*

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The discussion of non-communicable diseases highlights many chronic conditions that affect older age groups at higher rates, suggesting not only that older people are more likely to experience multiple chronic conditions but also that the ageing population and associated social determinants may increase the rate of comorbidity. The ageing of the baby boomer generation will be a major contributor to comorbidity given that baby boomers are eight times more likely to have three or more health problems compared with the previous generation (9). It is also evident that there is a gradient by socioeconomic status, income and/or education for all non-communicable diseases included in the epidemiological profile. Each of these diseases affects people living in disadvantaged circumstances at higher rates. As of mid-May, 2020 the SARS-CoV-2 virus appears to have been very successfully controlled through public health measures. However, if there is a resurgence of the virus then those with complex chronic conditions will be especially vulnerable to COVID-19.

## Mental Health

Mental illness is one of the most commonly reported chronic diseases in Australia and is most common among people aged under 45 (17). Mental illness is related to people's living conditions. Poverty, unemployment, reduced productivity, homelessness, and isolation are both causes and effects of mental

illness. Discrimination and stigma are often experienced by those living with a mental illness (19). We report on the following indicators of mental illness: current mental health condition, psychological distress, treatment for a mental health problem and suicidal ideation.

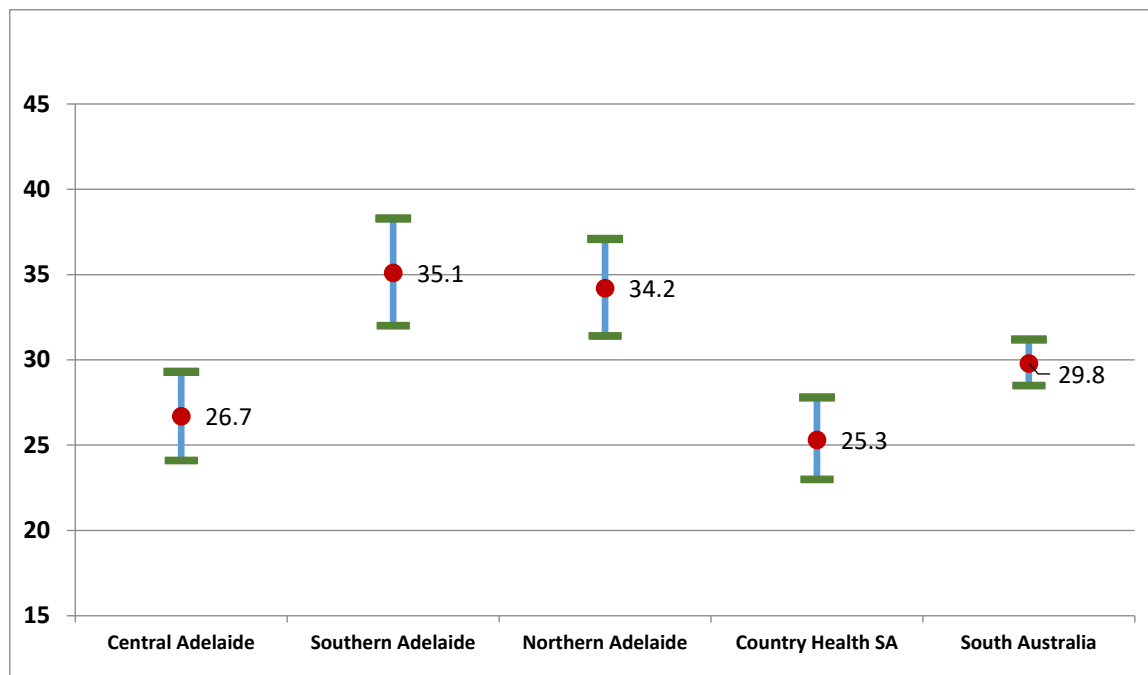
#### Currently Diagnosed Mental Health Condition

Respondents to both the SA Monitoring and Surveillance System and SA Population Health Survey are classified as having a mental health condition if they responded that they had been told by a doctor that they had anxiety, depression, stress or any other mental health condition in the past 12 months. The proportion of adult South Australians who reported having a mental health condition increased from less than 15 per cent in 2002 to 21 per cent in 2017 (26). Anxiety and depression were the most commonly reported mental health conditions (26).

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*A total of 35 per cent of respondents aged 16 and over reported having a currently diagnosed mental health condition in Southern Adelaide in 2018 (Figure 15)<sup>13</sup>. This rate is significantly higher than the proportion reporting having a mental health condition in Central Adelaide and Country SA. People with lower educational attainment and people on low incomes were more likely to report having a mental health condition (26).*

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**Figure 15: Proportion of Respondents (16 years and older) with a currently diagnosed mental health condition by Local Health Network Region, 2018, mean and 95 per cent confidence intervals (Data source: South Australian Population Health Survey, 2018)**

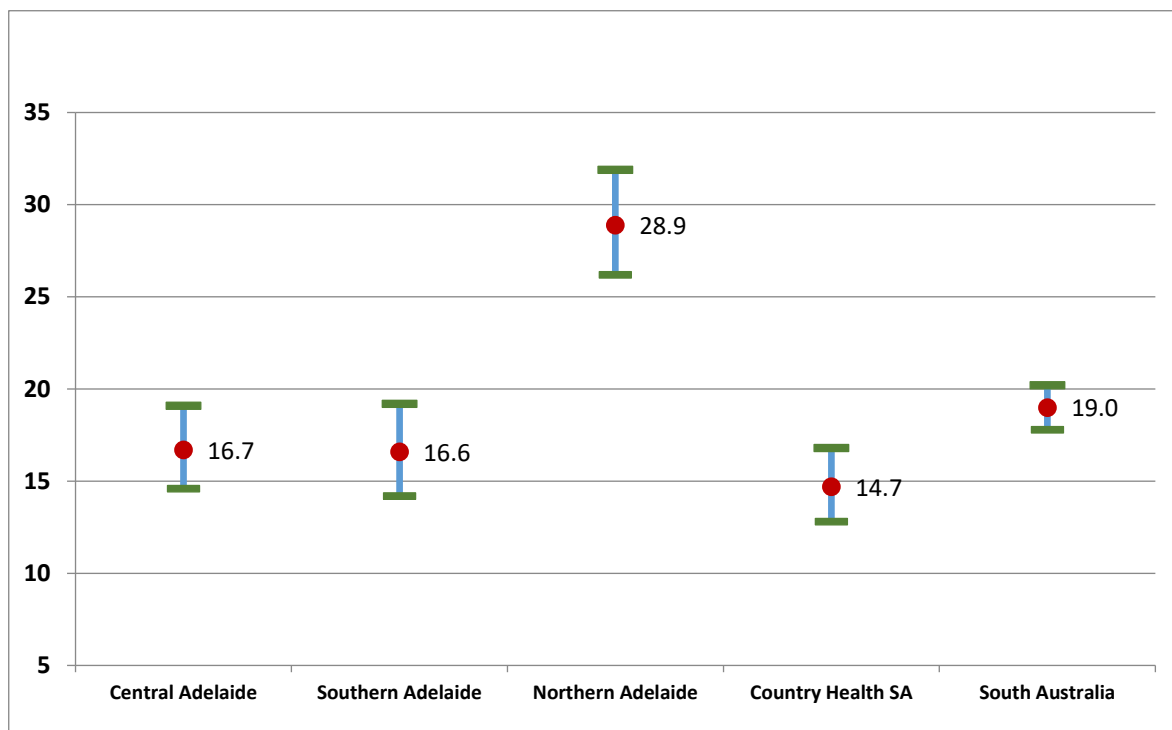
<sup>13</sup> Note that both the survey population and the sampling methodology differed between the SAMSS and SAPHS. SAMSS asked this question of respondents aged 18 and over, SAPHS included respondents aged 16 and over.

The 2014-15 National Health Survey included a module specifically dedicated to mental and behavioural conditions (1, 30). PHIDU used this NHS module to produce modelled estimates of age-standardised rates of mental and behavioural problems and mood (affective) problems by LGA. These estimates enable comparisons of prevalence of mental health conditions between the LGAs within Southern Adelaide. There were no significant differences between rates of mental and behavioural problems in the five Southern Adelaide LGAs (16). Rates of mood (affective) disorders also did not differ significantly between the five LGAs in the South (16).

### Psychological distress

Psychological distress was measured using the Kessler-10 scale in both the SAMSS and SAPHS whereby the question scores from 10 questions were summed to produce an overall score of psychological distress (26, 27). This score was then categorised into low, moderate, high or very high levels of psychological distress (26, 27). People living in lower socioeconomic areas, people with lower educational attainment and those with low income were more likely to report high or very high levels of psychological distress (26). The proportion of people residing in the Southern Adelaide Local Health Network region who reported high or very high psychological distress was comparable with the rates in Central Adelaide and Country SA (Figure 16). A significantly higher proportion of respondents had high or very high levels of psychological distress in Northern Adelaide.

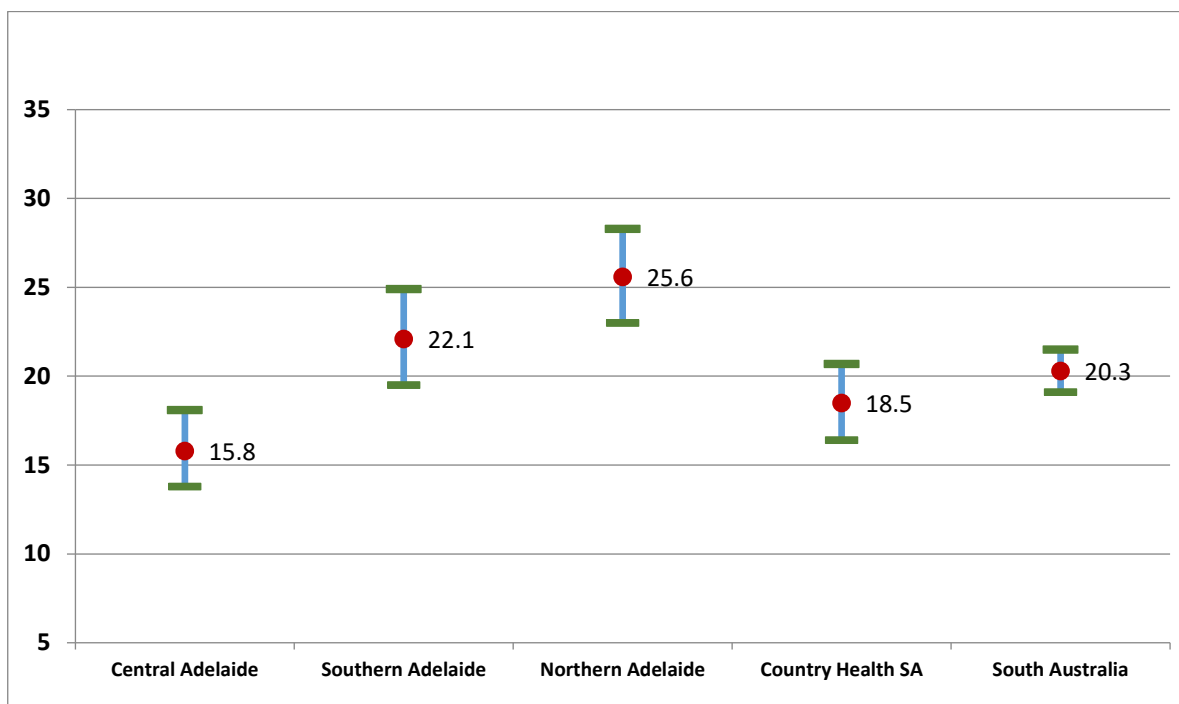
The Adelaide PHN Local Health Matrix for Chronic Conditions ranks the prevalence of mental and behavioural problems and high or very high psychological distress for PHAs within LGAs (29). PHAs within the LGAs of Holdfast Bay, Marion, Mitcham and Unley and most of the PHAs within Onkaparinga were all ranked as low prevalence relative to the Adelaide PHN average (29). The PHAs of Christie Downs/Hackham West – Huntfield Heights and Christies Beach/Lonsdale had higher rankings of prevalence compared with the other Southern Adelaide PHAs (29).



**Figure 16: Proportion of Respondents (18 years and older) with high/very high levels of psychological distress by Local Health Network Region, 2018, mean and 95 per cent confidence intervals (Data source: South Australian Population Health Survey, 2018)**

### Treatment for a mental health problem

The proportion of South Australian adults who reported receiving treatment for a mental illness increased between 2002 and 2017, corresponding with the rise in the proportion who reported having a mental health condition (26). People with a low household income were more likely to be currently receiving treatment for a mental health condition (26). Respondents to the SAPHS were asked if they were currently receiving treatment for any mental health concerns via medication, health professional (i.e. psychologist, psychiatrist, GP), counsellor, online/phone resources (self-help) or other options. Twenty-two per cent of respondents in Southern Adelaide reported receiving treatment for a mental health condition (Figure 17). This rate is significantly higher than that reported in Central Adelaide but is not significantly different to the rates in Northern Adelaide and Country SA.



**Figure 17: Proportion of Respondents (18 years and older) currently receiving treatment for mental health problems by Local Health Network Region, 2018, mean and 95 per cent confidence intervals**  
(Data source: South Australian Population Health Survey, 2018)

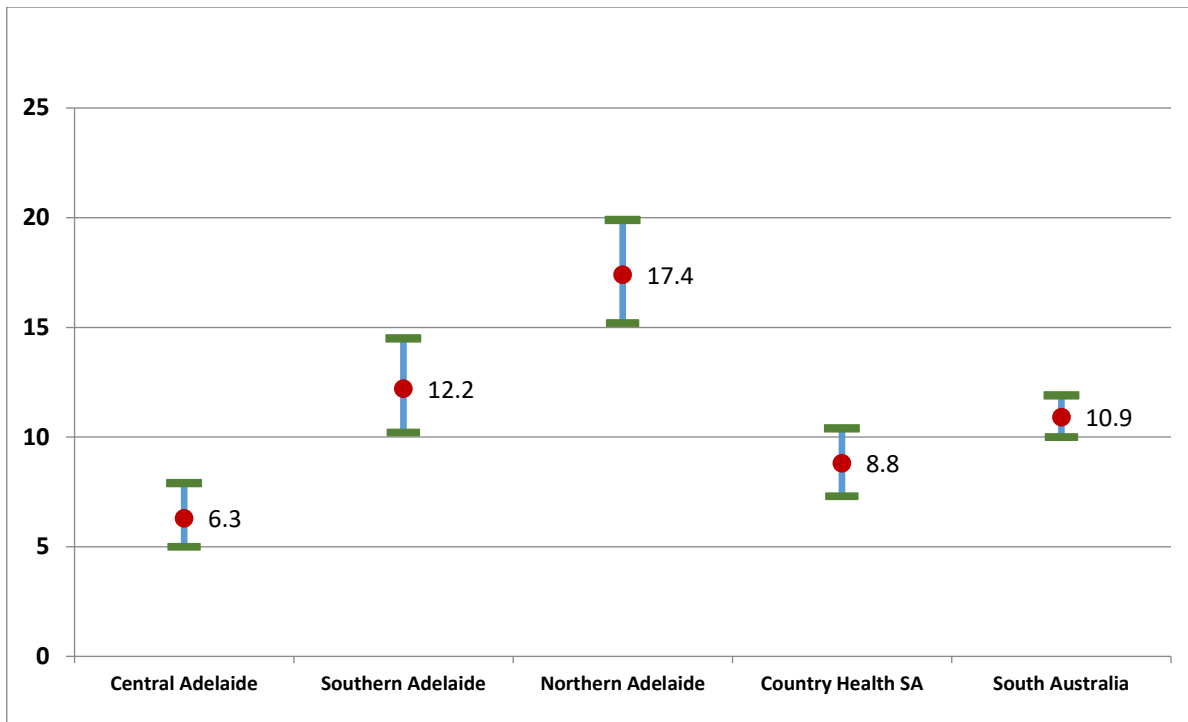
### Suicidal ideation

Suicidal ideation is defined as serious thoughts about ending one's own life (19). Reported rates of suicidal ideation in SAMSS were higher in younger age groups (18-29 years) and people with a household income of up to \$20,000 (26). The SAPHS asks respondents aged 18 years and over whether they had considered suicide in the past 12 months (27).

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*A total of 12.2 per cent of respondents in Southern Adelaide reported having suicidal ideation (Figure 18). This rate is higher than those reported in Central Adelaide and Country SA and is lower than the reported rate in Northern Adelaide.*

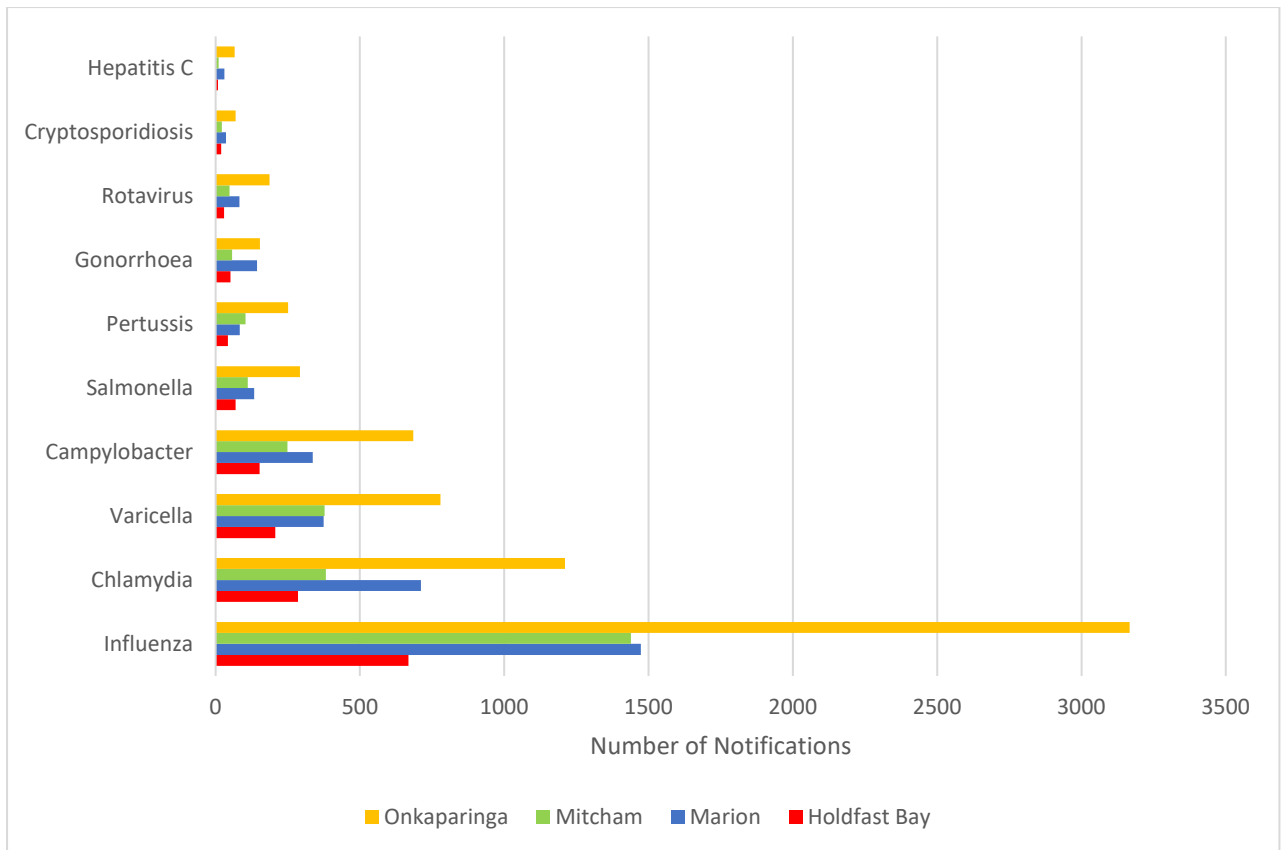
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**Figure 18: Proportion of Respondents (18 years and older) reporting suicidal ideation by Local Health Network Region, 2018, mean and 95 per cent confidence intervals** (Data source: South Australian Population Health Survey, 2018)

### Communicable Diseases

The South Australian Public Health Act 2011 requires medical practitioners and laboratories to notify the Communicable Disease Control Branch (CDCB) of each episode of infection of a notifiable communicable disease in South Australia. SA Health collects and analyses this surveillance information and routinely publishes reports and charts on notifiable conditions in South Australia. Data was sourced from the CDCB for four Southern Adelaide LGAs. The top 10 notifiable infectious diseases for the period including 2017 and 2018 are shown in Figure 19. There were 15,122 notifiable diseases recorded for these four LGAs over this period, 1,593 for Holdfast Bay, 3,558 for Marion, 2,885 for Mitcham and 7,086 for Onkaparinga (31). The number of notifiable diseases is higher for LGAs with larger populations, as would be expected. This report was completed in May 2020 when South Australia was responding with a series of public health measures to prevent the spread of the SARS-CoV-2 virus (32). This situation was very fluid at this stage and the pandemic is likely to affect the health of all South Australians. Those with chronic diseases in the south will be particularly vulnerable. The top 10 notifiable diseases made up 96.5 per cent of all notifications (31). Influenza was the most frequently reported notifiable disease, making up 44.6 per cent of notifications (31). There were some minor differences in the shares of the top 10 notifiable diseases between LGAs. Influenza represented a higher proportion of all notifications in Mitcham (50 per cent), and lower proportions in Holdfast Bay (42 per cent) and Marion (41 per cent). Mitcham also reported a lower proportion of notifications of Chlamydia (13 per cent) compared with Onkaparinga (17 per cent), Holdfast Bay (18 per cent) and Marion (20 per cent).



**Figure 19: Top 10 Notifiable Diseases, Southern Adelaide LGAs, 2017 and 2018** (Data source: Communicable Disease Control Branch)

### Risk Factors

Risk factors such as weight, smoking, diet, alcohol consumption, high blood pressure and cholesterol are shaped by social and economic environments and have been associated with a number of major chronic diseases. Many chronic diseases share common risk factors, and risk factors can be common to several chronic diseases which can increase the proportion of people with multiple chronic conditions (19).

### Cholesterol

High cholesterol is a risk factor for coronary heart disease and stroke (3). The proportion of South Australian adults who reported having high cholesterol increased between 2003 and 2017 (26). People living in lower socioeconomic areas, those with lower educational attainment, those with a lower household income and people in older age groups (50 to 69 and particularly 70 and over) reported higher rates of cholesterol (26). SAPHS respondents were asked if they had ever been told by a doctor or nurse that they had high cholesterol that wasn't temporary, or if they were currently taking medication to treat their high cholesterol (27).

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*A total of 23.6 per cent of respondents aged 16 years and over in Southern Adelaide reported having high cholesterol in 2018 (27). This proportion is not significantly different to the reported rates of high cholesterol in the other local health network regions in SA (27).*

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There was also no significant difference between the most recently available modelled estimates of rates of high cholesterol for the five Southern Adelaide LGAs (16). High cholesterol was ranked as low prevalence in all Southern Adelaide PHAs relative to the Adelaide PHN average (29).

### Hypertension

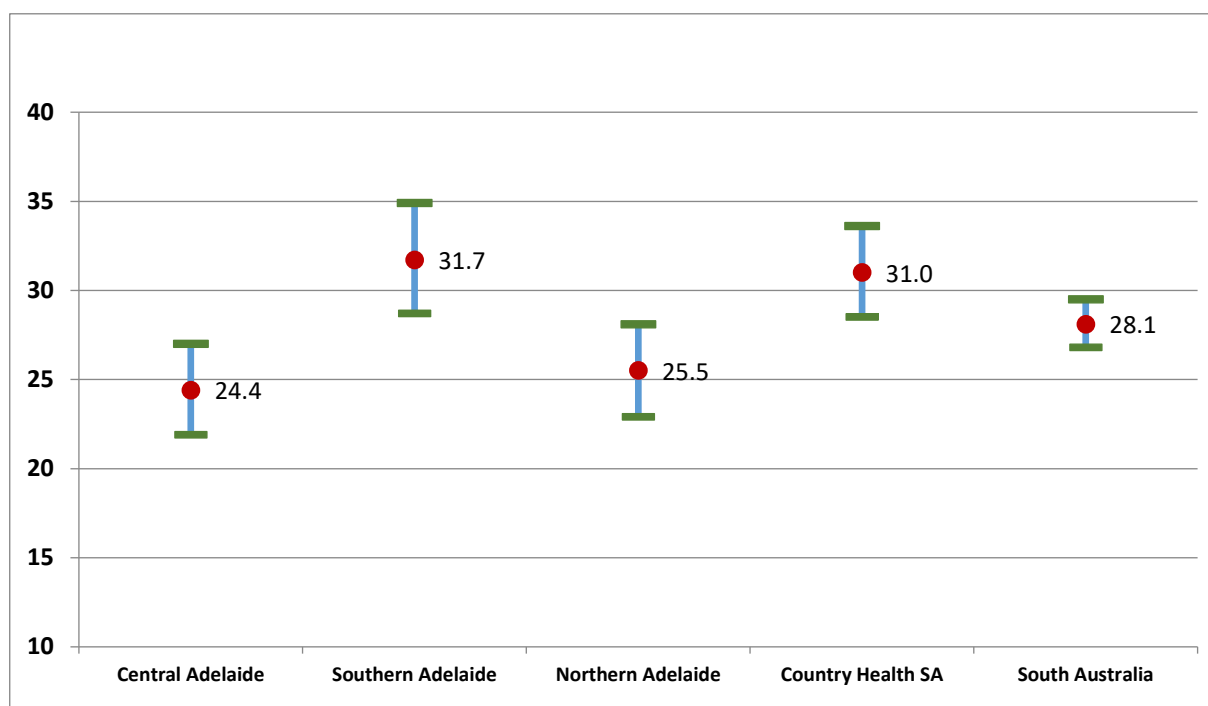
Hypertension –high blood pressure –is a major risk factor for coronary heart disease, heart failure, peripheral vascular disease, renal failure and stroke (2). The proportion of South Australian adults who reported having hypertension increased between 2003 and 2017 (26). People in older age groups, those living in lower socioeconomic areas, those with lower educational attainment and those with lower household incomes reported higher rates of hypertension, as was the case with high cholesterol (26).

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*More than three quarters of respondents had their blood pressure measured in the past year in 2017 (26). Almost 32 per cent of respondents aged 16 years and over in Southern Adelaide reported having hypertension in 2018 (Figure 20). This was significantly higher than the reported rates of hypertension in Central Adelaide and Northern Adelaide.*

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There was no significant difference between the 2014-15 modelled estimates of rates of hypertension for the five LGAs in the South of Adelaide (16). Hypertension was ranked as low prevalence for all PHAs within the Southern Adelaide LGAs (29).



**Figure 20: Proportion of Respondents (16 years and older) reporting hypertension by Local Health Network Region, 2018, mean and 95 per cent confidence intervals (Data source: South Australian Population Health Survey, 2018)**

## Overweight and obesity

Overweight and obesity is a leading contributor to disease, increasing the risk of cardiovascular disease, type 2 diabetes and some cancers (19). Respondents to both the SAMSS and SAPHS self-reported their height and weight, from which their BMI was calculated and converted into four categories according to the World Health Organisation classifications: underweight, normal weight, overweight and obese (26, 27). Unhealthy weight is defined as overweight or obese, measured as BMI greater or equal to 25. The proportion of adults with unhealthy weight increased between 2002 and 2017 (26).

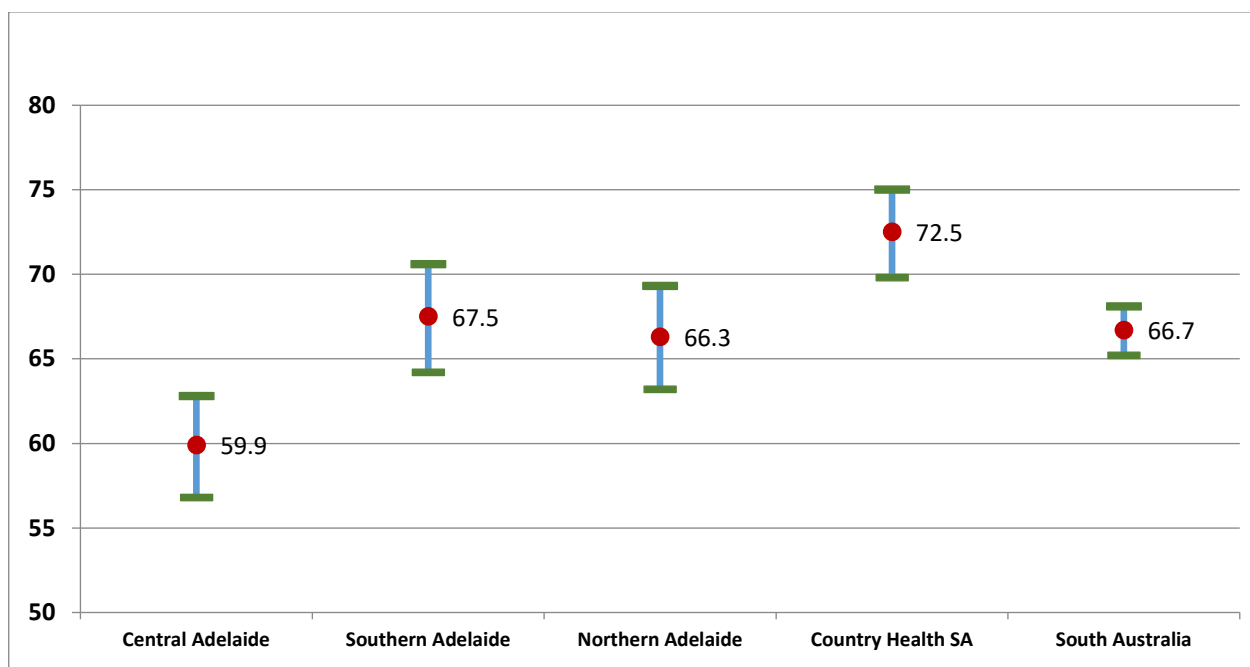
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*More than two thirds of adult respondents were overweight or obese in Southern Adelaide in 2018 (Figure 21).*

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This proportion was significantly higher than the rate in Central Adelaide but not significantly different to the rates in Northern Adelaide and Country SA.

Modelled estimates of the age-standardised rate of obesity in the five LGAs suggest that the rate of obesity is significantly lower in Unley and is significantly higher in Onkaparinga compared with the other Southern Adelaide LGAs (Figure A1 in Appendix 1). The Adelaide PHN Local Health network risk factor matrix ranks Population Health areas (PHAs) within LGAs by prevalence of risk factors using data from 2011 to 2013 (33). PHAs within Unley, Holdfast Bay, Marion and Mitcham ranked the prevalence of overweight and obesity as low prevalence relative to the Adelaide PHN average (33). The PHAs of Aldinga and Christie Downs/Hackham West – Huntfield Heights within the LGA of Onkaparinga were ranked as of higher prevalence for obesity compared with all other Southern Adelaide PHAs (33).

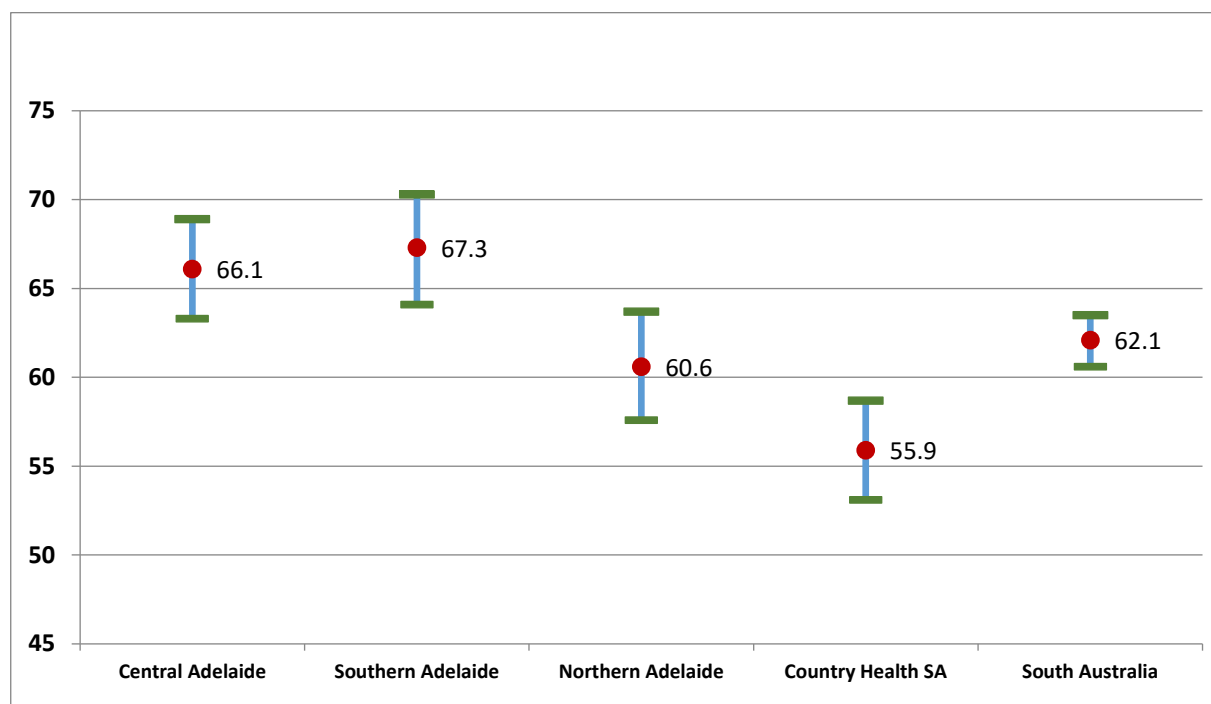


**Figure 21: Proportion of Respondents (18 years and older) with unhealthy weight by Local Health Network Region, 2018, mean and 95 per cent confidence intervals (Data source: South Australian Population Health Survey, 2018)**

## Physical activity

Insufficient physical activity increases the risk of overweight and obesity and has been linked to seven diseases – coronary heart disease, diabetes, bowel cancer, dementia, stroke, breast cancer and uterine cancer (19). Adults aged 18 to 64 are recommended to accumulate 150 to 300 minutes of moderate intensity physical activity or 75 to 150 minutes of vigorous intense physical activity (or an equivalent combination of both activities) per week according to Australia’s Physical Activity and Sedentary Behaviour guidelines (26). SAMSS and SAPHS both asked respondents a series of questions to determine the proportion who engaged in at least 150 minutes of moderate intensity physical activity each week (26, 27). The proportion of people who reported no physical activity and those who reported some activity (1 to 149 minutes) were also estimated (26, 27).

The 2018 SAPHS survey found that more than two thirds of adult respondents in Southern Adelaide engaged in at least 150 minutes of moderate intensity physical activity per week (Figure 22). This was higher than the reported rates in Northern Adelaide and Country SA and comparable with the rate in Central Adelaide. The 2017 SAMSS reported that younger respondents, people living in higher socioeconomic areas, those with higher educational attainment and those with higher household incomes were more likely to engage in the recommended amount of physical activity (26). Almost 20 per cent of adult respondents in Southern Adelaide reported some activity (1 to 149 minutes per week) and 13.2 per cent reported no physical activity at all in 2018 (27). Modelled estimates of the age-standardised rate of adults who undertook no or low exercise in the previous week in 2014-15 by LGA suggest that there was a significantly lower rate of sufficient physical activity in Onkaparinga compared with Unley (the LGA with the lowest rate) (16).



**Figure 22: Proportion of Respondents (18 years and older) reporting 150+ minutes of physical activity per week by Local Health Network Region, 2018, mean and 95 per cent confidence intervals (Data source: South Australian Population Health Survey, 2018)**

## Walking time

A lack of access to safe open space can be associated with low levels of physical activity, and less walking time, which can be linked with overweight, diabetes, cardiovascular disease and poor mental health (3).

The walking patterns of South Australians have been monitored as an indicator of physical activity in SAMSS and SAPHS (26, 27). The characteristics of South Australian adults who were more likely to report walking 150 minutes or more per week in 2017 mirror those who were more likely to report engaging in at least 150 minutes of moderate physical activity per week (26). They were in younger age groups, those who were living in higher socioeconomic areas, those with higher educational attainment and people with higher household incomes (26). Almost 50 per cent of adults living in Southern Adelaide reported walking at least 150 minutes per week in 2018 (27). This rate was significantly higher than the reported rates in Northern Adelaide and Country SA but not significantly different to the rate in Central Adelaide (27). Thirty-six per cent of adults in Southern Adelaide reported some walking (1 to 149 minutes per week) and 14.4 per cent reported no time spent walking at all in 2018 (27).

### Fruit and vegetable consumption

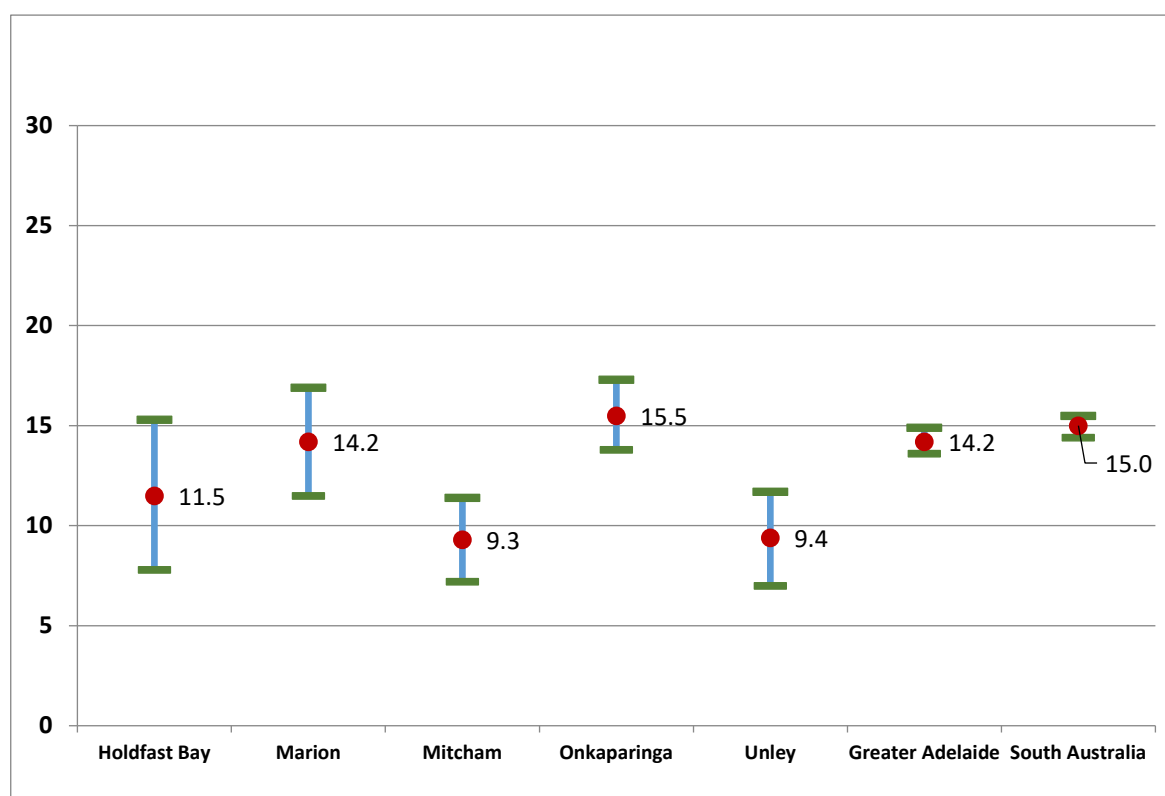
A healthy diet can help to prevent and manage other risk factors for disease including obesity, high blood pressure and high cholesterol (19). It can also prevent and manage chronic conditions including type 2 diabetes, cardiovascular disease and some forms of cancer (19). SAMSS and SAPHS both asked respondents how many serves of fruit and vegetables they usually eat each day. Responses were categorised into whether respondents consumed the recommended number of serves as indicated by the Australian Dietary Guidelines or whether they consumed less (26).

The 2017 SAMSS reported that women, adults living in higher socioeconomic areas, those with higher educational attainment and people living in metropolitan areas were more likely to meet the recommended serves of fruit per day (26). Women and adults in older age groups (aged 50 and over) were more likely to consume the recommended serves of vegetables per day (26). Only 7.4 per cent of respondents aged 1 year and over in Southern Adelaide reported consuming the recommended serves of vegetables per day in 2018 (27). This was not significantly different to the rates in the other Local Health Network regions in South Australia (27). A much higher 46 per cent of respondents in Southern Adelaide reported that they consumed the recommended serves of fruit per day in 2018 (27). There were no significant differences between the rates of fruit consumption in the Local Health Network regions in South Australia (27). The most recently available modelled estimates of the age standardised rate of adequate fruit intake for adults by LGA suggests that there were also no significant differences between the rates in the five LGAs in the South of Adelaide (16).

### Smoking

Smoking continues to be the single biggest risk factor causing disease burden in Australia, increasing the risk of cancer, respiratory diseases and cardiovascular diseases (19). Smoking is also a key risk factor for disease that contributes to socioeconomic inequalities in health (19). Modelled estimates of the age-standardised rates of adults who were current smokers in 2014-15 suggest that the smoking rates in Unley and Mitcham were significantly lower than the rate in Onkaparinga and the rates for Greater Adelaide and South Australia (Figure 23). There were no significant differences between the smoking rates in Holdfast Bay, Marion and Onkaparinga, and the smoking rates in these three LGAs did not differ significantly from the rates for Greater Adelaide and South Australia.

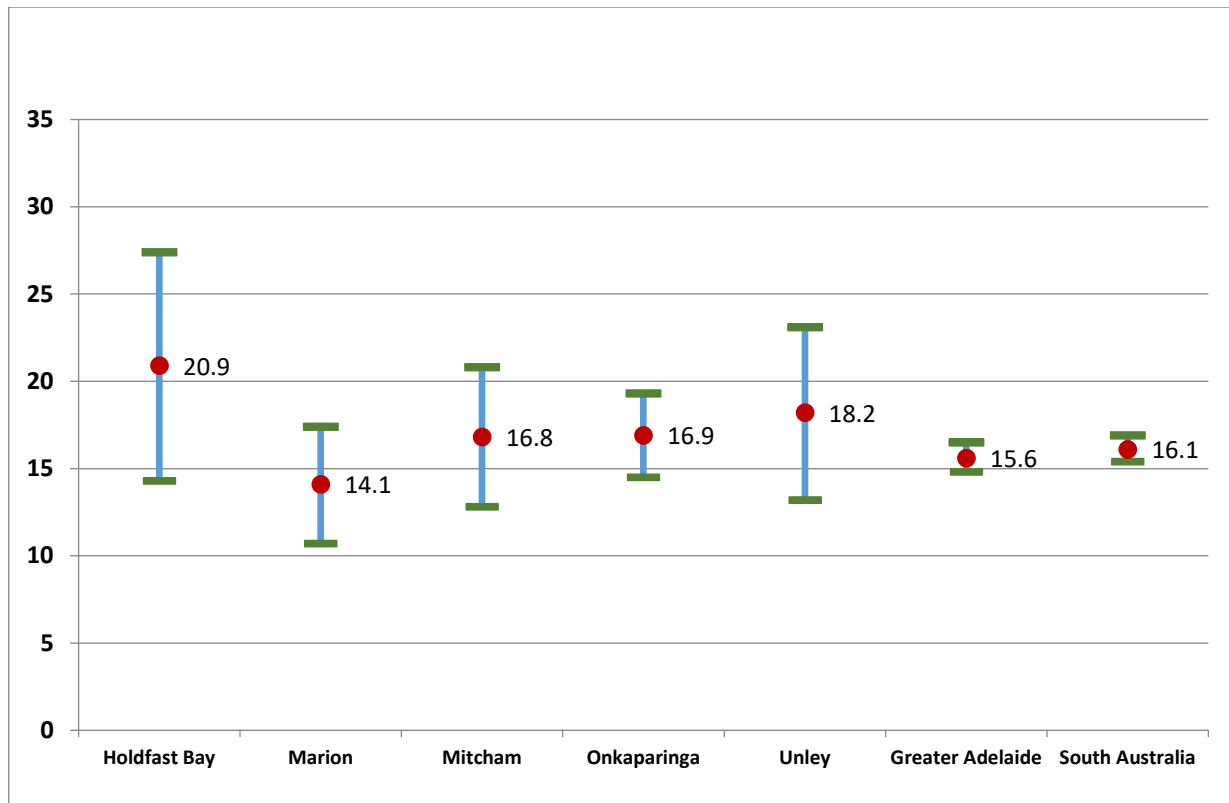
*PHAs within Unley, Holdfast Bay, Marion and Mitcham ranked current smokers as very low prevalence relative to the Adelaide PHN average, but the PHAs of Christie Downs/Hackham West – Huntfield Heights and Christies Beach/Lonsdale within the LGA of Onkaparinga were ranked as high prevalence for this risk factor (33).*



**Figure 23: Age-Standardised Rates per 100 of People aged 18 years and over who were Current Smokers, Modelled Estimates, 2014-2015, mean and 95 per cent confidence intervals** (Data source: Social Health Atlas, PHIDU, 2019)

#### Harmful use of alcohol

Diseases or injuries linked to alcohol use include chronic health conditions such as cardiovascular diseases, cancers, injuries (including suicide, self-inflicted injuries and road traffic injuries), alcohol dependence, chronic liver disease, epilepsy, respiratory diseases and pancreatitis as well as broader societal and economic impacts – antisocial behaviour, crime, productivity losses and health care and law enforcement costs (19). Modelled estimates of the age-standardised rates of people aged 15 years and over who consumed more than two standard drinks per day on average suggest that there were no significant differences in the estimated rates for the 5 LGAs in the South of Adelaide in 2014-15 (Figure 24). Holdfast Bay had the highest rate (almost 21 per cent) and Marion the lowest (14 per cent), but the rates by LGA are comparable with the average rates for Greater Adelaide and South Australia.



**Figure 24: Age-Standardised Rates per 100 of People aged 15 years and over who consumed more than two standard drinks per day on average, Modelled Estimates, 2014-2015, mean and 95 per cent confidence intervals (Data source: Social Health Atlas, PHIDU, 2019)**

PHAs within the 5 Southern Adelaide LGAs all ranked harmful use of alcohol as of low prevalence relative to the Adelaide PHN average (33). The average rankings and estimated prevalence in areas can mask differences in consumption that are affected by the circumstances of individuals. A social gradient in alcohol consumption has been observed whereby people living in the most disadvantaged areas have higher rates of alcohol consumption compared with people living in the least disadvantaged areas (34). Analysis of data from the National Health Survey has found that lower education, unemployment and lower skilled employment were associated with higher daily levels of alcohol consumption (34).

People’s choices reflect the environments they live in.

## Social Determinants of Health Profile

The social determinants of health (SDH) are the driving causes of health inequities –unfair and avoidable differences in health outcomes within and between regions, states and countries (35). The indicators presented in the profile of SDH are primarily those which fall within key SDHs: income, housing, education and employment. There is overlap between indicators included in the demographic profile and those included in the profile of SDH. The analysis and discussion of SDH in this section highlights and discusses these linkages and interdependencies.

### Key findings: Social Determinants of Health

- Financial stress from mortgage and rent affected 25 per cent of low income households in Mitcham in 2016, 28 per cent in Holdfast Bay and 29 per cent in Onkaparinga, Marion and Unley. The impact of financial stress on low income households is higher in Marion and Onkaparinga where there are much higher shares of low income households.
- There was a 25 per cent reduction in the social housing stock in South Australia between 1992 and 2015. This reduction also occurred in Southern Adelaide, resulting in 1,669 fewer households in social housing between 2001 and 2016. Provision of social housing is targeted towards people living in the most disadvantaged households. This change has exacerbated financial stress from housing costs for those on low incomes.
- Unemployment in 2016 is lower in Mitcham, Holdfast Bay and Unley than in Marion and Onkaparinga. The majority of people receiving an unemployment benefit are long-term unemployed. Labour force participation rates in Southern Adelaide LGAs in 2016 are lower than average labour force participation for Australia, consistent with the lower labour force participation rates in South Australia.
- Holdfast Bay, Mitcham and Unley have much lower proportions of people who left school at year 10 or below compared with the average for Greater Adelaide.
- Mitcham, Unley and Marion all have above average school leaver participation and attainment in higher education. In Onkaparinga, more people leave school before year 10, and fewer people participate in higher education. However, this is partially offset by a much higher share of the population holding a vocational qualification in Onkaparinga.

### Income and Housing Costs

The statistics on income in the demographic profile indicated that median Incomes in Mitcham, Holdfast Bay and Unley are higher than the median for Greater Adelaide, but this is offset by higher housing costs (4). Onkaparinga has relatively lower median income but also has lower housing costs (4). An examination of median incomes reveals the middle of the income distribution of an area, but it is the people at the lower end of the distribution who experience the worst outcomes.

**Table 14: Low Income Households and Low Income Households under Financial Stress from Mortgage or Rent, Per cent, 2016** (Data source: Social Health Atlas, PHIDU, 2019)

	Low Income Households	Financial Stress from Mortgage or Rent
Holdfast Bay	30.4	27.9
Marion	37.8	29.1
Mitcham	29.2	24.5
Onkaparinga	40.5	28.8
Unley	27.9	29.4
Australia	40.5	28.4
SA	41.8	26.9

Note: Low income households are defined as households in the bottom 40 per cent of the income distribution.

Table 14 presents the percentage of low-income households in the five Southern Adelaide LGAs. There is a lower but still substantial share of low incomes households in Unley, Mitcham and Holdfast Bay compared with Onkaparinga and Marion. Low income households made up almost 28 per cent of households in Unley in 2016 and approximately 30 per cent of all households in Mitcham and Holdfast Bay compared with almost 38 per cent in Marion and 40 per cent in Onkaparinga (equal with the 40 per cent of low income households in Greater Adelaide). The LGAs with a lower average incidence of socioeconomic disadvantage have lower shares of low-income households.

The unequal distribution of resources in Southern Adelaide is most clearly illustrated by the degree of financial stress from mortgage and rent amongst low income households. Financial stress from mortgage and rent affected 25 per cent of low-income households in Mitcham in 2016, 28 per cent in Holdfast Bay and 29 per cent of low-income households in Onkaparinga, Marion and Unley (comparable with 29 per cent in Greater Adelaide). These percentages represent a higher number of people experiencing financial stress from housing costs in the LGAs where there are higher shares of low-income households, particularly Marion and Onkaparinga.

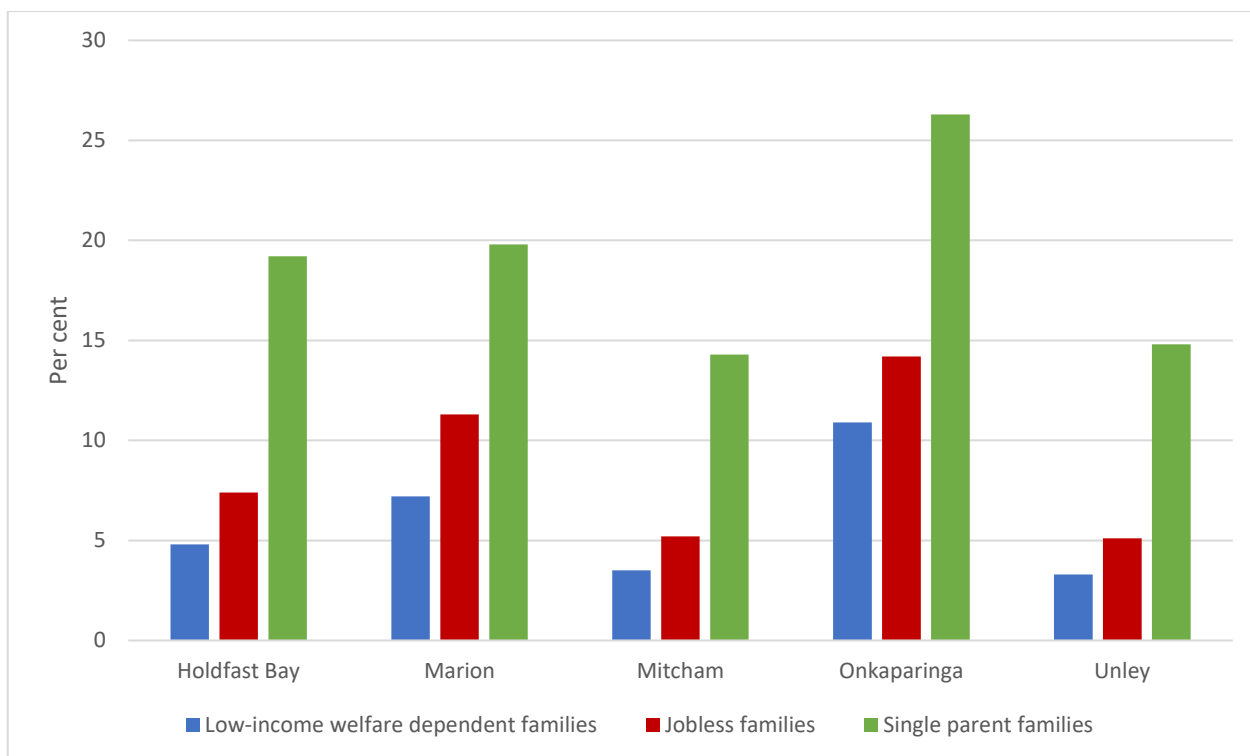
#### Groups Living in Disadvantaged Circumstances

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*Sole-parent households, low-income households who are welfare dependent and jobless families are all at higher risk of poverty (36, 37). The poverty rates for these groups are also a major contributor to child poverty (36, 37). Onkaparinga has the highest share of all three groups of families living in these disadvantaged circumstances (Figure 25). Marion has the next highest rates while Mitcham and Unley have the lowest shares. This distribution corresponds with the distribution of low-income households across the five LGAs that was observed in Table 14. The inequality ratios for all three of these groups have increased in South Australia compared to 2001, indicating a steeper social gradient and worsening area disadvantage for these groups (15).*

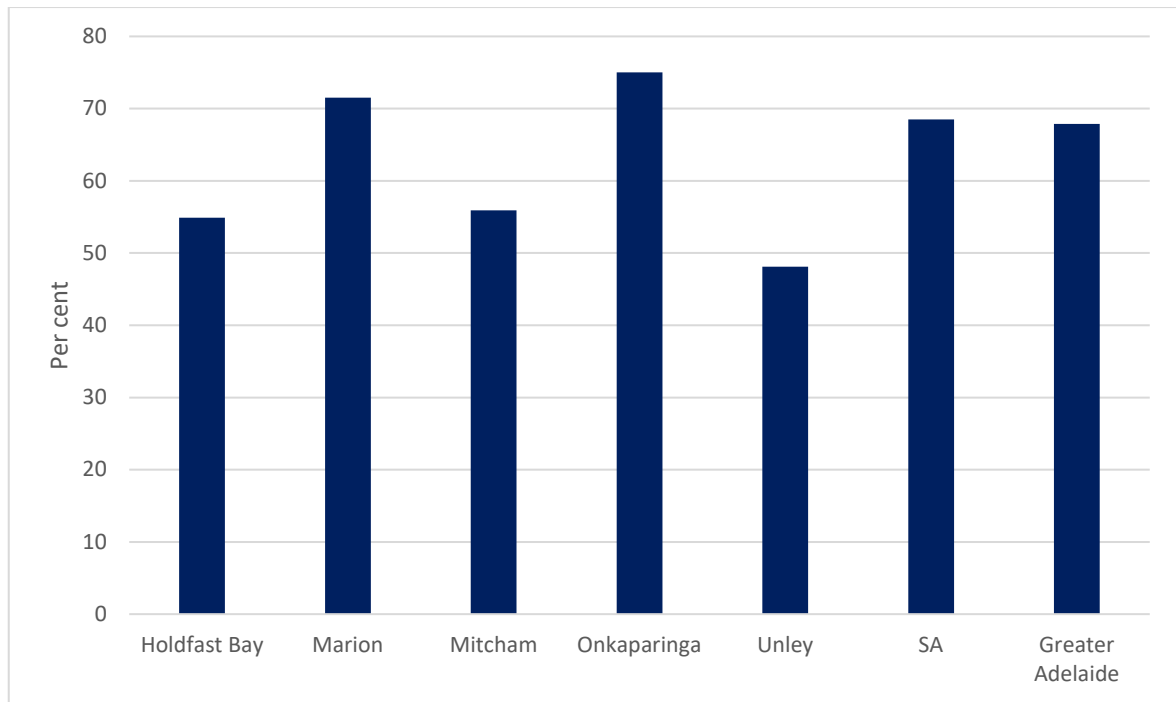
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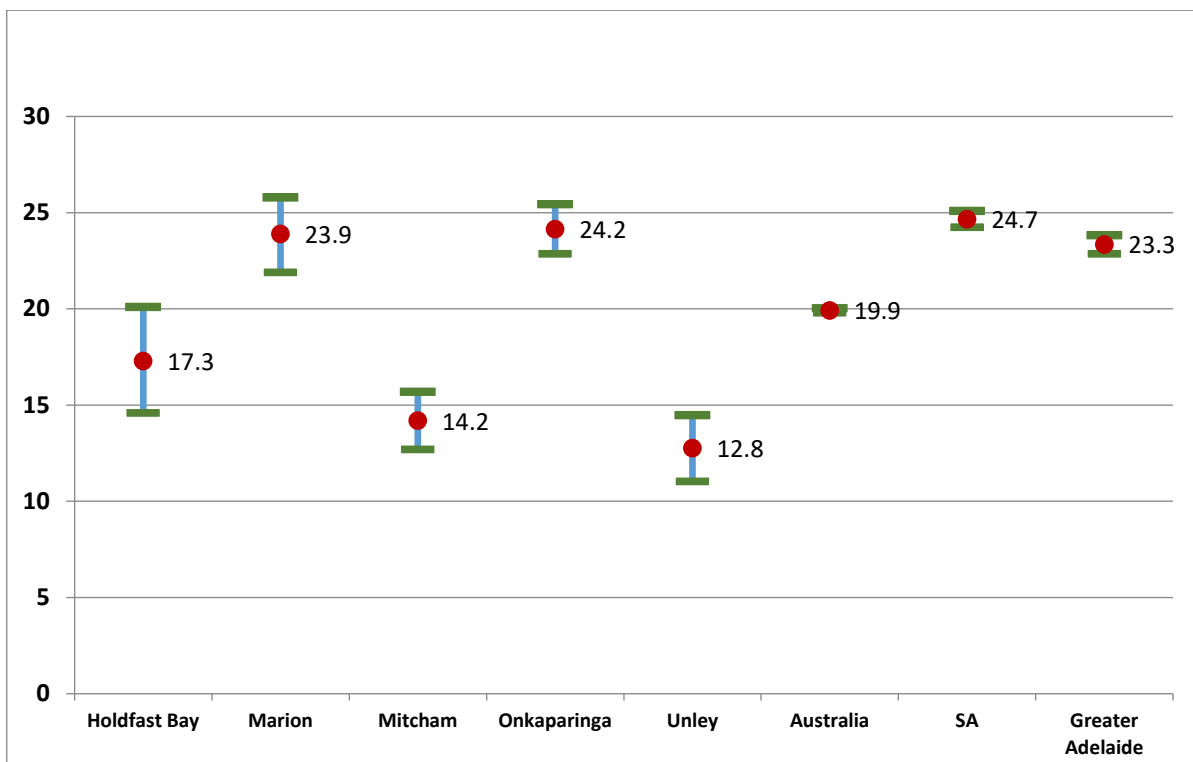


**Figure 25: Low-income, welfare dependent families with children aged under 15 (2017), jobless families with children aged under 15 (2016) and single parent families with children aged under 15 (2017), per cent (Data source: Social Health Atlas, PHIDU, 2019)**

The prevalence of age pensioners amongst people aged over 65 in the five LGAs follows a similar distribution to that of the groups analysed in Figure 25. Onkaparinga had the highest percentage of age pensioners in 2017, followed by Marion (Figure 26). Unley has the lowest percentage of age pensioners. Retiring baby boomers have been noted to have the highest wealth of all generations and the fastest growing wealth (9) but inequities within the group explain the higher shares of age pensioners in areas with higher average incidence of socioeconomic disadvantage. A much higher number of baby boomers are retiring with mortgage debt or will be renting due to the lower rates of home ownership of baby boomers compared to the previous generation (9). Baby boomer renters are also significantly more likely to be in the lowest income quintiles, increasing the risk of financial stress for this group who also have a much higher risk of chronic disease (9).



**Figure 26: Percentage of people aged over 65 who were Age pensioners, 2017** (Data source: Social Health Atlas, PHIDU, 2019)



**Figure 27: Modelled estimates of the number of people aged 18 years and over who had government support as their main source of income, for 13 months or more, within the past 24 months, ASR per 100, 2014** (Data source: Social Health Atlas, PHIDU, 2019)

People who rely on government support as their main source of income represent a large proportion of people experiencing poverty (37). Figure 27 presents modelled estimates of the age standardised rate of adults in 2014 who had government support as their main source of income for 13 months or more

within the previous two years. Onkaparinga and Marion had significantly higher rates of adults who relied on government support compared with the other Southern Adelaide LGAs and the Australian average. Mitcham and Unley had the lowest rates, significantly lower than the Australian average.

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*Marion and Onkaparinga were identified as LGAs with a very high prevalence of disability support pensioners in 2013 (38). Onkaparinga was also identified as having a very high prevalence of female sole parent pensioners in 2012, and a high prevalence of people receiving an unemployment benefit long term and of young people receiving an unemployment benefit in 2013 (38).*

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The groups living in disadvantaged circumstances discussed within this section are represented within the rates of people reliant on government support as their main source of income therefore this geographical distribution is not surprising. The very low level of Newstart allowance that is received by many sole parents and by the unemployed is well below the poverty rate. This contributes to financial stress from housing costs in LGAs that have a higher average incidence of socioeconomic disadvantage and higher shares of low income households, particularly given the reduction in the provision of social housing.

#### Food security

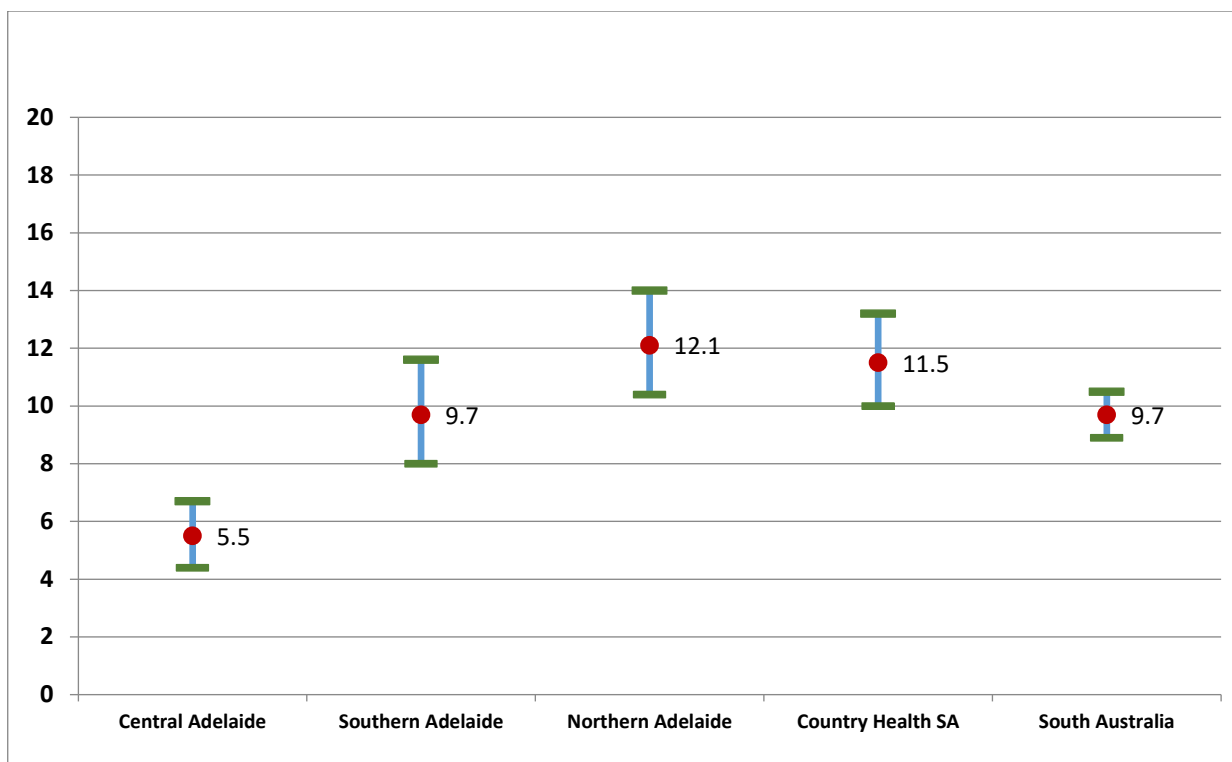
Food insecurity is closely related to poverty, and low income families and individuals are the most prevalent groups seeking food relief (39). SAMSS and SAPHS respondents were asked if there had been any time in the past 12 months that they had run out of food and couldn't afford to buy more (26, 27).

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*Females, people with low educational attainment and those with the lowest income were more likely to report food insecurity in 2017 (26). Almost 10 per cent of respondents in Southern Adelaide reported food insecurity in 2018 (Figure 28).*

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This proportion was significantly higher than the rate in Central Adelaide but was not significantly different to the rates in Northern Adelaide and Country SA.



**Figure 28: Proportion of Respondents (all ages) who had run out of food and could not afford to buy more in the last 12 months by Local Health Network Region, 2018** (Data source: South Australian Population Health Survey, 2018)

#### Public and Social Housing

Table 15 presents the number of dwellings rented from the SA Housing Authority in each census from 1991 to 2016 for the five LGAs. The sharp decrease in public housing is evident in all Southern Adelaide LGAs, but it is the most striking in Marion which had by far the largest number of public housing dwellings and has experienced a very large decline of 1,669 dwellings in the 25 year period between 1991 and 2016. Onkaparinga also experienced a loss of more than 1,000 public housing dwellings. In total, there was a loss of 3,156 public housing dwellings across the five LGAs over this period.

The decline in public housing has been partially offset by an increase in non-government social housing over the same period, but the overall decrease in social housing is still substantial. The social housing stock in South Australia decreased from 64,491 dwellings in 1992 to an estimated 48,289 in 2015 (40, 41). This represents a 25 per cent reduction in the social housing stock.

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*The reduction in social housing in the five LGAs in Southern Adelaide resulted in 1,669 fewer households in social housing between 2001 and 2016 (5). The largest reductions in social housing occurred in Marion and Onkaparinga, the LGAs with the highest shares of social housing in the South. The percentage of households renting social housing in Southern Adelaide decreased from 6.8 per cent of all households in 2001 to 5.0 per cent in 2016 (5).*

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**Table 15: Count of Occupied Dwellings Rented from the State Housing Authority, 1991 to 2016** (Data source: Census of Population and Housing, Time Series Profile)

LGA	1991	1996	2001	2006	2011	2016
Mitcham	372	369	311	280	265	203
Holdfast Bay	402	385	367	348	298	240
Unley	466	467	397	423	393	344
Onkaparinga	3,793	3,871	3,450	3,271	3,145	2,759
Marion	4,442	4,402	3,866	3,402	3,212	2,773
Total	9,475	9,494	8,391	7,724	7,313	6,319

Provision of social housing is targeted towards people living in the most disadvantaged circumstances. Analysis of the change in the percentage of dwellings rented from the SA Housing Authority by quintile of socioeconomic disadvantage revealed that there was a steep fall in the percentage of people in the most disadvantaged quintile renting public housing between 1986 and 2016 (15). The most disadvantaged quintile is increasingly composed of high percentages of sole parents, people on unemployment benefits, disability support pensioners and low income, welfare dependent families (15). The reduction in public housing has pushed these displaced households into the private rental market, at a time when rents have increased sharply (15).

#### Labour force participation and Unemployment

The higher rate of receipt of government support in South Australia is partially due to an older population but is also related to labour force participation rates. South Australia has lower labour force participation and higher unemployment compared to the Australian average, which contributes to the lower average incomes in South Australia (15). Labour force participation rates in Southern Adelaide LGAs in 2016 were lower than average labour force participation for Australia, consistent with the lower labour force participation rates in South Australia (Table 16). Unley was the one exception, with a higher labour force participation rate than both the South Australian and Australian average. Labour force participation rates in Mitcham, Onkaparinga and Unley were higher than the average for Greater Adelaide. The ageing of the population will have an additional impact beyond any effect on labour force participation. The rise in the proportion of older people will worsen the ratio between the working and non-working population (9).

Unemployment was previously discussed in the demographic profile. Statistics on unemployment are revisited here, to examine not just geographical distribution of unemployment in the South but also the receipt of government benefits for unemployment and inequitable circumstances experienced by the unemployed. Table 16 presents estimates of unemployment sourced from PHIDU which had access to a range of data<sup>14</sup>.

**Table 16: Labour force participation and unemployment, June 2016, per cent** (Data source: Social Health Atlas, PHIDU, 2019)

	Labour force participation rate	Unemployment rate
Holdfast Bay	60.9	4.1
Marion	62.0	6.8
Mitcham	63.1	3.6
Onkaparinga	63.4	8.9
Unley	67.6	5.0
Australia	65.3	5.9
SA	62.2	7.2
Greater Adelaide	62.8	7.4

<sup>14</sup> See technical notes in Appendix 2 for further information on PHIDU estimates of unemployment rates.

**Table 17: People receiving an unemployment benefit, people receiving an unemployment benefit long-term and young people who received an unemployment benefit, June 2017, per cent** (Data source: Social Health Atlas, PHIDU, 2019)

	Received unemployment benefit	Received unemployment benefit long term	Young people who received u/e benefit
Holdfast Bay	3.9	3.2	2.0
Marion	5.6	4.8	3.2
Mitcham	3.2	2.7	1.3
Onkaparinga	7.5	6.5	5.2
Unley	2.6	2.3	1.1
Australia	5.2	4.3	3.4
SA	6.8	5.8	4.2
Greater Adelaide	6.3	5.4	3.8

The distribution of unemployment in Southern Adelaide in the PHIDU estimates in Table 16 corresponds with the findings from Census data. Unemployment in 2016 was lower in Mitcham, Holdfast Bay and Unley than in Marion, Onkaparinga and the average for Greater Adelaide.

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*The inequality ratio of unemployment increased in South Australia between 1986 and 2016 as changes in the nature of employment disadvantaged job seekers living in areas with higher socioeconomic disadvantage (15). Marion and Onkaparinga are LGAs with higher average socioeconomic disadvantage within Southern Adelaide which partially explains their higher rates of unemployment.*

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The percentage of people who received an unemployment benefit in 2017 was slightly lower than the 2016 unemployment rates in each LGA and for Greater Adelaide, South Australia and Australia (Table 17). The rates of young people who received an unemployment benefit were much lower than the unemployment rate for young people in South Australia, which was estimated to be 14.2 per cent in 2017 (42). PHIDU separates the number of people who received an unemployment benefit into short term and long-term recipients. The percentage of people receiving an unemployment benefit short term is very small. The majority of people receiving an unemployment benefit are long-term unemployed. This follows the trend in Greater Adelaide, South Australia and Australia as a whole.

#### Education

The IEO scores and rankings and discussion of educational attainment in the demographic profile suggested that the Southern Adelaide is an area with relatively high educational attainment. Figures on the proportion of people who left school at year 10 or below also support this. Marion, Holdfast Bay, Mitcham and Unley have lower proportions of people who left school at year 10 or below compared with the average for Greater Adelaide (Table 18). The figures for Unley, Mitcham and Holdfast Bay are markedly lower than for Marion and Onkaparinga. Although the proportion of people who left school at year 10 or below in Onkaparinga is higher than the average for Greater Adelaide, it is lower than the Australian average.

**Table 18: People who left school at year 10 or below or did not go to school and participation in vocational education and training, Age-standardised rates per 100** (Data source: Social Health Atlas, PHIDU, 2019)

	Left school at year 10 or below or did not go to school, 2016	Participation in vocational education and training, 2017
Holdfast Bay	18.8	18.0
Marion	23.5	16.5
Mitcham	16.6	14.7
Onkaparinga	27.3	17.7
Unley	14.5	13.4
Australia	30.4	20.2
SA	26.4	18.0
Greater Adelaide	24.8	17.0

PHIDU provides information on participation in vocational and tertiary education which can indicate whether the educational attainment of the population is increasing in an area relative to other areas. Participation in vocational education and training was significantly lower in all five LGAs in 2017 compared with the Australian average (Table 18). This corresponds with the lower participation in vocational education and training in Greater Adelaide and South Australia compared with the Australian average.

The lower rates of participation in VET could indicate a future decrease over time in attainment of VET qualifications in Southern Adelaide LGAs compared to South Australia, however statistics by quintile of socioeconomic disadvantage suggest that VET is a pathway to post school qualifications for people living in more disadvantaged areas and that there are higher rates of participation in tertiary education in less disadvantaged areas (15). Figure 29 shows that there are higher rates of school leaver participation in tertiary education for Mitcham, Unley, Holdfast Bay and Marion compared with South Australia and Greater Adelaide. There is a much lower rate of participation in tertiary education in Onkaparinga compared with the other Southern Adelaide LGAs.

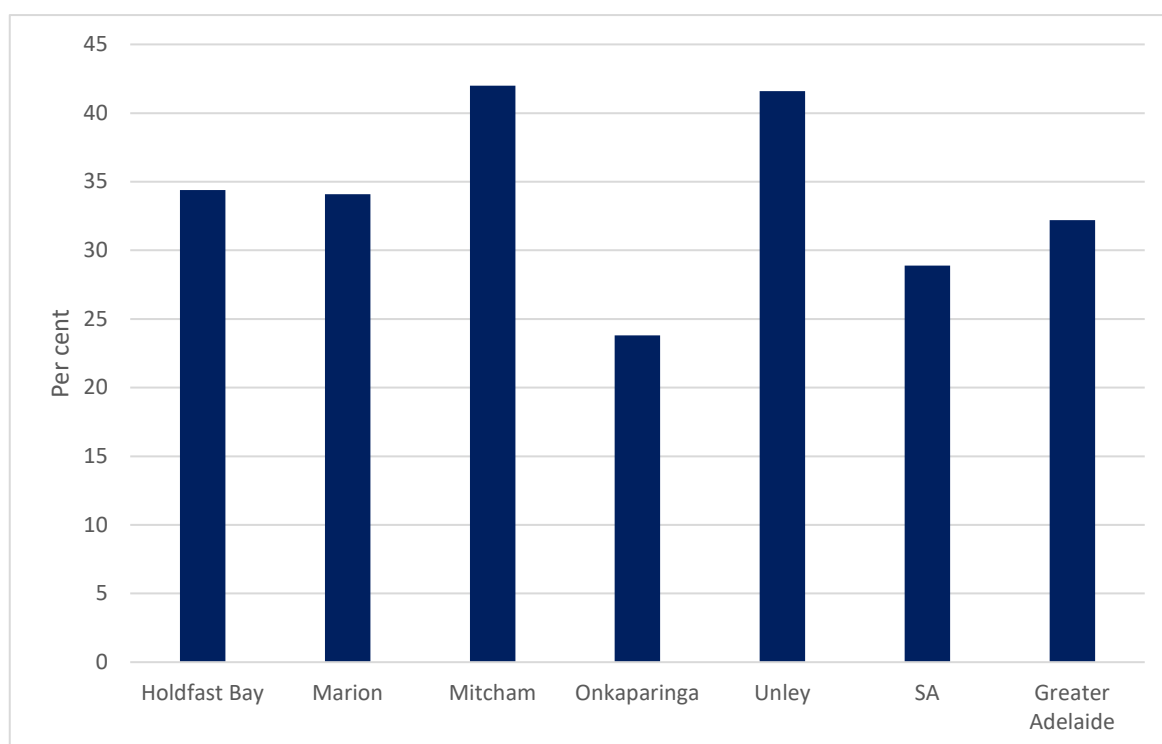
It should be noted that inequities in participation in tertiary education would be present even within prosperous LGAs as illustrated by the variations in socioeconomic disadvantage within LGAs and uneven distribution of resources discussed in the demographic profile. The impact of this is likely to be largest in Onkaparinga which has a wide variation in IEO rankings compared with much lower variation for the other Southern Adelaide LGAs.

High rates of school leaver participation in tertiary education in the South suggest a continuation of the higher attainment of tertiary qualifications in Mitcham and Unley compared with the other Southern Adelaide LGAs. Higher rates of participation in higher education in Holdfast Bay and Marion compared to Onkaparinga will also ensure that the differences in educational attainment between LGAs persist.

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*The lower participation in higher education and higher share of people who left school before year 10 in Onkaparinga is partially offset by higher rates of participation in VET and a much higher share of the population holding a vocational qualification.*

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**Figure 29: School leaver participation in higher education, Per cent, 2018** (Data source: Social Health Atlas, PHIDU, 2019)

#### Internet access

Access to the internet provides social and economic benefits. The digital divide caused by inequality in access to the internet can exacerbate social exclusion, particularly given that there is a social gradient in access to the internet (15). Table 19 presents the percentage of private dwellings with internet access and the percentage of private dwellings where internet was not accessed.

The very high percentage of dwellings with internet access in the LGAs of Mitcham and Unley suggest that these LGAs have benefitted from the rapid increase in the proportion of households with internet access in private dwellings over the past ten years. Mitcham, Unley and Onkaparinga have higher proportions of dwellings with internet access (and lower proportions without internet access) compared with the Australian average. Holdfast Bay and Marion have higher rates of households without internet access compared with the rest of Southern Adelaide and compared to the Australian average. Marion in particular was previously identified as an LGA of high prevalence for proportion of households with no internet connection in 2011 compared to the average in the Adelaide PHN (38). The high rate of households that do not access the internet in Marion in 2016 suggests that this LGA is still an area of concern.

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*South Australia has a poor rating on the Digital Inclusion Index and the inequality ratio for households who do not access internet from their dwelling has worsened between 2006 and 2016 (15).*

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The social gradient in access to the internet indicates that many of the households who do not have internet access in Table 19 are likely to be households in disadvantaged areas, and their inability to access the internet compounds the disadvantage they already experience in income, housing, employment and education.

**Table 19: Internet access in private dwellings, 2016, Per cent** (Data source: Social Health Atlas, PHIDU, 2019)

	Internet accessed from dwelling	Internet not accessed from dwelling
Holdfast Bay	82.8	15.0
Marion	81.9	15.9
Mitcham	87.2	10.8
Onkaparinga	84.4	13.5
Unley	86.5	11.7
Australia	83.2	14.1
SA	80.6	17.0
Greater Adelaide	82.3	15.5

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## Appendices

### Appendix 1: Additional Tables

**Table A1: Age Structure of Southern Adelaide LGAs, Per Cent, 2016** (Data source: Adelaide PHN Community Profile)

Age group	Holdfast Bay	Marion	Mitcham	Onkaparinga	Unley
0 to 4	4.3	5.9	5.3	6.2	4.7
5 to 11	6.3	7.4	8.6	8.9	7.9
12 to 17	5.8	6.1	7.5	7.5	6.6
18 to 24	7.9	9.6	9.1	8.4	9.4
25 to 34	11.6	14.8	10.7	12.4	13.5
35 to 49	18.2	19.6	20.0	19.7	19.8
50 to 59	14.6	13.0	13.4	13.3	12.7
60 to 69	14.2	11.4	11.5	12.4	11.9
70 to 84	12.2	9.1	10.4	9.1	9.2
85 and over	4.8	3.1	3.4	2.1	4.3
Total	100.0	100.0	100.0	100.0	100.0

Note: Numbers are total persons-Usual residence

**Table A2: Household Type in Southern Adelaide by LGA, Per cent, 2016** (Data Source: Adelaide PHN Community Profile)

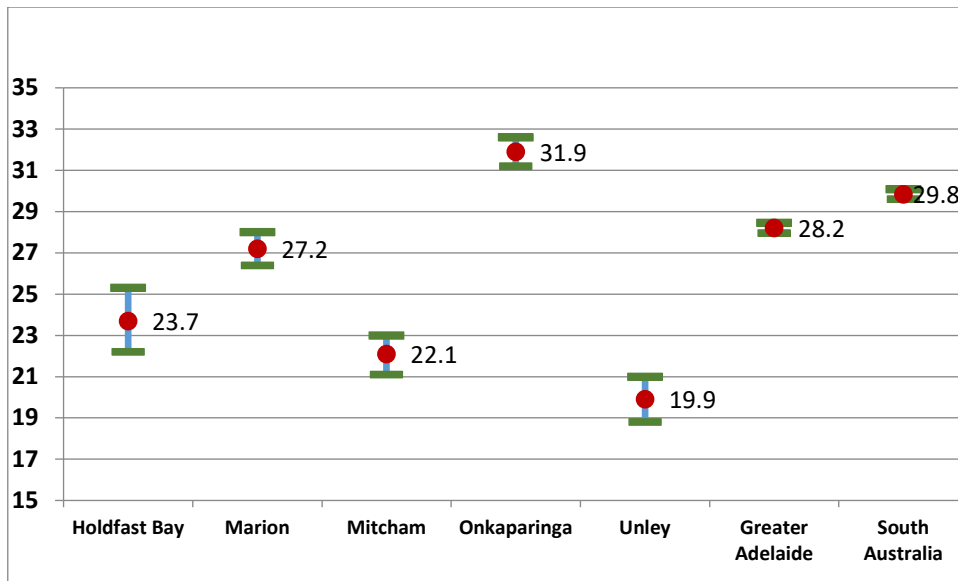
Household type	Holdfast Bay	Marion	Mitcham	Onkaparinga	Unley
Couples with children	22.4	27.4	34.0	29.4	27.8
Couples without children	26.9	24.5	26.6	26.5	24.4
One parent families	7.7	10.4	8.7	12.7	7.8
Other families	1.1	1.4	1.0	0.9	1.3
Group household	3.4	4.5	3.3	2.5	5.3
Lone person	33.1	28.0	23.2	23.8	29.0
Other not classifiable	4.2	2.9	2.4	3.6	3.2
Visitor households	1.2	0.8	0.8	0.7	1.1
Total households	100.0	100.0	100.0	100.0	100.0

Note: Enumerated households

**Table A3: Housing Tenure in Southern Adelaide by LGA, Per cent, 2016** (Data source: Adelaide PHN Community Profile)

Tenure type	Holdfast Bay	Marion	Mitcham	Onkaparinga	Unley
Fully owned	34.7	29.0	37.1	28.1	33.3
Mortgage	27.4	34.9	38.3	41.4	29.3
Renting-All	29.0	29.7	18.0	23.2	29.9
Social Housing	2.4	9.0	1.7	5.0	3.3
Private	26.3	20.3	15.9	17.9	26.1
Other tenure type	2.5	1.2	2.0	1.7	2.3
Not stated	6.5	5.3	4.7	5.7	5.2
Total	100.0	100.0	100.0	100.0	100.0

Note: Enumerated households



**Figure A1: Age-Standardised Rate per 100 People (18 years and older) who were obese, by LGA, Modelled Estimates, 2014-15, mean and 95 per cent confidence intervals (Data source: Social Health Atlas, PHIDU, 2019)**

## Appendix 2: Technical Notes

### Notes on the data

The data in the section 'How Healthy is the South: Distribution of Mortality and Disease' have been presented at multiple levels including at state level for South Australia, at LGA level, at Local Health Network (LHN) level and, in some cases, at Population Health Area (PHA)<sup>15</sup> level. Where possible, data are reported from the 2018 Population Health Survey (SAPHS) to provide a profile of current patterns of disease. The SAPHS is a newly commissioned data collection undertaken by SA Health. Trends in disease are sourced from the South Australian Monitoring and Surveillance System (SAMSS), a survey conducted by SA Health between 2002 and 2017. SAMSS and SAPHS use different sampling methodologies and results from these two sources are not directly comparable.

Statistics from the SAPHS are presented at LHN level with comparisons between the Southern Adelaide LHN and the other South Australian LHNs as well as comparisons with the South Australian average. The LHN classification includes the LGAs of Holdfast Bay, Marion, Mitcham and Onkaparinga in Southern Adelaide<sup>16</sup>. Data at LGA level sourced from PHIDU are older than SAPHS but are also presented for indicators where available to provide comparisons between the five LGAs located in the South of Adelaide. Data at PHA level provide an indication of variation in disease patterns within LGAs and are also presented where available<sup>17</sup>.

Available data have been sourced to provide a profile of the main causes of premature mortality, the main diseases causing morbidity and the prominent known risk factors that cause non-communicable diseases. For indicators where there are gaps in the data at LHN or LGA level, particularly with respect to characteristics that increase risk of disease and for identifying inequities, data at state level are reported.

### Age-standardisation

The demographic profile highlighted the age profile of the population in each of the Southern Adelaide LGAs and comparisons between the age profile in Southern Adelaide and that of Greater Adelaide and Australia. Age-standardised rates of premature mortality enable meaningful comparisons between areas with different age profiles. Accounting for these differences is important because age influences mortality rates and disease patterns, therefore age-standardised rates are used in this profile where available.

### Premature mortality by cause

Statistics on premature mortality by cause provide insight into burden of disease within areas. The causes included in the section on premature mortality by cause are based on those for which data are available by LGA. Many causes in these data aggregate a number of diseases causing death and therefore groupings may result in different representations of leading causes compared with reports from other sources where leading causes are reported for single underlying causes of death or different classifications and groupings of diseases causing death.

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<sup>15</sup> PHAs are based on SA2s. They are a measure developed by PHIDU and a PHA can comprise one (larger) SA2 or an aggregation of smaller SA2s. PHAs are therefore smaller than LGAs.

<sup>16</sup> The LGA of Unley is classified as part of the Central Adelaide LHN.

<sup>17</sup> Data at LGA level from PHIDU are not comparable with SAPHS but provide important information on disease patterns for smaller areas. Data at PHA level are likewise not comparable with the reported data at LGA data.



### **Significant differences between areas**

The differences in estimates of prevalence of disease and risk factors between areas were investigated by comparing 95% confidence intervals for different areas – if the confidence intervals did not overlap, we have indicated a statistically significant difference. When they overlapped, we have not claimed significant difference, although we acknowledge this is a conservative test and does not necessarily mean the difference is not statistically significant. Data sources did not allow for direct calculation or examination of the more accurate 95% confidence interval for the difference between sample estimates in our areas of interest as sample standard deviations were not available.

### **Non-communicable diseases data**

Data on non-communicable diseases were primarily drawn from the 2018 SAPHS to provide a current profile of estimated disease prevalence in Southern Adelaide. Slightly older statistics sourced from PHIDU are reported where available, to highlight any differences in disease patterns between the five LGAs in the South of Adelaide. SAPHS and PHIDU data are not comparable with data collected on disease prevalence in previous years, therefore statistics from the 2017 SAMSS survey are reported where available to supplement the discussion of disease prevalence by noting trends in disease at state level.

### **PHIDU estimates of unemployment rates**

The PHIDU estimates of unemployment rates in the profile of social determinants of health differ in magnitude compared to the census estimates presented in the demographic profile. PHIDU estimates were compiled using data sourced from Centrelink and the *Small Area Labour Markets–Australia* data series from the Department of Education, Employment and Workplace Relations and were chosen for inclusion in the social determinants section due to the PHIDU receipt of unemployment benefit data also having been sourced from departmental data sources.