

# State of Our Health

## Technical Appendix

06 Sep 2018

Health Performance Council



Government  
of South Australia

Health Performance Council

**State of Our Health – Technical Appendix**

Published 06 Sep 2018

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## Introduction

This technical appendix is published to complement the Health Performance Council's *State of Our Health* report, which was published on 06 September 2018 at [http://hpcsa.com.au/state\\_of\\_our\\_health](http://hpcsa.com.au/state_of_our_health). The technical appendix provides rationale for selection and comprehensive detail of sources, methodology notes, important caveats, and other data issues relevant to the statistical measures presented in the report.

## Data quality notes

### Relevance

The Health Performance Council is required, under the *Health Care Act 2008*, to assess the health of South Australians, identify significant health status trends, and consider future priorities for the health system in regard to these trends – including particular illnesses and population groups. The *State of Our Health* report is designed to act in partial fulfilment of this requirement.

The content of the report has been set and adjusted following substantial stakeholder consultation and feedback. The report was refreshed in 2015 with updated data and a new online format and was further updated in 2016, 2017 and 2018. It is intended that future editions of the report will further incorporate consultation feedback.

### Accuracy and reliability

Many of the data sources which have been used to derive statistics presented in *State of Our Health* are based on sample surveys. Data sourced from sample survey will be subject to ‘sampling error’, i.e., a random variation of the estimated statistic presented from the true value arising by virtue of being based (necessarily) on a sample and not the whole population. Sample survey sources have been noted in the sectional technical appendix below. Generally, the extent of variation due to sampling error has not been presented in this report, but in many cases is available from the underlying data source tables for which links have been given in all cases where the source is publicly accessible.

All data will be subject to non-sampling error, for reasons including biased non-response to surveys and censuses and from misunderstood, erroneous or omitted responses in data collections reliant on respondent self-assessment. Where the source agency of an underlying data source has identified a particular issue relating to non-sampling error which is liable to substantively and substantially affect figures presented in *State of Our Health*, these have been noted in the report or in the sectional technical appendix below; however, it is not feasible to ensure that all such cases are correctly identified.

In some of the data sources used, figures have been annualised or otherwise derived from the underlying collections or are intended to be interpreted as applying to a different period (for instance, where figures have been published for a calendar year from responses to a single point-in-time snapshot survey). Where practical, the periods or times applicable to the underlying data collections have been shown in the sectional technical appendix below as *time periods*.

Derived calculations in *State of Our Health* for statistical significance have been made at the 5% level. This means that, subject to modelling assumptions, there is a 5% chance in any case of a difference in figures (for example) being accepted as true when in fact one does not exist; not all tests for significance in *State of Our Health* are wholly independent so the true rate of ‘false positive’ across the whole report is hard to determine with accuracy, but it is very likely that some conclusions have been made where figures have been erroneously cited to be ‘statistically significantly different’ (or similar); there may also be cases where true differences at a population level do exist but the statistical theory has not been sufficiently powerful as to be able to detect this.

### Timeliness

The *State of Our Health* report uses data from various sources published by different agencies and organisations, including SA Health. Each source has its own update cycle and provides coverage for a particular period or point in time.

Although *State of Our Health* is prepared using the latest figures available at the time of its production, the length of the production cycle and the disconnect with the update cycles of the primary sources mean that data may in some cases be slightly out of date. Based on estimated planned updates at the time that the sources were checked for the production of this edition, it is thought that four of the primary sources may have had new or updated releases issued since the *State of Our Health* report was prepared:

1. Australian Bureau of Statistics, *2016 Census of Population and Housing, cat. no. 2001.0*  
source used released on 23 Oct 2017  
updated release expected on or around 30 Oct 2021  
indicator(s) affected: 1-2-1, 1-2-2
2. Australian Bureau of Statistics, *Australian Demographic Statistics, cat. no. 3101.0*  
source used released on 21 Jun 2018  
updated release expected on or around 20 Oct 2018  
indicator(s) affected: 1-1-1
3. Australian Bureau of Statistics, *Australian Health Survey: First Results, cat. no. 4364.0.55.001*  
source used released on 3 Jun 2016  
updated release expected on or around 23 Mar 2019  
indicator(s) affected: 3-10-4, 3-11-4, 3-12-4, 3-13-4, 3-2-4, 3-3-4, 3-4-4, 3-8-7, 4-1-4, 4-2-4, 4-3-4, 4-4-4, 4-5-4, 4-6-4, 4-7-4, 4-8-1, 4-9-1, 3-9-4
4. Australian Bureau of Statistics, *Participation in Sport and Physical Recreation, Australia, cat. no. 4177.0*  
source used released on 18 Feb 2015  
updated release expected on or around 18 Feb 2017  
indicator(s) affected: 3-5-4

The *State of Our Health* report uses the most timely data that is possible or reasonably practical to source. However, as a result of the multi-sourcing of data, there are some thirteen different periods or points in time for which the source data was the most recent that was able to be sourced for inclusion:

1. as at 30 Jun 2017
2. period 2010-2012
3. period 2011-13
4. period 2012
5. period 2012-13
6. period 2012-2016
7. period 2013
8. period 2013-14
9. period 2014-15
10. period 2014-2016
11. period 2015
12. period 2016
13. period 2017

The times or periods to which each indicator's figures relate have been clearly noted in the report against each indicator. Future editions of *State of Our Health* will, where possible, use more recently updated source data in order to remain as timely as is feasible.

### Comparability and coherence

Because the many data sources used for *State of Our Health* report each provide coverage for a particular period or point in time, figures presented throughout the report are for a variety of different reporting periods; there are some five different reporting periods to which the data relate:

1. Calendar year
2. Financial year
3. Five-year period
4. Point in time
5. Reference year

As a result, there is likely to be some incoherence between figures in different indicators, even where definitions and methodologies being the same would otherwise lend coherence to the differently-sourced data. However, where practical, the *State of Our Health* report has been derived from publicly available sources and so the figures presented will, for the most part, be coherent with those in summary reports and detailed tables published by those source agencies.

Generally, different figures within any indicator may fairly be compared – such as between age bands, across regions or over time. In some cases, difference in methodologies or inconsistencies in quality of source data will make certain comparisons invalid; important cases of non-comparability have been noted in the report or in the sectional technical appendix below.

For some indicators, figures have been standardised, allowing for valid comparisons between populations with differences in the variables which have been standardised (such as age). However, standardised and non-standardised figures are not directly comparable and in some cases this will preclude valid comparisons being made between figures for different indicators in the same section.

## Chapter 1 Demographic profile

### 1-1 Population

#### Rationale for reporting

Understanding the size and distribution (both in terms of demography and geography) of the South Australian population enables a greater understanding of health needs and provision.

#### Measures Reported

1. Population size, expressed as estimated number of persons by region, Aboriginal status and time.
2. Geographic distribution of population, expressed as percentage of estimated number of persons by region.
3. Demographic distribution of population, expressed as estimated median age in years and estimated number of persons in 5-year age bands by sex and Aboriginal status.

#### Data source agencies, release frequency and time period

#	Source	Release frequency	Time period
1	Australian Bureau of Statistics (ABS 2018), Data set 'ERP by SA2 and above (ASGS 2016), 2001 onwards', ABS.Stat (beta)	Annual	Point in time
2	Australian Bureau of Statistics (ABS 2018), 'TABLE 2. Population Change, Components - States and Territories (Number)', Australian Demographic Statistics, cat. no. 3101.0, viewed 13 August 2018.	Quarterly	Point in time
3	Australian Bureau of Statistics (ABS 2017), Customised Table, Population, South Australia, 2015, Indigenous Status, age and sex	Irregular	Point in time

#### Definitions

1. The *Estimated resident population* (ERP) is the official estimate of the Australian population used by the ABS, which links people to a place of usual residence within Australia. Usual residence within Australia refers to that address at which the person has lived or intends to live for six months or more in a given reference year. For the 30 June reference date, this refers to the calendar year around it. Estimates of the resident population are based on Census counts by place of usual residence.
2. The *median* is a commonly used measure of central tendency, like the average. The median, or 50th percentile, is the exact midpoint of a distribution, the number at which half the observations are smaller and the other half are larger. The median is less susceptible than the average to the influence of particularly large or small observations (outliers) in the dataset.

#### Important caveats

1. The Australian Census of Population and Housing is self-enumerated. This means that householders are required to complete the Census form themselves, rather than having the help of a Census Collector. The Census form may be completed by one household member on behalf of others. Error can be introduced if the respondent does not understand the question, or does not know the correct information about other household members. Self-enumeration carries the risk that wrong answers could be given, either intentionally or unintentionally.
2. Population figures for 2018 are based on preliminary estimated resident population figures for 28 August 2017 and may be subject to revision.
3. Median age figures reported in this indicator are estimates produced by the Health Performance Council Secretariat from the published ABS grouped data, using the method described on the Vitutor website: [viterator.com/statistics/descriptive/median.html](http://viterator.com/statistics/descriptive/median.html). This method assumes data is distributed evenly between cohorts.

## 1-2 Demographic profile

### Rationale for reporting

People from Culturally and Linguistically Diverse (CALD) backgrounds and carers are two relatively large population groups in the South Australian community who could be at increased risk of social isolation. Social isolation, due to language and cultural barriers or responsibilities providing informal assistance with core activities to an aged person or person with a disability, can lead to a low sense of wellbeing and poor health.

### Measures Reported

1. Size of certain subgroups of the CALD population, expressed as per cent of persons in total population who were born overseas, and per cent of persons in total population who speak a language other than English at home.
2. Size of the carer population, expressed as number and per cent of carers in total population, for all carers and broken down by sex and whether primary carer.

### Data source agencies, release frequency and time period

#	Source	Release Frequency	Time period
1	Australian Bureau of Statistics (ABS 2016), 'General Community Profile, South Australia', 2016 Census of Population and Housing, cat. no. 2001.0	Five years	Point in time
2	Australian Bureau of Statistics (ABS 2016), Data Cubes, 'Table 32.1 All persons, living in households, carer status, by age and sex—2015, estimate', Disability, Ageing and Carers, Australia: Summary of Findings, 2015, cat. no. 4430.0, viewed 24 August 2018.	Irregular	Calendar year

### Definitions

1. Non-English speaking countries are those excluding Australia, Canada, Ireland, New Zealand, South Africa, the United Kingdom, England, Scotland, Wales, Northern Ireland, Isle of man & Channel Islands and the United States of America.
2. The term *national average* and similar terms are used to refer to Australia-wide figures and should not be interpreted as being the average of the figures for each individual state and territory.

### Important caveats

1. The Australian Census of Population and Housing is self-enumerated. This means that householders are required to complete the Census form themselves, rather than having the help of a Census Collector. The Census form may be completed by one household member on behalf of others. Error can be introduced if the respondent does not understand the question, or does not know the correct information about other household members. Self-enumeration carries the risk that wrong answers could be given, either intentionally or unintentionally.
2. Carers' data comes from a sample survey, the 2015 Survey of Disability, Ageing and Carers (SDAC) conducted by the ABS.
3. All sample surveys are subject to sampling and non-sampling error. Sampling error is a measure of the variability that occurs by chance because a sample, rather than the entire population, is surveyed. This can be expressed as a margin of error around the estimate. Non-sampling error may occur in any data collection, whether it is based on a sample or a full count such as a census. Sources of non-sampling error include non-response, errors in reporting by respondents or in recording of answers by interviewers, and occasional errors in coding and processing data.

4. Figures shown for main language spoken at home other than English are based on data for people who speak a language other than English (whether or not they also speak English) at home.

### 1-3 Health determinants

#### Rationale for reporting

People with low incomes or living in areas identified as disadvantaged could be at increased risk of having reduced access to healthcare and health outcomes. Globally, social and economic factors have been identified by the Australian Institute of Health and Welfare as being associated with overall health.

#### Measures Reported

1. Personal and household income, expressed as median amounts per week before tax, including some breakdowns by Aboriginal status.
2. Housing costs, expressed as median payments per week, with some breakdowns by Aboriginal status.
3. Socio-economic status, expressed as average Index of Relative Socio-Economic Disadvantage by region.
4. Extent of Year 12 (or equivalent) education attainment, expressed as percentage of population who completed school Year 12 (or equivalent), for overall and Aboriginal population.
5. Extent of private health insurance, expressed as percentage of population with private coverage and average out-of-pocket payments for services.

#### Data source agencies, release frequency and time period

#	Source	Release Frequency	Time period
1	Australian Bureau of Statistics (ABS 2016), 'Aboriginal and Torres Strait Islander Peoples Profile, South Australia', I04 SELECTED MEDIANS AND AVERAGES, 2016 Census of Population and Housing, cat. no. 2001.0	Five years	Point in time
2	Australian Bureau of Statistics (ABS 2016), 'Socio-Economic Indexes for Areas (SEIFA), Australia, 2016', 2016 Census of Population and Housing, cat. no. 2033.0.55.001, Table 1 Statistical Area Level 2 (SA2) SEIFA Summary, 2016	Five years	Point in time
3	Australian Bureau of Statistics (ABS 2016), 'Aboriginal and Torres Strait Islander Peoples Profile, South Australia', I06 HIGHEST YEAR OF SCHOOL COMPLETED BY INDIGENOUS STATUS BY SEX', 2016 Census of Population and Housing, cat. no. 2001.0	Five years	Point in time
4	Australian Prudential Regulation Authority (APRA 2018), Private Health Insurance Annual Coverage Survey Dec 2017, SA;	Annual	calendar year

#### Definitions

1. The *median* is a commonly used measure of central tendency, like the average. The median, or 50th percentile, is the exact midpoint of a distribution, the number at which half the observations are smaller and the other half are larger. The median is less susceptible than the average to the influence of particularly large or small observations (outliers) in the dataset.
2. The term *national average* and similar terms are used to refer to Australia-wide figures and should not be interpreted as being the average of the figures for each individual state and territory.
3. *Socio-economic status* summarises a range of information about the economic and social conditions of people and households within an area. The measure used here is the Australian Bureau of Statistics' Socio-economic Index for Areas (SEIFA), Index of Relative Socio-economic Disadvantage (IRSD), under which lower scores indicate relatively greater disadvantage in general.
4. An *episode* in relation to hospital care is a period of admitted patient care between an admission and separation.

**Important caveats**

1. The Australian Census of Population and Housing is self-enumerated. This means that householders are required to complete the Census form themselves, rather than having the help of a Census Collector. The Census form may be completed by one household member on behalf of others. Error can be introduced if the respondent does not understand the question, or does not know the correct information about other household members. Self-enumeration carries the risk that wrong answers could be given, either intentionally or unintentionally.
2. Socio-economic index figures for 2016 use preliminary estimated resident population figures for 28 August 2017 and may be subject to revision.
3. Median weekly mortgage repayments shown are calculated for this report as one-quarter of monthly figures in the source dataset.
4. Quoted out-of-pocket payments for medical services are per hospital episode or medical service.

## Chapter 2 Starting well

### 2-1 Fertility rate

#### Rationale for reporting

Knowledge of fertility rates provides insight to determine healthcare service needs and expected service burden over time. Understanding variances in fertility rates across our population can help to identify inequalities in health and healthcare needs.

#### Measures Reported

1. Fertility rates, expressed as births per woman, overall and by region, state, Aboriginal status and over time.

#### Data source agencies, release frequency and time period

#	Source	Release Frequency	Time period
1	Australian Bureau of Statistics (ABS 2017), 'Table 1.1 Births, Summary, Statistical Areas Level 4-2006 to 2016', Births, Australia, 2016, cat. no. 3301.0	Annual	Point in time
2	Australian Bureau of Statistics (ABS 2018), 'Aboriginal and Torres Strait Islander fertility, by age, by state', ABS.Stat (beta)	Annual	Point in time

#### Definitions

1. The term *national average* and similar terms are used to refer to Australia-wide figures and should not be interpreted as being the average of the figures for each individual state and territory.
2. *Total fertility rate* is number of births per woman.

#### Important caveats

1. Fertility rates for 2017 use preliminary estimated resident population figures for 28 August 2017 and may be subject to revision.
2. Regional figures, below state-level geography, for fertility rates and median ages of mother at birth are based on averages of annual figures over a three-year period ending in the reference year.
3. Numbers of Aboriginal births, and thus fertility rate, are based on responses to the by the parent(s) to the Aboriginal and Torres Strait Islander question on the birth registration form and so the level of Aboriginal births may be underestimated.
4. Comparisons over time for Aboriginal maternity data may be unreliable as a result of birth registration lags and changes in the completeness and coverage of responses by the parent(s) to the Aboriginal and Torres Strait Islander question on the birth registration form.

## 2-2 Maternal age

### Rationale for reporting

The ages of mothers giving birth can affect maternal and paediatric health service needs. Knowledge of the distribution of mothers' ages and changes over time provides insight into population health needs and future service provision.

### Measures Reported

1. Average age of mothers at time of birth, expressed as median years of age, by region, state, Aboriginal status, and over time.
2. Extent of teenage motherhood, expressed as percentage of mothers/births for mothers under 20, by region, state, Aboriginal status and over time.
3. Extent of motherhood at age 35 and over, expressed as percentage of mothers/births for mothers aged 35 or over, by state, Aboriginal status and over time.

### Data source agencies, release frequency and time period

#	Source	Release Frequency	Time period
1	Australian Bureau of Statistics (ABS 2016), Births, Australia, 2016, cat. no. 3301.0	Annual	Calendar year
2	Australian Bureau of Statistics (ABS 2018), 'Aboriginal and Torres Strait Islander births and confinements, summary, by state', 'Fertility, by age, by state', 'Aboriginal and Torres Strait Islander fertility, by age, by state', ABS.Stat (beta)	Annual	Calendar year

### Definitions

1. The *median* is a commonly used measure of central tendency, like the average. The median, or 50th percentile, is the exact midpoint of a distribution, the number at which half the observations are smaller and the other half are larger. The median is less susceptible than the average to the influence of particularly large or small observations (outliers) in the dataset.

### Important caveats

1. Regional figures, below state-level geography, for fertility rates and median ages of mother at birth are based on averages of annual figures over a three-year period ending in the reference year.
2. Comparisons over time for Aboriginal maternity data may be unreliable as a result of birth registration lags and changes in the completeness and coverage of responses by the parent(s) to the Aboriginal and Torres Strait Islander question on the birth registration form.
3. Figures for teenage mothers are for all aged 15 or less, including those (if any) who were under 15.

## 2-3 Folate intake

### Rationale for reporting

Women are advised to take folic acid before and during the first three months of pregnancy to reduce the chance of having a baby with spina bifida. Understanding the extent of awareness of this advice enables a better understanding of information needs and health provision.

### Measures Reported

1. Awareness of advice to take folic acid before and during early pregnancy, expressed as percentage of population with this awareness, by region and over time.
2. Demographic distribution of awareness of advice to take folic acid before and during early pregnancy, expressed as percentage of population, by sex and 10-year age bands.
3. Socio-economic status distribution of awareness of advice to take folic acid before and during early pregnancy, expressed as percentage of population in socio-economic status quintiles.
4. Popularity of folic acid intake methods, expressed as percentage of consumption of common folic acid intake types.

### Data source agencies, release frequency and time period

#	Source	Release Frequency	Time period
1	South Australian Monitoring and Surveillance System Online, SA, Department of Health ('SAMSS'). Health Information Portal database, 'Management Reporting, Reports, Folate Awareness'	irregular	Calendar year

### Definitions

1. *Socio-economic status* summarises a range of information about the economic and social conditions of people and households within an area. The measure used here is the Australian Bureau of Statistics' Socio-economic Index for Areas (SEIFA), Index of Relative Socio-economic Disadvantage (IRSD), under which lower scores indicate relatively greater disadvantage in general.
2. A *quintile* is one of five subsets of a population, providing information about the distribution of observations. Each quintile contains the same number of observations, dividing the population into five equal subsets.

### Important caveats

1. Data from the South Australian Monitoring and Surveillance System (SAMSS) is based on a sample survey conducted monthly.
2. All sample surveys are subject to sampling and non-sampling error. Sampling error is a measure of the variability that occurs by chance because a sample, rather than the entire population, is surveyed. This can be expressed as a margin of error around the estimate. Non-sampling error may occur in any data collection, whether it is based on a sample or a full count such as a census. Sources of non-sampling error include non-response, errors in reporting by respondents or in recording of answers by interviewers, and occasional errors in coding and processing data.
3. Rates shown for awareness of folic acid intake benefits are for proportion of people who gave the correct answer of 'Before pregnancy and in first three months of pregnancy' to the question 'Do you know when folic acid needs to be taken by a woman to reduce her chance of having a baby with spina bifida?'. Other responses that nevertheless indicate some awareness, such as 'Before pregnancy' and 'Throughout pregnancy' are not treated as correct responses and such respondents are for this purpose regarded as not being aware of the benefits of folic acid intake.

## 2-4 Pregnancy outcomes

### Rationale for reporting

Data on timeliness of antenatal visits provides insights into equality of access to and provision of antenatal services which may also assist in monitoring and planning for perinatal and childhood health needs. Data on smoking, diabetes and overweight/obesity prevalence during pregnancy and their changes over time provide insight into the need for and effectiveness of public health programmes and for maternal and perinatal health needs.

### Measures Reported

1. Extent of first antenatal visits being within 14 weeks of pregnancy, expressed as percentage of women having first antenatal visit within first 14 weeks of pregnancy, by Aboriginal status and over time.
2. Prevalence of smoking during pregnancy, expressed as percentage of mothers who smoked at time of first antenatal visit, by state, Aboriginal status and over time.
3. Prevalence of gestational diabetes, expressed as percentage of women giving birth who experienced gestational diabetes, over time.
4. Prevalence of being overweight in pregnancy, expressed as percentage of pregnant women measured as being overweight or obese, by state and over time.

### Data source agencies, release frequency and time period

#	Source	Release Frequency	Time period
1	Pregnancy Outcome Unit, SA Department of Health ('SA Health POU'), Pregnancy outcome in South Australia 2015, Scheil W, Jolly K, Scott J, Catcheside B, Sage L, Kennare R	Annual	Calendar year
2	Australian Institute of Health and Welfare ('AIHW'), National Perinatal Data Collection, Antenatal period module, Perinatal data portal	Annual	Calendar year

### Definitions

1. The term *national average* and similar terms are used to refer to Australia-wide figures and should not be interpreted as being the average of the figures for each individual state and territory.
2. *Body Mass Index (BMI)* is mass (in kilograms) divided by the square of height (in metres). The resulting BMI figure may be categorised as one of: underweight, normal, overweight, obese, severely obese and morbidly obese.

### Important caveats

1. Percentages of women/births have been calculated based on figures adjusted to exclude those where data was unknown.
2. Ranking order of the states and territories for rates of smoking at first antenatal visit may be affected by differences in methods and definitions between the jurisdictions.
3. The SA Health POU advises that the BMI categories do not take into account factors such as frame size, muscularity, varying proportions of components such as fat, bone, cartilage and water, and may be misleading in athletes, children and some ethnic groups.
4. BMI figures may not be directly comparable between the states and territories as source data and methods used for data collection are not uniform. For South Australia, BMI was calculated from the mother's height and weight measured at the first antenatal visit.

## 2-5 Birth rate

### Rationale for reporting

Birth rates are an important component in determining changes in our population, understanding which is necessary for planning and delivering health services.

### Measures Reported

1. Births, expressed as number of people born, overall and by Aboriginal status.
2. Crude birth rate, expressed as numbers of births per 1,000 population, by region, state, Aboriginal status and over time.

### Data source agencies, release frequency and time period

#	Source	Release Frequency	Time period
1	Australian Bureau of Statistics (ABS 2016), Births, Australia, cat. no. 3301.0	Annual	Calendar year
2	Australian Bureau of Statistics (ABS 2016), 'Aboriginal and Torres Strait Islander births and confinements, summary, by state', <i>ABS.Stat (beta)</i>	Annual	Calendar year

### Definitions

1. *Crude birth rate* is the number of births per 1,000 of the estimated population.

### Important caveats

1. Birth rates for 2016 use preliminary estimated resident population figures for 28 August 2017 and may be subject to revision.
2. Comparisons over time for Aboriginal births data may be unreliable as a result of birth registration lags and changes in the completeness and coverage of responses by the parent(s) to the Aboriginal and Torres Strait Islander question on the birth registration form.

## 2-6 Low birthweight

### Rationale for reporting

A baby's birthweight is identified by the Australian Institute of Health and Welfare as being a key indicator of infant health and a determinant of a baby's chances of survival and health later in life.

### Measures Reported

1. Average weight of babies at birth, expressed in grams birthweight, overall and by Aboriginal status.
2. Extent of low birthweight births, expressed as percentage of all babies born who were of low birthweight, by state, Aboriginal status and over time.
3. Extent of low birthweight births, expressed as percentage of all babies born who were low birthweight, by state, Aboriginal status and over time.

### Data source agencies, release frequency and time period

#	Source	Release Frequency	Time period
1	Australian Institute of Health and Welfare (AIHW 2018), Australia's mothers and babies 2016 -- in brief, Supplementary tables, Perinatal statistics series no. 31, Cat no. PER 72	Annual	Calendar year

### Definitions

1. The term *national average* and similar terms are used to refer to Australia-wide figures and should not be interpreted as being the average of the figures for each individual state and territory.
2. *Birthweight* is the first weight of the baby (stillborn or live born) obtained after birth (usually measured to the nearest 5 grams and obtained within 1 hour of birth).
3. Babies are considered of *low birthweight* if their weight at birth is less than 2,500 grams.

### Important caveats

1. Birthweight statistics reported are in respect of live born babies.

## 2-7 Caesarean births

### Rationale for reporting

Data on caesarean deliveries and inequalities in the extent of its practice across the population provides some insight into access to healthcare services and supports planning of future maternity healthcare. However, elective caesarean delivery attracts some controversy: the OECD notes that caesarean delivery results in 'increased maternal mortality, maternal and infant morbidity, and increased complications for subsequent deliveries, as well as increased financial costs' (<https://data.oecd.org/healthcare/caesarean-sections.htm>).

### Measures Reported

1. Caesarean birth rate, expressed as percentage of all births which were by caesarean section, by state, Aboriginal status and over time.

### Data source agencies, release frequency and time period

#	Source	Release Frequency	Time period
1	Australian Institute of Health and Welfare (AIHW 2018), Australia's mothers and babies 2016 -- in brief, Supplementary tables, Perinatal statistics series no. 31, Cat no. PER 72	Annual	Calendar year

### Definitions

1. According to AIHW, a *caesarean section* is 'a method of birth in which a surgical incision is made into the mother's womb via the abdomen to directly remove the baby'.
2. The term *national average* and similar terms are used to refer to Australia-wide figures and should not be interpreted as being the average of the figures for each individual state and territory.

### Important caveats

1. In case of multiple births, the method of the first-born baby was used for deriving caesarean birth rates.
2. Caesarean birth rates for Australian Capital Territory include non-ACT residents who gave birth in the ACT; the rates for ACT are therefore health service population rates rather than ACT population rates.

## 2-8 Congenital anomalies

### Rationale for reporting

Congenital anomalies may be associated with increased health needs during the life of the child. Data on rates of anomalies and changes over time can assist with healthcare service planning and delivery.

### Measures Reported

1. Extent of incidences of congenital anomalies, expressed as number of births notified with anomalies and percentage of all births in which anomalies were notified, over time.

### Data source agencies, release frequency and time period

#	Source	Release Frequency	Time period
1	Pregnancy Outcome Unit (POU), SA Health, Government of South Australia 2017, Pregnancy outcome in South Australia 2015, Scheil W, Jolly K, Scott J, Catcheside B, Sage L, Kennare R.	Annual	Calendar year

### Important caveats

1. Numbers and rates of congenital anomalies are based on data notified to the South Australian Perinatal Statistics Collection; Information on congenital anomalies detected at birth or in the neonatal period (within 28 days of birth) is provided by doctors using the Congenital Abnormality Form.

## 2-9 Childhood developmental health checks

### Rationale for reporting

Health checks in early childhood can identify health needs and help with monitoring of the effectiveness of childhood health programmes.

### Measures Reported

1. Rate of receipt of childhood developmental health checks, expressed as percentage of target population who received a check, by state, Aboriginal status and over time.

### Data source agencies, release frequency and time period

#	Source	Release Frequency	Time period
1	Productivity Commission, Government of Australia PCOM, Volume E: Health, Report on Government Services.	Annual	Financial year

### Definitions

1. The term *national average* and similar terms are used to refer to Australia-wide figures and should not be interpreted as being the average of the figures for each individual state and territory.
2. The term *Aboriginal and Torres Strait Islander Child Health Check* has been used to encompass also the more recent (since May 2010) *Aboriginal and Torres Strait Islander People's Health Assessment*.

### Important caveats

1. Rates are not directly comparable between total population and Aboriginal population. For total population, rates are for receipt of a fourth year developmental *Healthy Kids Check*; for Aboriginal populations, the rates are for receipt of a fourth year developmental *Aboriginal and Torres Strait Islander Child Health Check*.
2. Rates for *Healthy Kids Check* include children who received a *Healthy Kids Check* and did not also receive an *Aboriginal and Torres Strait Islander Child Health Check*.
3. *Healthy Kids Check* rates are based on claims for certain Medicare items for children in the target age range and do not include developmental health check activity conducted outside Medicare such as State and Territory early childhood health assessments in preschools and community health centres. The extent to which this is an issue may vary between jurisdictions and rates are therefore not directly comparable.
4. *Aboriginal and Torres Strait Islander Child Health Check* rates are based on claims for certain Medicare items for children in the target age range and do not include health assessments provided outside Medicare under service models used to increase access for people in remote areas and for Aboriginal and Torres Strait Islander people. The rates are therefore likely to be understated.

## 2-10 Childhood immunisation coverage

### Rationale for reporting

Immunisations provide protection for individuals against various harmful diseases and are also identified by the *Immunise Australia Program* of the Australian Government's Department of Health as reducing rates of disease transmission in the community. Data on differences in rates of immunisation is, therefore, important for understanding and monitoring health needs of individuals and for public health planning.

### Measures Reported

1. Childhood immunisation coverage, expressed as percentage of 5-year-olds fully immunised against certain diseases, by state, Aboriginal status and over time.

### Data source agencies, release frequency and time period

#	Source	Release Frequency	Time period
1	Australian Institute of Health and Welfare (AIHW 2018), MyHealthyCommunities, <i>Immunisation rates for children from 2011–12 to 2016–17</i> , Canberra, Australia	Annual	Financial year

### Definitions

1. A child is currently regarded as *fully immunised* who has been vaccinated against: hepatitis B, diphtheria, tetanus, pertussis, haemophilus influenzae type b, polio, measles, mumps and rubella, pneumococcal, varicella and meningococcal C.
2. The term *national average* and similar terms are used to refer to Australia-wide figures and should not be interpreted as being the average of the figures for each individual state and territory.

### Important caveats

1. The definition of *fully immunised* varies over time to accommodate changes to the National Immunisation Program Schedule. Changes between years may not be completely comparable.
2. Immunisation rates shown are annualised figures for proportions of children fully immunised at five years old.

## 2-11 Childhood overweight and obesity

### Rationale for reporting

According to the source report cited in this section, being overweight or obese increases the risk of developing conditions such as heart disease, stroke and type 2 diabetes. Understanding the extent to which children are overweight or obese and changes in the extent over time can support delivery of health services and planning of future needs.

### Measures Reported

1. Size of overweight and obese child population, expressed as percentage of children who are overweight or obese, by state and Aboriginal status.

### Data source agencies, release frequency and time period

#	Source	Release Frequency	Time period
1	Productivity Commission, Government of Australia PCOM, Volume E: Health, Report on Government Services.	Annual	Financial year

### Definitions

1. Children are defined as persons aged 5–17 years.
2. The term *national average* and similar terms are used to refer to Australia-wide figures and should not be interpreted as being the average of the figures for each individual state and territory.
3. Standardisation allows for valid comparisons between populations with differences in the variables which have been standardised. For instance, age-standardised figures mean that comparisons between states/territories or over time are not affected by differences in age structures in the different jurisdictions. However, standardised figures are not directly comparable with non-standardised figures or with those standardised by a different method.
4. *Body Mass Index* (BMI) is mass (in kilograms) divided by the square of height (in metres). The resulting BMI figure may be categorised as one of: underweight, normal, overweight, obese, severely obese and morbidly obese.

### Important caveats

1. Figures from PCOM's *Report on Government Services* for childhood overweight and obesity are based on sample surveys, the Australian Health Survey and the Australian Aboriginal and Torres Strait Islander Health Survey.
2. All sample surveys are subject to sampling and non-sampling error. Sampling error is a measure of the variability that occurs by chance because a sample, rather than the entire population, is surveyed. This can be expressed as a margin of error around the estimate. Non-sampling error may occur in any data collection, whether it is based on a sample or a full count such as a census. Sources of non-sampling error include non-response, errors in reporting by respondents or in recording of answers by interviewers, and occasional errors in coding and processing data.
3. Rates for children being overweight or obese are for children whose BMI (appropriate for age and sex) is likely to be 25 kg/m<sup>2</sup> or over at age 18 years. BMI was calculated from measured height and weight.
4. Childhood overweight/obesity rates are age standardised by state and territory to the 2001 Australian standard population (selected age ranges from 5–17 years) and should not be compared to non-standardised figures.
5. The rate of overweight/obesity for Aboriginal children in the Northern territory may be affected by the fact that the underlying Australian Health Survey excluded discrete Aboriginal and Torres Strait

Islander communities and very remote areas, which comprise around 25 per cent of the estimated resident population of the NT.

## Chapter 3 Staying healthy

### 3-1 Life expectancy

#### Rationale for reporting

Life expectancy figures provide a useful summary indicator of health and differences between population subgroups, helping to identify differences in healthcare needs. Changes over time both convey a top-level indication of changing population health and help future service delivery planning.

#### Measures Reported

1. Expected length of life, expressed as average number of years of life, by sex, region, state, Aboriginal status and over time.
2. Expected remaining length of life at ages 65 and 75, expressed as average number of years, by sex, region, state and over time.

#### Data source agencies, release frequency and time period

#	Source	Release Frequency	Time period
1	Australian Bureau of Statistics 2016, Deaths, Australia, cat. no. 3302.0	Annual	Point in time
2	Australian Bureau of Statistics 2017, Life Tables States and Territories and Australia 2014-2016, cat. no. 3302.0.55.001	Annual	Calendar year
3	Australian Bureau of Statistics 2013, Life Tables for Aboriginal and Torres Strait Islander Australians, 2010-2012, cat. no. 3302.0.55.003	irregular	Point in time

#### Important caveats

1. Figures for life expectancy at birth have been calculated using data for the three years ending in the reference year and do not take into account future assumed improvements in mortality. Life expectancies for 2017 use preliminary estimated resident population figures for 28 August 2017 and may be subject to revision.

## 3-2 Health status

### Rationale for reporting

Self-reported health status provides a high-level indicator of the potential level of need for healthcare services.

### Measures Reported

1. Extent of self-reported good health, expressed as percentage of adult population, by region and over time.
2. Demographic distribution of self-reported good health, expressed as percentage of adult population, by sex and 10-year age bands.
3. Socio-economic status distribution of self-reported good health, expressed as percentage of adult population by socio-economic status quintiles.
4. Geographic distribution of self-reported good health, expressed as percentage of adult population, by state or territory.
5. Extent of self-reported good health amongst Aboriginal people, expressed as percentage of adult population, by state.

### Data source agencies, release frequency and time period

#	Source	Release Frequency	Time period
1	South Australian Monitoring and Surveillance System Online (SAMSS) customised extract 2018, Population Health Surveys, SA Health	Annual	Calendar year
2	Australian Bureau of Statistics 2015, National Health Survey: First Results, cat. no. 4364.0.55.001	Three years	Point in time
3	Australian Bureau of Statistics 2014, Australian Aboriginal and Torres Strait Islander health survey: Updated results, cat. no. 4727.0.55.006	irregular	Point in time

### Definitions

1. *Socio-economic status* summarises a range of information about the economic and social conditions of people and households within an area. The measure used here is the Australian Bureau of Statistics' Socio-economic Index for Areas (SEIFA), Index of Relative Socio-economic Disadvantage (IRSD), under which lower scores indicate relatively greater disadvantage in general.
2. A *quintile* is one of five subsets of a population, providing information about the distribution of observations. Each quintile contains the same number of observations, dividing the population into five equal subsets.
3. Standardisation allows for valid comparisons between populations with differences in the variables which have been standardised. For instance, age-standardised figures mean that comparisons between states/territories or over time are not affected by differences in age structures in the different jurisdictions. However, standardised figures are not directly comparable with non-standardised figures or with those standardised by a different method.
4. The term *national average* and similar terms are used to refer to Australia-wide figures and should not be interpreted as being the average of the figures for each individual state and territory.
5. *Standard Error (SE)* measure indicates the extent to which a survey estimate is likely to deviate from the true population and is expressed as a number.
6. The *Relative Standard Error (RSE)* is the standard error expressed as a fraction of the estimate and is usually displayed as a percentage.

7. The *p-value* is the level of marginal significance within a statistical hypothesis test representing the probability of the occurrence of a given event.
8. A *two-tailed* test is a statistical test in which the critical area of a distribution is two-sided and tests whether a sample is greater than or less than a certain range of values.

#### **Important caveats**

1. Data from the South Australian Monitoring and Surveillance System (SAMSS) is based on a sample survey conducted monthly.
2. South Australian Monitoring and Surveillance System (SAMSS) presents estimates using raked weighted data to reflect the South Australian population, where data was not just weighted by age, sex and area of residence, but also includes education level, renting status, country of birth, marital status and employment status.
3. All sample surveys are subject to sampling and non-sampling error. Sampling error is a measure of the variability that occurs by chance because a sample, rather than the entire population, is surveyed. This can be expressed as a margin of error around the estimate. Non-sampling error may occur in any data collection, whether it is based on a sample or a full count such as a census. Sources of non-sampling error include non-response, errors in reporting by respondents or in recording of answers by interviewers, and occasional errors in coding and processing data.

#### **Methodologies used for statistical analysis**

1. *Linear regression* was used to test the trend of mean over the last decade using Data Analysis techniques in an excel spreadsheet. Regression with *Significance Factor* less than 0.05 determines if the trend is statistically significant.
2. *RSE* over 25% are subject to high sampling error and should be used with caution while *RSE* over 50% are subject to very high sampling error and should be used with extreme caution and are also considered too unreliable.
3. Fisher's exact test is a statistical significance test used in the analysis of contingency tables using <http://www.langsrud.com/stat/fisher.htm>. The 2-Tail: p-value lesser than 0.05, indicates a statistically significant difference between the rates.

### 3-3 Nutrition – Recommended fruit intake

#### Rationale for reporting

The Australian Dietary Guidelines from the National Health and Medical Research Council advise that a healthy diet includes plenty of fruit, vegetables and legumes. The data reported here provides insight into the extent to which South Australians are eating healthily and any differences between groups of populations, assisting with the planning and delivery of preventative health programmes and of the need for health services.

#### Measures Reported

1. Extent to which the population eats the recommended amount of fruit, expressed as percentage of adult population, by region and over time.
2. Demographic distribution of extent to which the population eats the recommended amount of fruit, expressed as percentage of adult population, by sex and 10-year age bands.
3. Socio-economic status distribution of extent to which the population eats the recommended amount of fruit, expressed as percentage of adult population by socio-economic status quintiles.
4. Geographic distribution of extent to which the population eats the recommended amount of fruit, expressed as percentage of adult population, by state or territory.
5. Extent to which Aboriginal people eat the recommended amount of fruit, expressed as percentage of adult population, by state.

#### Data source agencies, release frequency and time period

#	Source	Release Frequency	Time period
1	South Australian Monitoring and Surveillance System Online (SAMSS) customised extract 2018, Prevention and Population Health, Nutrition-serves of fruit (Age 18+), SA Health.	Annual	Calendar year
2	Australian Bureau of Statistics 2015, National Health Survey: First Results, cat. no. 4364.0.55.001	Three years	Point in time
3	Australian Bureau of Statistics 2014, Australian Aboriginal and Torres Strait Islander health survey: Updated results, cat. no. 4727.0.55.006	Irregular	Point in time

#### Definitions

1. A *serve of fruit* is approximately 150 grams of fresh fruit or 50 grams of dried fruit.
2. The term *national average* and similar terms are used to refer to Australia-wide figures and should not be interpreted as being the average of the figures for each individual state and territory.
3. *Socio-economic status* summarises a range of information about the economic and social conditions of people and households within an area. The measure used here is the Australian Bureau of Statistics' Socio-economic Index for Areas (SEIFA), Index of Relative Socio-economic Disadvantage (IRSD), under which lower scores indicate relatively greater disadvantage in general.
4. A *quintile* is one of five subsets of a population, providing information about the distribution of observations. Each quintile contains the same number of observations, dividing the population into five equal subsets.
5. *Standard Error (SE)* measure indicates the extent to which a survey estimate is likely to deviate from the true population and is expressed as a number.
6. The *Relative Standard Error (RSE)* is the standard error expressed as a fraction of the estimate and is usually displayed as a percentage.

7. The *p-value* is the level of marginal significance within a statistical hypothesis test representing the probability of the occurrence of a given event.
8. A *two-tailed* test is a statistical test in which the critical area of a distribution is two-sided and tests whether a sample is greater than or less than a certain range of values.

#### **Important caveats**

1. Data from the South Australian Monitoring and Surveillance System (SAMSS) is based on a sample survey conducted monthly.
2. All sample surveys are subject to sampling and non-sampling error. Sampling error is a measure of the variability that occurs by chance because a sample, rather than the entire population, is surveyed. This can be expressed as a margin of error around the estimate. Non-sampling error may occur in any data collection, whether it is based on a sample or a full count such as a census. Sources of non-sampling error include non-response, errors in reporting by respondents or in recording of answers by interviewers, and occasional errors in coding and processing data.
3. South Australian Monitoring and Surveillance System (SAMSS) presents estimates using raked weighted data to reflect the South Australian population, where data was not just weighted by age, sex and area of residence, but also includes education level, renting status, country of birth, marital status and employment status.
4. Figures for South Australian populations eating the recommended amount of fruit may include (in the denominator) those with an 'unknown' response.

#### **Methodologies used for statistical analysis**

1. *Linear regression* was used to test the trend of mean over the last decade using Data Analysis techniques in an excel spreadsheet. Regression with *Significance Factor* less than 0.05 determines if the trend is statistically significant.
2. *RSE* over 25% are subject to high sampling error and should be used with caution while *RSE* over 50% are subject to very high sampling error and should be used with extreme caution and are also considered too unreliable.
3. Fisher's exact test is a statistical significance test used in the analysis of contingency tables using <http://www.langsrud.com/stat/fisher.htm>. The 2-Tail: p-value lesser than 0.05, indicates a statistically significant difference between the rates.

### 3-4 Nutrition – Recommended vegetable intake

#### Rationale for reporting

The Australian Dietary Guidelines from the National Health and Medical Research Council advise that a healthy diet includes plenty of fruit, vegetables and legumes. The data reported here provides insight into the extent to which South Australians are eating healthily and any differences between groups of populations, assisting with the planning and delivery of preventative health programmes and of the need for health services.

#### Measures Reported

1. Extent to which the population eats the recommended amount of vegetables, expressed as percentage of adult population, by region and over time.
2. Demographic distribution of extent to which the population eats the recommended amount of vegetables, expressed as percentage of adult population, by sex and 10-year age bands.
3. Socio-economic status distribution of extent to which the population eats the recommended amount of vegetables, expressed as percentage of adult population by socio-economic status quintiles.
4. Geographic distribution of extent to which the population eats the recommended amount of vegetables, expressed as percentage of adult population, by state or territory.
5. Extent to which Aboriginal people eat the recommended amount of vegetables, expressed as percentage of adult population, by state.

#### Data source agencies, release frequency and time period

#	Source	Release Frequency	Time period
1	South Australian Monitoring and Surveillance System Online (SAMSS) customised extract 2018, Prevention and Population Health, Nutrition-serves of fruit (Age 18+), SA Health.	Annual	Calendar year
2	Australian Bureau of Statistics 2015, National Health Survey: First Results, cat. no. 4364.0.55.001	Three years	Point in time
3	Australian Bureau of Statistics 2014, Australian Aboriginal and Torres Strait Islander health survey: Updated results, cat. no. 4727.0.55.006	irregular	Point in time

#### Definitions

1. A *serve of vegetables* is approximately half a cup of cooked vegetables or one cup of salad vegetables – equivalent to approximately 75 grams.
2. The term *national average* and similar terms are used to refer to Australia-wide figures and should not be interpreted as being the average of the figures for each individual state and territory.
3. *Socio-economic status* summarises a range of information about the economic and social conditions of people and households within an area. The measure used here is the Australian Bureau of Statistics' Socio-economic Index for Areas (SEIFA), Index of Relative Socio-economic Disadvantage (IRSD), under which lower scores indicate relatively greater disadvantage in general.
4. A *quintile* is one of five subsets of a population, providing information about the distribution of observations. Each quintile contains the same number of observations, dividing the population into five equal subsets.
5. *Standard Error (SE)* measure indicates the extent to which a survey estimate is likely to deviate from the true population and is expressed as a number.

6. The *Relative Standard Error (RSE)* is the standard error expressed as a fraction of the estimate and is usually displayed as a percentage.
7. The *p-value* is the level of marginal significance within a statistical hypothesis test representing the probability of the occurrence of a given event.
8. A *two-tailed* test is a statistical test in which the critical area of a distribution is two-sided and tests whether a sample is greater than or less than a certain range of values.

#### **Important caveats**

1. Data from the South Australian Monitoring and Surveillance System (SAMSS) is based on a sample survey conducted monthly.
2. All sample surveys are subject to sampling and non-sampling error. Sampling error is a measure of the variability that occurs by chance because a sample, rather than the entire population, is surveyed. This can be expressed as a margin of error around the estimate. Non-sampling error may occur in any data collection, whether it is based on a sample or a full count such as a census. Sources of non-sampling error include non-response, errors in reporting by respondents or in recording of answers by interviewers, and occasional errors in coding and processing data.
3. South Australian Monitoring and Surveillance System (SAMSS) presents estimates using raked weighted data to reflect the South Australian population, where data was not just weighted by age, sex and area of residence, but also includes education level, renting status, country of birth, marital status and employment status.
4. Figures for South Australian populations eating the recommended amount of vegetables may include (in the denominator) those with an 'unknown' response.

#### **Methodologies used for statistical analysis**

1. *Linear regression* was used to test the trend of mean over the last decade using Data Analysis techniques in an excel spreadsheet. Regression with *Significance Factor* less than 0.05 determines if the trend is statistically significant.
2. *RSE* over 25% are subject to high sampling error and should be used with caution while *RSE* over 50% are subject to very high sampling error and should be used with extreme caution and are also considered too unreliable.
3. Fisher's exact test is a statistical significance test used in the analysis of contingency tables using <http://www.langsrud.com/stat/fisher.htm>. The 2-Tail: p-value lesser than 0.05, indicates a statistically significant difference between the rates.

### 3-5 Physical activity

#### Rationale for reporting

Knowledge of physical activity levels can help identify disparities and trends which could affect the ability of the South Australian health system to help the population achieve and maintain healthy body weights.

#### Measures Reported

1. Extent to which the population undertakes physical activity, expressed as percentage of adult population, by region and over time.
2. Demographic distribution of extent to which the population undertakes sufficient physical activity, expressed as percentage of adult population, by sex and 10-year age bands.
3. Socio-economic status distribution of extent to which the population undertakes sufficient physical activity, expressed as percentage of adult population by socio-economic status quintiles.
4. Geographic distribution of extent to which the population undertakes physical activity, expressed as percentage of adult population, by state or territory.
5. Extent to which Aboriginal people undertake sufficient physical activity, expressed as percentage of adult population, by state.

#### Data source agencies, release frequency and time period

#	Source	Release Frequency	Time period
1	South Australian Monitoring and Surveillance System Online (SAMSS) customised extract 2018, Prevention and Population Health, Physical activity (Age 18+), SA Health.	Annual	Calendar year
2	Australian Bureau of Statistics ABS 2015, Participation in Sport and Physical Recreation, Australia, 2013-2014 cat. no. 4177.0	Annual	Financial year
3	Population Research and Outcome Studies (PROS), University of Adelaide 2014, South Australian Aboriginal health survey	irregular	Point in time

#### Definitions

1. *Socio-economic status* summarises a range of information about the economic and social conditions of people and households within an area. The measure used here is the Australian Bureau of Statistics' Socio-economic Index for Areas (SEIFA), Index of Relative Socio-economic Disadvantage (IRSD), under which lower scores indicate relatively greater disadvantage in general.
2. A *quintile* is one of five subsets of a population, providing information about the distribution of observations. Each quintile contains the same number of observations, dividing the population into five equal subsets.
3. *Standard Error (SE)* measure indicates the extent to which a survey estimate is likely to deviate from the true population and is expressed as a number.
4. The *Relative Standard Error (RSE)* is the standard error expressed as a fraction of the estimate and is usually displayed as a percentage.
5. The *p-value* is the level of marginal significance within a statistical hypothesis test representing the probability of the occurrence of a given event.
6. A *two-tailed* test is a statistical test in which the critical area of a distribution is two-sided and tests whether a sample is greater than or less than a certain range of values

### Important caveats

1. Data from the South Australian Monitoring and Surveillance System (SAMSS) is based on a sample survey conducted monthly.
2. All sample surveys are subject to sampling and non-sampling error. Sampling error is a measure of the variability that occurs by chance because a sample, rather than the entire population, is surveyed. This can be expressed as a margin of error around the estimate. Non-sampling error may occur in any data collection, whether it is based on a sample or a full count such as a census. Sources of non-sampling error include non-response, errors in reporting by respondents or in recording of answers by interviewers, and occasional errors in coding and processing data.
3. South Australian Monitoring and Surveillance System (SAMSS) presents estimates using raked weighted data to reflect the South Australian population, where data was not just weighted by age, sex and area of residence, but also includes education level, renting status, country of birth, marital status and employment status.
4. Figures from the ABS's *Participation in Sport and Physical Recreation* report are based on a sample survey, the Multipurpose Household Survey (MPHS) conducted by the ABS.
5. Figures by state are for self-reported participation in a sport or physical recreational activity at least once during the 12 months prior to being surveyed. Activities such as gardening, housework, manual labouring and other forms of occupational physical activity were excluded. This definition is substantively different from that used for other figures reported in this section which are for self-reported undertaking of sufficient physical activity.

### Methodologies used for statistical analysis

1. *Linear regression* was used to test the trend of mean over the last decade using Data Analysis techniques in an excel spreadsheet. Regression with *Significance Factor* less than 0.05 determines if the trend is statistically significant.
2. *RSE* over 25% are subject to high sampling error and should be used with caution while *RSE* over 50% are subject to very high sampling error and should be used with extreme caution and are also considered too unreliable.
3. Fisher's exact test is a statistical significance test used in the analysis of contingency tables using <http://www.langsrud.com/stat/fisher.htm>. The 2-Tail: p-value lesser than 0.05, indicates a statistically significant difference between the rates.

### 3-6 Disability

#### Rationale for reporting

The level of disability in the population can have a direct bearing on the extent and types of healthcare provision needs now and into the future.

#### Measures Reported

1. Extent of disability in the population, expressed as percentage of population, by state and over time.
2. Extent of population need for assistance due to profound or severe disability, expressed as percentage of population, by region, state and over time.
3. Demographic distribution of extent of population need for assistance due to profound or severe disability, expressed as percentage of population, by sex and 5-year age bands.
4. Extent to which Aboriginal people need assistance due to profound or severe disability, expressed as percentage of population, by state.

#### Data source agencies, release frequency and time period

#	Source	Release Frequency	Time period
1	Australian Bureau of Statistics ABS 2017, Disability, Ageing and Carers, Australia: Summary of Findings 2015, cat. no. 4430.0	Three years	Calendar year
2	Australian Bureau of Statistics ABS 2017, 2016 Census Community Profiles	Annual	Point in time

#### Definitions

1. *Disability* in the ABS's Survey of Disability, Ageing and Carers (SDAC) means a limitation, restriction or impairment, which has lasted, or is likely to last, for at least six months and restricts everyday activities.
2. The term *national average* and similar terms are used to refer to Australia-wide figures and should not be interpreted as being the average of the figures for each individual state and territory.

#### Important caveats

1. Figures from the ABS's *Disability, Ageing and Carers, Australia* report are based on a sample survey, the Survey of Disability, Ageing and Carers (SDAC) conducted by the ABS.
2. All sample surveys are subject to sampling and non-sampling error. Sampling error is a measure of the variability that occurs by chance because a sample, rather than the entire population, is surveyed. This can be expressed as a margin of error around the estimate. Non-sampling error may occur in any data collection, whether it is based on a sample or a full count such as a census. Sources of non-sampling error include non-response, errors in reporting by respondents or in recording of answers by interviewers, and occasional errors in coding and processing data.
3. Disability rates are based where possible on self-reported survey responses, although in some cases information was provided by another person. The ABS advises that disability is a difficult concept to measure, being dependent on respondent perception, and that some under-reporting may have occurred because of unwillingness to report (e.g., owing to the sensitive nature of a condition) or lack of awareness.
4. Rates shown for *needing assistance due to profound or severe disability* may include (in the denominator) those for whom the response is not stated.

### 3-7 People living with multiple risk factors

#### Rationale for reporting

Identified risk factors can have an impact on current and future population health needs. Understanding the extent to which people are living with multiple risk factors can help health service provision and planning.

#### Measures Reported

1. Size of population living with multiple risk factors, expressed as percentage of adult population, by region and over time.
2. Demographic distribution of population living with multiple risk factors, expressed as percentage of adult population, by sex and 10-year age bands.
3. Socio-economic status distribution of population living with multiple risk factors, expressed as percentage of adult population by socio-economic status quintiles.

#### Data source agencies, release frequency and time period

#	Source	Release Frequency	Time period
1	South Australian Monitoring and Surveillance System Online (SAMSS) customised extract 2018, Prevention and Population Health, Number of risk factors (Age 18+), SA Health.	Annual	Calendar year

#### Definitions

1. *Socio-economic status* summarises a range of information about the economic and social conditions of people and households within an area. The measure used here is the Australian Bureau of Statistics' Socio-economic Index for Areas (SEIFA), Index of Relative Socio-economic Disadvantage (IRSD), under which lower scores indicate relatively greater disadvantage in general.
2. A *quintile* is one of five subsets of a population, providing information about the distribution of observations. Each quintile contains the same number of observations, dividing the population into five equal subsets.
3. *Standard Error (SE)* measure indicates the extent to which a survey estimate is likely to deviate from the true population and is expressed as a number.
4. The *Relative Standard Error (RSE)* is the standard error expressed as a fraction of the estimate and is usually displayed as a percentage.
5. The *p-value* is the level of marginal significance within a statistical hypothesis test representing the probability of the occurrence of a given event.
6. A *two-tailed* test is a statistical test in which the critical area of a distribution is two-sided and tests whether a sample is greater than or less than a certain range of values.

#### Important caveats

1. Data from the South Australian Monitoring and Surveillance System (SAMSS) is based on a sample survey conducted monthly.
2. All sample surveys are subject to sampling and non-sampling error. Sampling error is a measure of the variability that occurs by chance because a sample, rather than the entire population, is surveyed. This can be expressed as a margin of error around the estimate. Non-sampling error may occur in any data collection, whether it is based on a sample or a full count such as a census. Sources of non-sampling error include non-response, errors in reporting by respondents or in recording of answers by interviewers, and occasional errors in coding and processing data.

3. South Australian Monitoring and Surveillance System (SAMSS) presents estimates using raked weighted data to reflect the South Australian population, where data was not just weighted by age, sex and area of residence, but also includes education level, renting status, country of birth, marital status and employment status.

**Methodologies used for statistical analysis**

1. *Linear regression* was used to test the trend of mean over the last decade using Data Analysis techniques in an excel spreadsheet. Regression with *Significance Factor* less than 0.05 determines if the trend is statistically significant.
2. *RSE* over 25% are subject to high sampling error and should be used with caution while *RSE* over 50% are subject to very high sampling error and should be used with extreme caution and are also considered too unreliable.
3. Fisher's exact test is a statistical significance test used in the analysis of contingency tables using <http://www.langsrud.com/stat/fisher.htm>. The 2-Tail: p-value lesser than 0.05, indicates a statistically significant difference between the rates.

### 3-8 Alcohol-related risk

#### Rationale for reporting

The National Health and Medical Research Council has published evidence-based guidelines for reducing the risk of injury on a single occasion of drinking and the risks of alcohol-related harm over a lifetime. Understanding the extent to which South Australians drink within these guidelines is important for understanding necessary health service provision and planning for future provision.

#### Measures Reported

1. Size of population at risk of alcohol-related injury, expressed as percentage of adult population, by region and over time.
2. Demographic distribution of population at risk of alcohol-related injury, expressed as percentage of adult population, by sex and 10-year age bands.
3. Socio-economic status distribution of population at risk of alcohol-related injury, expressed as percentage of adult population by socio-economic status quintiles.
4. Size of population at lifetime risk of alcohol-related disease or injury, expressed as percentage of adult population, by region and over time.
5. Demographic distribution of population at lifetime risk of alcohol-related disease or injury, expressed as percentage of adult population, by sex and 10-year age bands.
6. Socio-economic status distribution of population at lifetime risk of alcohol-related disease or injury, expressed as percentage of adult population by socio-economic status quintiles.
7. Geographic distribution of population at lifetime risk of alcohol-related disease or injury, expressed as percentage of adult population, by state or territory.
8. Geographic distribution of Aboriginal population at lifetime risk of alcohol-related disease or injury, expressed as percentage of adult population, by state or territory.

#### Data source agencies, release frequency and time period

#	Source	Release Frequency	Time period
1	Drug and Alcohol Services South Australia,(DASSA), Health Omnibus Survey customised extract 2018, SA health	Annual	Calendar year
2	Australian Bureau of Statistics 2015, National Health Survey: First Results, cat. no. 4364.0.55.001	Three years	Point in time
3	Australian Bureau of Statistics 2016, <i>National Aboriginal and Torres Strait Islander Social Survey, Australia, 2014-15</i> , cat. no. 4714.0	irregular	Point in time

#### Definitions

1. A *standard drink* contains 10 g of alcohol (equivalent to 12.5 mL of pure alcohol).
2. A *single occasion* in respect of drinking means a sequence of drinks taken without the blood alcohol concentration reaching zero in between. This might include a drink at home over dinner, or at a specific event, such as a party, and can include drinking spread across more than one context or venue.
3. *Socio-economic status* summarises a range of information about the economic and social conditions of people and households within an area. The measure used here is the Australian Bureau of Statistics' Socio-economic Index for Areas (SEIFA), Index of Relative Socio-economic Disadvantage (IRSD), under which lower scores indicate relatively greater disadvantage in general.

4. A *quintile* is one of five subsets of a population, providing information about the distribution of observations. Each quintile contains the same number of observations, dividing the population into five equal subsets.
5. The term *national average* and similar terms are used to refer to Australia-wide figures and should not be interpreted as being the average of the figures for each individual state and territory.

**Important caveats**

1. Data from the South Australian Health Omnibus Survey (HOS) is based on a sample survey conducted monthly.
2. All sample surveys are subject to sampling and non-sampling error. Sampling error is a measure of the variability that occurs by chance because a sample, rather than the entire population, is surveyed. This can be expressed as a margin of error around the estimate. Non-sampling error may occur in any data collection, whether it is based on a sample or a full count such as a census. Sources of non-sampling error include non-response, errors in reporting by respondents or in recording of answers by interviewers, and occasional errors in coding and processing data.
3. Rates for alcohol-related risk derived from the National Health Survey include (in the denominator) people who did not remember when they last consumed alcohol.
4. Alcohol-related risk in the National Health Survey is assessed using average daily consumption of alcohol for persons aged 15 years and over, derived from the type, brand, number and serving sizes of beverages consumed on the three most recent days of the week prior to interview, in conjunction with the total number of days alcohol was consumed in the week prior to interview.

### 3-9 Overweight and Obesity

#### Rationale for reporting

Being overweight or obese increases the risk of developing conditions such as heart disease, stroke and type 2 diabetes. Understanding the extent to which the population are overweight or obese and changes in the extent over time can support delivery of health services and planning of future needs.

#### Measures Reported

1. Size of overweight and obese population, expressed as percentage of adult population, by region and over time.
2. Demographic distribution of overweight and obese population, expressed as percentage of adult population, by sex and 10-year age bands.
3. Socio-economic status distribution of overweight and obese population, expressed as percentage of adult population by socio-economic status quintiles.
4. Geographic distribution of overweight and obese population, expressed as percentage of adult population, by state or territory.
5. Size of overweight and obese Aboriginal population, expressed as percentage of adult population, by state or territory.

#### Data source agencies, release frequency and time period

#	Source	Release Frequency	Time period
1	South Australian Monitoring and Surveillance System Online (SAMSS) customised extract 2018, Prevention and Population Health, Body Mass Index WHO definition (Age 18+), SA Health.	Annual	Calendar year
2	Australian Bureau of Statistics 2015, National Health Survey: First Results, cat. no. 4364.0.55.001	Three years	Point in time
3	Australian Bureau of Statistics 2014, Australian Aboriginal and Torres Strait Islander health survey: Updated results, cat. no. 4727.0.55.006	irregular	Point in time

#### Definitions

1. *Body Mass Index* (BMI) is mass (in kilograms) divided by the square of height (in metres). The resulting BMI figure may be categorised as one of: underweight, normal, overweight, obese, severely obese and morbidly obese.
2. *Overweight* is defined by the World Health Organisation as a BMI in the range of 25 to less than 30 kg/m<sup>2</sup>. *Obesity* is a BMI of 30 kg/m<sup>2</sup> or higher.
3. *Socio-economic status* summarises a range of information about the economic and social conditions of people and households within an area. The measure used here is the Australian Bureau of Statistics' Socio-economic Index for Areas (SEIFA), Index of Relative Socio-economic Disadvantage (IRSD), under which lower scores indicate relatively greater disadvantage in general.
4. A *quintile* is one of five subsets of a population, providing information about the distribution of observations. Each quintile contains the same number of observations, dividing the population into five equal subsets.
5. Standardisation allows for valid comparisons between populations with differences in the variables which have been standardised. For instance, age-standardised figures mean that comparisons between states/territories or over time are not affected by differences in age structures in the different jurisdictions. However, standardised figures are not directly comparable with non-standardised figures or with those standardised by a different method.

6. The term *national average* and similar terms are used to refer to Australia-wide figures and should not be interpreted as being the average of the figures for each individual state and territory.
7. *Standard Error (SE)* measure indicates the extent to which a survey estimate is likely to deviate from the true population and is expressed as a number.
8. The *Relative Standard Error (RSE)* is the standard error expressed as a fraction of the estimate and is usually displayed as a percentage.
9. The *p-value* is the level of marginal significance within a statistical hypothesis test representing the probability of the occurrence of a given event.
10. A *two-tailed* test is a statistical test in which the critical area of a distribution is two-sided and tests whether a sample is greater than or less than a certain range of values.

#### **Important caveats**

1. Data from the South Australian Monitoring and Surveillance System (SAMSS) is based on a sample survey conducted monthly.
2. All sample surveys are subject to sampling and non-sampling error. Sampling error is a measure of the variability that occurs by chance because a sample, rather than the entire population, is surveyed. This can be expressed as a margin of error around the estimate. Non-sampling error may occur in any data collection, whether it is based on a sample or a full count such as a census. Sources of non-sampling error include non-response, errors in reporting by respondents or in recording of answers by interviewers, and occasional errors in coding and processing data.
3. South Australian Monitoring and Surveillance System (SAMSS) presents estimates using raked weighted data to reflect the South Australian population, where data was not just weighted by age, sex and area of residence, but also includes education level, renting status, country of birth, marital status and employment status.
4. Overweight/obesity rates by state and territory are age standardised to the 2001 Australian standard population and should not be compared to non-standardised figures.
5. Overweight/obesity rates by state and territory use BMI derived from measured height and weight. In 2014-15, 26.8% of respondents aged 18 years and over did not have their height, weight or both measured. For these respondents, imputation was used to obtain height, weight and BMI scores.
6. Overweight/obesity rates for Aboriginal people based on measured BMI and exclude those for whom height and/or weight were not measured (17.5% of Aboriginal and Torres Strait Islander people aged 15 years and over).

#### **Methodologies used for statistical analysis**

1. *Linear regression* was used to test the trend of mean over the last decade using Data Analysis techniques in an excel spreadsheet. Regression with *Significance Factor* less than 0.05 determines if the trend is statistically significant.
2. *RSE* over 25% are subject to high sampling error and should be used with caution while *RSE* over 50% are subject to very high sampling error and should be used with extreme caution and are also considered too unreliable.
3. Fisher's exact test is a statistical significance test used in the analysis of contingency tables using <http://www.langsrud.com/stat/fisher.htm>. The 2-Tail: p-value lesser than 0.05, indicates a statistically significant difference between the rates.

### 3-10 High blood pressure

#### Rationale for reporting

High blood pressure is a chronic condition with potentially large impact on the health of the population. Understanding the extent to which the population is living with the condition is important for being able to plan and deliver health services.

#### Measures Reported

1. Extent of living with high blood pressure, expressed as percentage of adult population, by region and over time.
2. Demographic distribution of extent of living with high blood pressure, expressed as percentage of adult population, by sex and 10-year age bands.
3. Socio-economic status distribution of extent of living with high blood pressure, expressed as percentage of adult population by socio-economic status quintiles.
4. Geographic distribution of extent of living with high blood pressure, expressed as percentage of adult population, by state or territory.
5. Extent of living with high blood pressure in the Aboriginal population, expressed as percentage of adult population, by state or territory.

#### Data source agencies, release frequency and time period

#	Source	Release Frequency	Time period
1	South Australian Monitoring and Surveillance System Online (SAMSS) customised extract 2018, Prevention and Population Health, Blood pressure prevalence (Age 18+), SA Health.	Annual	Calendar year
2	Australian Bureau of Statistics 2015, National Health Survey: First Results, cat. no. 4364.0.55.001	Three years	Point in time
3	Population Research and Outcome Studies (PROS), South Australian Aboriginal health survey, University of Adelaide.	irregular	Point in time

#### Definitions

1. *Socio-economic status* summarises a range of information about the economic and social conditions of people and households within an area. The measure used here is the Australian Bureau of Statistics' Socio-economic Index for Areas (SEIFA), Index of Relative Socio-economic Disadvantage (IRSD), under which lower scores indicate relatively greater disadvantage in general.
2. A *quintile* is one of five subsets of a population, providing information about the distribution of observations. Each quintile contains the same number of observations, dividing the population into five equal subsets.
3. *Standard Error (SE)* measure indicates the extent to which a survey estimate is likely to deviate from the true population and is expressed as a number.
4. The *Relative Standard Error (RSE)* is the standard error expressed as a fraction of the estimate and is usually displayed as a percentage.
5. The *p-value* is the level of marginal significance within a statistical hypothesis test representing the probability of the occurrence of a given event.
6. A *two-tailed* test is a statistical test in which the critical area of a distribution is two-sided and tests whether a sample is greater than or less than a certain range of values.

**Important caveats**

1. Data from the South Australian Monitoring and Surveillance System (SAMSS) is based on a sample survey conducted monthly.
2. All sample surveys are subject to sampling and non-sampling error. Sampling error is a measure of the variability that occurs by chance because a sample, rather than the entire population, is surveyed. This can be expressed as a margin of error around the estimate. Non-sampling error may occur in any data collection, whether it is based on a sample or a full count such as a census. Sources of non-sampling error include non-response, errors in reporting by respondents or in recording of answers by interviewers, and occasional errors in coding and processing data.
3. South Australian Monitoring and Surveillance System (SAMSS) presents estimates using raked weighted data to reflect the South Australian population, where data was not just weighted by age, sex and area of residence, but also includes education level, renting status, country of birth, marital status and employment status.
4. Reported rates from the South Australian Monitoring and Surveillance System Online are people aged 16 or over who self-reported that they had current doctor-diagnosed high blood pressure and/or were on medication for high blood pressure.
5. Rates from the Australian Health Survey are for people aged 18 and over whose measured blood pressure was 140/90 mmHg or higher.
6. In 2014-15, 24.3% of respondents to the Australian Health Survey aged 18 years and over did not have their blood pressure measured. For these respondents, imputation was used to obtain blood pressure. From their investigations, the ABS has nevertheless found the data to be of suitable quality and comparable to 2011-12 and earlier years. Further information is available in the explanatory notes published by ABS alongside the source data.
7. Rates from the South Australian Aboriginal Health Survey are for people aged 15 or over who self-reported that they had current doctor diagnosed high blood pressure and/or were on medication for high blood pressure.

**Methodologies used for statistical analysis**

1. *Linear regression* was used to test the trend of mean over the last decade using Data Analysis techniques in an excel spreadsheet. Regression with *Significance Factor* less than 0.05 determines if the trend is statistically significant.
2. *RSE* over 25% are subject to high sampling error and should be used with caution while *RSE* over 50% are subject to very high sampling error and should be used with extreme caution and are also considered too unreliable.
3. Fisher's exact test is a statistical significance test used in the analysis of contingency tables using <http://www.langsrud.com/stat/fisher.htm>. The 2-Tail: p-value lesser than 0.05, indicates a statistically significant difference between the rates.

### 3-11 High cholesterol

#### Rationale for reporting

High cholesterol is a chronic condition with potentially large impact on the health of the population. Understanding the extent to which the population is living with the condition is important for being able to plan and deliver health services.

#### Measures Reported

1. Extent of living with high cholesterol, expressed as percentage of adult population, by region and over time.
2. Demographic distribution of extent of living with high cholesterol, expressed as percentage of adult population, by sex and 10-year age bands.
3. Socio-economic status distribution of extent of living with high cholesterol, expressed as percentage of adult population by socio-economic status quintiles.
4. Geographic distribution of extent of living with high cholesterol, expressed as percentage of adult population, by state or territory.

#### Data source agencies, release frequency and time period

#	Source	Release Frequency	Time period
1	South Australian Monitoring and Surveillance System Online (SAMSS) customised extract 2018, Prevention and Population Health, Cholesterol prevalence (Age 18+), SA Health.	Annual	Calendar year
2	Australian Bureau of Statistics 2015, National Health Survey: First Results, cat. no. 4364.0.55.001	Three years	Point in time

#### Definitions

1. *Socio-economic status* summarises a range of information about the economic and social conditions of people and households within an area. The measure used here is the Australian Bureau of Statistics' Socio-economic Index for Areas (SEIFA), Index of Relative Socio-economic Disadvantage (IRSD), under which lower scores indicate relatively greater disadvantage in general.
2. A *quintile* is one of five subsets of a population, providing information about the distribution of observations. Each quintile contains the same number of observations, dividing the population into five equal subsets.
3. *Standard Error (SE)* measure indicates the extent to which a survey estimate is likely to deviate from the true population and is expressed as a number.
4. The *Relative Standard Error (RSE)* is the standard error expressed as a fraction of the estimate and is usually displayed as a percentage.
5. The *p-value* is the level of marginal significance within a statistical hypothesis test representing the probability of the occurrence of a given event.
6. A *two-tailed* test is a statistical test in which the critical area of a distribution is two-sided and tests whether a sample is greater than or less than a certain range of values.

#### Important caveats

1. Data from the South Australian Monitoring and Surveillance System (SAMSS) is based on a sample survey conducted monthly.
2. All sample surveys are subject to sampling and non-sampling error. Sampling error is a measure of the variability that occurs by chance because a sample, rather than the entire population, is surveyed. This can be expressed as a margin of error around the estimate. Non-sampling error

may occur in any data collection, whether it is based on a sample or a full count such as a census. Sources of non-sampling error include non-response, errors in reporting by respondents or in recording of answers by interviewers, and occasional errors in coding and processing data.

3. South Australian Monitoring and Surveillance System (SAMSS) presents estimates using raked weighted data to reflect the South Australian population, where data was not just weighted by age, sex and area of residence, but also includes education level, renting status, country of birth, marital status and employment status.

#### **Methodologies used for statistical analysis**

1. *Linear regression* was used to test the trend of mean over the last decade using Data Analysis techniques in an excel spreadsheet. Regression with *Significance Factor* less than 0.05 determines if the trend is statistically significant.
2. *RSE* over 25% are subject to high sampling error and should be used with caution while *RSE* over 50% are subject to very high sampling error and should be used with extreme caution and are also considered too unreliable.
3. Fisher's exact test is a statistical significance test used in the analysis of contingency tables using <http://www.langsrud.com/stat/fisher.htm>. The 2-Tail: p-value lesser than 0.05, indicates a statistically significant difference between the rates.

### 3-12 Smoking prevalence

#### Rationale for reporting

Data on population smoking rates, and differences between different subgroups of the population can changes over time, provide monitoring information on the need for and effectiveness of public health programmes and can help with health service delivery planning.

#### Measures Reported

1. Size of the smoking population, expressed as percentage of adult population, by region and over time.
2. Demographic distribution of the smoking population, expressed as percentage of adult population, by sex and 10-year age bands.
3. Socio-economic status distribution of the smoking population, expressed as percentage of adult population by socio-economic status quintiles.
4. Geographic distribution of the smoking population, expressed as percentage of adult population, by state or territory.
5. Size of the Aboriginal smoking population, expressed as percentage of adult population, by state or territory.

#### Data source agencies, release frequency and time period

#	Source	Release Frequency	Time period
1	Drug and Alcohol Services South Australia,(DASSA), Health Omnibus Survey customised extract 2018, SA health	Annual	Calendar year
2	Australian Bureau of Statistics 2015, National Health Survey: First Results, cat. no. 4364.0.55.001	Three years	Point in time
3	Australian Bureau of Statistics 2016, <i>National Aboriginal and Torres Strait Islander Social Survey, Australia, 2014-15</i> , cat. no. 4714.0	irregular	Point in time

#### Definitions

1. *Socio-economic status* summarises a range of information about the economic and social conditions of people and households within an area. The measure used here is the Australian Bureau of Statistics' Socio-economic Index for Areas (SEIFA), Index of Relative Socio-economic Disadvantage (IRSD), under which lower scores indicate relatively greater disadvantage in general.
2. A *quintile* is one of five subsets of a population, providing information about the distribution of observations. Each quintile contains the same number of observations, dividing the population into five equal subsets.
3. Standardisation allows for valid comparisons between populations with differences in the variables which have been standardised. For instance, age-standardised figures mean that comparisons between states/territories or over time are not affected by differences in age structures in the different jurisdictions. However, standardised figures are not directly comparable with non-standardised figures or with those standardised by a different method.
4. The term *national average* and similar terms are used to refer to Australia-wide figures and should not be interpreted as being the average of the figures for each individual state and territory.

#### Important caveats

1. Data from the South Australian Health Omnibus Survey (HOS) is based on a sample survey conducted monthly.

2. All sample surveys are subject to sampling and non-sampling error. Sampling error is a measure of the variability that occurs by chance because a sample, rather than the entire population, is surveyed. This can be expressed as a margin of error around the estimate. Non-sampling error may occur in any data collection, whether it is based on a sample or a full count such as a census. Sources of non-sampling error include non-response, errors in reporting by respondents or in recording of answers by interviewers, and occasional errors in coding and processing data.
3. Smoking rates by state and territory are age standardised to the 2001 Australian standard population and should not be compared to non-standardised figures.

### 3-13 Psychological distress

#### Rationale for reporting

The extent to which the population is living with conditions of psychological distress, such as anxiety or depression, is an important indicator of social and emotional wellbeing.

#### Measures Reported

1. Extent of living with psychological distress, expressed as percentage of adult population, by region and over time.
2. Demographic distribution of the extent of living with psychological distress, expressed as percentage of adult population, by sex and 10-year age bands.
3. Socio-economic status distribution of extent of living with psychological distress, expressed as percentage of adult population by socio-economic status quintiles.
4. Geographic distribution of extent of living with psychological distress, expressed as percentage of adult population, by state or territory.
5. Extent to which Aboriginal people are living with psychological distress, expressed as percentage of adult population, by state.

#### Data source agencies, release frequency and time period

#	Source	Release Frequency	Time period
1	South Australian Monitoring and Surveillance System Online (SAMSS) customised extract 2018, Prevention and Population Health, Psychological Distress K10 (Age 18+), SA Health.	Annual	Calendar year
2	Australian Bureau of Statistics 2015, National Health Survey: First Results, cat. no. 4364.0.55.001	Three years	Point in time
3	Australian Bureau of Statistics 2014, Australian Aboriginal and Torres Strait Islander health survey: Updated results, cat. no. 4727.0.55.006	irregular	Point in time

#### Definitions

1. A person is considered to be living with or affected by *psychological distress* when assessed as having a negative emotional state (such as for anxiety or depression).
2. *Socio-economic status* summarises a range of information about the economic and social conditions of people and households within an area. The measure used here is the Australian Bureau of Statistics' Socio-economic Index for Areas (SEIFA), Index of Relative Socio-economic Disadvantage (IRSD), under which lower scores indicate relatively greater disadvantage in general.
3. A *quintile* is one of five subsets of a population, providing information about the distribution of observations. Each quintile contains the same number of observations, dividing the population into five equal subsets.
4. Standardisation allows for valid comparisons between populations with differences in the variables which have been standardised. For instance, age-standardised figures mean that comparisons between states/territories or over time are not affected by differences in age structures in the different jurisdictions. However, standardised figures are not directly comparable with non-standardised figures or with those standardised by a different method.
5. The term *national average* and similar terms are used to refer to Australia-wide figures and should not be interpreted as being the average of the figures for each individual state and territory.
6. *Standard Error (SE)* measure indicates the extent to which a survey estimate is likely to deviate from the true population and is expressed as a number.

7. The *Relative Standard Error (RSE)* is the standard error expressed as a fraction of the estimate and is usually displayed as a percentage.
8. The *p-value* is the level of marginal significance within a statistical hypothesis test representing the probability of the occurrence of a given event.
9. A *two-tailed* test is a statistical test in which the critical area of a distribution is two-sided and tests whether a sample is greater than or less than a certain range of values.

### **Important caveats**

1. Data from the South Australian Monitoring and Surveillance System (SAMSS) is based on a sample survey conducted monthly.
2. All sample surveys are subject to sampling and non-sampling error. Sampling error is a measure of the variability that occurs by chance because a sample, rather than the entire population, is surveyed. This can be expressed as a margin of error around the estimate. Non-sampling error may occur in any data collection, whether it is based on a sample or a full count such as a census. Sources of non-sampling error include non-response, errors in reporting by respondents or in recording of answers by interviewers, and occasional errors in coding and processing data.
3. South Australian Monitoring and Surveillance System (SAMSS) presents estimates using raked weighted data to reflect the South Australian population, where data was not just weighted by age, sex and area of residence, but also includes education level, renting status, country of birth, marital status and employment status.
4. Levels of psychological distress are based on scores from the Kessler Psychological Distress Questionnaire. The 10-item Questionnaire (K10) is used for data from the South Australian Monitoring and Surveillance System Online and from the Australian Health Survey; the 5-item Questionnaire (K5) is used for data from the Australian Aboriginal and Torres Strait Islander Health Survey.
5. Rates for psychological distress by state are age standardised to the 2001 Australian standard population and should not be compared to non-standardised figures.

### **Methodologies used for statistical analysis**

1. *Linear regression* was used to test the trend of mean over the last decade using Data Analysis techniques in an excel spreadsheet. Regression with *Significance Factor* less than 0.05 determines if the trend is statistically significant.
2. *RSE* over 25% are subject to high sampling error and should be used with caution while *RSE* over 50% are subject to very high sampling error and should be used with extreme caution and are also considered too unreliable.
3. Fisher's exact test is a statistical significance test used in the analysis of contingency tables using <http://www.langsrud.com/stat/fisher.htm>. The 2-Tail: p-value lesser than 0.05, indicates a statistically significant difference between the rates.

## 3-14 Cancer

### Rationale for reporting

Data on cancer affliction and trends over time provide insight that can help monitor and support planning for the burden on the health service.

### Measures Reported

1. Size of the cancer-affected population, expressed as percentage of adult population, by region and over time.
2. Demographic distribution of the cancer-affected population, expressed as percentage of adult population, by sex and age bands.
3. Socio-economic status distribution of the cancer-affected population, expressed as percentage of adult population by socio-economic status quintiles.

### Data source agencies, release frequency and time period

#	Source	Release Frequency	Time period
1	South Australian Monitoring and Surveillance System Online (SAMSS) customised extract 2018, Prevention and Population Health, Body Mass Index WHO definition (Age 18+), SA Health.	Annual	Calendar year

### Definitions

1. *Socio-economic status* summarises a range of information about the economic and social conditions of people and households within an area. The measure used here is the Australian Bureau of Statistics' Socio-economic Index for Areas (SEIFA), Index of Relative Socio-economic Disadvantage (IRSD), under which lower scores indicate relatively greater disadvantage in general.
2. A *quintile* is one of five subsets of a population, providing information about the distribution of observations. Each quintile contains the same number of observations, dividing the population into five equal subsets.
3. *Standard Error (SE)* measure indicates the extent to which a survey estimate is likely to deviate from the true population and is expressed as a number.
4. The *Relative Standard Error (RSE)* is the standard error expressed as a fraction of the estimate and is usually displayed as a percentage.
5. The *p-value* is the level of marginal significance within a statistical hypothesis test representing the probability of the occurrence of a given event.
6. A *two-tailed* test is a statistical test in which the critical area of a distribution is two-sided and tests whether a sample is greater than or less than a certain range of values.

### Important caveats

1. Data from the South Australian Monitoring and Surveillance System (SAMSS) is based on a sample survey conducted monthly.
2. All sample surveys are subject to sampling and non-sampling error. Sampling error is a measure of the variability that occurs by chance because a sample, rather than the entire population, is surveyed. This can be expressed as a margin of error around the estimate. Non-sampling error may occur in any data collection, whether it is based on a sample or a full count such as a census. Sources of non-sampling error include non-response, errors in reporting by respondents or in recording of answers by interviewers, and occasional errors in coding and processing data.
3. South Australian Monitoring and Surveillance System (SAMSS) presents estimates using raked weighted data to reflect the South Australian population, where data was not just weighted by

age, sex and area of residence, but also includes education level, renting status, country of birth, marital status and employment status.

**Methodologies used for statistical analysis**

1. *Linear regression* was used to test the trend of mean over the last decade using Data Analysis techniques in an excel spreadsheet. Regression with *Significance Factor* less than 0.05 determines if the trend is statistically significant.
2. *RSE* over 25% are subject to high sampling error and should be used with caution while *RSE* over 50% are subject to very high sampling error and should be used with extreme caution and are also considered too unreliable.
3. Fisher's exact test is a statistical significance test used in the analysis of contingency tables using <http://www.langsrud.com/stat/fisher.htm>. The 2-Tail: p-value lesser than 0.05, indicates a statistically significant difference between the rates.

### 3-15 Illicit drug use

#### Rationale for reporting

According to the Australian Institute of Health and Welfare, illicit drug use is a major risk factor for ill health and death. Understanding the extent to which drugs are being used for non-medical purposes can help to provide insight into healthcare burdens and equity in provision of necessary healthcare services and public health campaigns.

#### Measures Reported

1. Extent of illicit drug usage, expressed as percentage of population, overall and by sex, state, Aboriginal status and over time.
2. Popularity of illicit drugs, expressed as percentage of all illicit drug usage.

#### Data source agencies, release frequency and time period

#	Source	Release Frequency	Time period
1	Australian Institute of Health and Welfare AIHW 2018, Alcohol, tobacco & other drugs in Australia, Cat. no. PHE 221	Annual	Calendar year

#### Definitions

1. *Illicit drugs* means illegal drugs, drugs and volatile substances used illicitly, and pharmaceuticals used for non-medical purposes.
2. The term *national average* and similar terms are used to refer to Australia-wide figures and should not be interpreted as being the average of the figures for each individual state and territory.

#### Important caveats

1. All sample surveys are subject to sampling and non-sampling error. Sampling error is a measure of the variability that occurs by chance because a sample, rather than the entire population, is surveyed. This can be expressed as a margin of error around the estimate. Non-sampling error may occur in any data collection, whether it is based on a sample or a full count such as a census. Sources of non-sampling error include non-response, errors in reporting by respondents or in recording of answers by interviewers, and occasional errors in coding and processing data.

## Chapter 4 Chronic conditions

### 4-1 Living with multiple chronic and long-term health conditions

#### Rationale for reporting

Understanding the extent to which the population is living with long-term or chronic conditions provides an insight into both the immediate and long-run burden on the health system and can help identify any inequalities between population subgroups.

#### Measures Reported

1. Size of population living with multiple chronic conditions, expressed as percentage of adult population, by region and over time.
2. Demographic distribution of the population living with multiple chronic conditions, expressed as percentage of adult population, by sex and 10-year age bands.
3. Socio-economic status distribution of the population living with multiple chronic conditions, expressed as percentage of adult population by socio-economic status quintiles.
4. Geographic distribution of the population living with multiple long-term health conditions, expressed as percentage of population, by state or territory.
5. Size of Aboriginal population living with multiple long-term health conditions, expressed as percentage of population, by state or territory.

#### Data source agencies, release frequency and time period

#	Source	Release Frequency	Time period
1	South Australian Monitoring and Surveillance System Online (SAMSS) customised extract 2018, Prevention and Population Health, Number chronic conditions (inc. mental health) (Age 18+), SA Health.	Annual	Calendar year
2	Australian Bureau of Statistics 2015, National Health Survey: First Results, cat. no. 4364.0.55.001	Three years	Point in time
3	Australian Bureau of Statistics 2013, <i>Australian Aboriginal and Torres Strait Islander health survey: First results 2012-13</i> , cat. no. 4727.0.55.001	irregular	Point in time

#### Definitions

1. *Socio-economic status* summarises a range of information about the economic and social conditions of people and households within an area. The measure used here is the Australian Bureau of Statistics' Socio-economic Index for Areas (SEIFA), Index of Relative Socio-economic Disadvantage (IRSD), under which lower scores indicate relatively greater disadvantage in general.
2. A *quintile* is one of five subsets of a population, providing information about the distribution of observations. Each quintile contains the same number of observations, dividing the population into five equal subsets.
3. Standardisation allows for valid comparisons between populations with differences in the variables which have been standardised. For instance, age-standardised figures mean that comparisons between states/territories or over time are not affected by differences in age structures in the different jurisdictions. However, standardised figures are not directly comparable with non-standardised figures or with those standardised by a different method.
4. A *chronic health condition* is any of: diabetes, asthma, cardiovascular disease, arthritis, osteoporosis or a mental health condition.

5. A *long-term health condition* is any medical condition (illness, injury or disability) which has lasted at least six months, or which the survey respondent expects to last for six months or more.
6. *Standard Error (SE)* measure indicates the extent to which a survey estimate is likely to deviate from the true population and is expressed as a number.
7. The *Relative Standard Error (RSE)* is the standard error expressed as a fraction of the estimate and is usually displayed as a percentage.
8. The *p-value* is the level of marginal significance within a statistical hypothesis test representing the probability of the occurrence of a given event.
9. A *two-tailed* test is a statistical test in which the critical area of a distribution is two-sided and tests whether a sample is greater than or less than a certain range of values.

#### **Important caveats**

1. Data from the South Australian Monitoring and Surveillance System (SAMSS) is based on a sample survey conducted monthly.
2. All sample surveys are subject to sampling and non-sampling error. Sampling error is a measure of the variability that occurs by chance because a sample, rather than the entire population, is surveyed. This can be expressed as a margin of error around the estimate. Non-sampling error may occur in any data collection, whether it is based on a sample or a full count such as a census. Sources of non-sampling error include non-response, errors in reporting by respondents or in recording of answers by interviewers, and occasional errors in coding and processing data.
3. Proportions by state for living with multiple long-term health conditions are age standardised to the 2001 Australian standard population and should not be compared to non-standardised figures.
4. South Australian Monitoring and Surveillance System (SAMSS) presents estimates using raked weighted data to reflect the South Australian population, where data was not just weighted by age, sex and area of residence, but also includes education level, renting status, country of birth, marital status and employment status.

#### **Methodologies used for statistical analysis**

1. *Linear regression* was used to test the trend of mean over the last decade using Data Analysis techniques in an excel spreadsheet. Regression with *Significance Factor* less than 0.05 determines if the trend is statistically significant.
2. *RSE* over 25% are subject to high sampling error and should be used with caution while *RSE* over 50% are subject to very high sampling error and should be used with extreme caution and are also considered too unreliable.
3. Fisher's exact test is a statistical significance test used in the analysis of contingency tables using <http://www.langsrud.com/stat/fisher.htm>. The 2-Tail: p-value lesser than 0.05, indicates a statistically significant difference between the rates.

## 4-2 Arthritis prevalence

### Rationale for reporting

Arthritis is a commonly occurring condition that can substantially affect people's quality of life. Understanding the extent of arthritis and differences in its prevalence across population subgroups provides insight into healthcare service needs and delivery planning.

### Measures Reported

1. Size of population living with arthritis, expressed as percentage of adult population, by region and over time.
2. Demographic distribution of the population living with arthritis, expressed as percentage of adult population, by sex and 10-year age bands.
3. Socio-economic status distribution of the population living with arthritis, expressed as percentage of adult population by socio-economic status quintiles.
4. Geographic distribution of the population living with arthritis, expressed as percentage of population, by state or territory.
5. Size of the Aboriginal population living with arthritis, expressed as percentage of population, by state or territory.

### Data source agencies, release frequency and time period

#	Source	Release Frequency	Time period
1	South Australian Monitoring and Surveillance System Online (SAMSS) customised extract 2018, Prevention and Population Health, Arthritis prevalence (Age 18+), SA Health.	Annual	Calendar year
2	Australian Bureau of Statistics 2015, National Health Survey: First Results, cat. no. 4364.0.55.001	Three years	Point in time
3	Australian Bureau of Statistics 2013, <i>Australian Aboriginal and Torres Strait Islander health survey: First results 2012-13</i> , cat. no. 4727.0.55.001	irregular	Point in time

### Definitions

1. *Socio-economic status* summarises a range of information about the economic and social conditions of people and households within an area. The measure used here is the Australian Bureau of Statistics' Socio-economic Index for Areas (SEIFA), Index of Relative Socio-economic Disadvantage (IRSD), under which lower scores indicate relatively greater disadvantage in general.
2. A *quintile* is one of five subsets of a population, providing information about the distribution of observations. Each quintile contains the same number of observations, dividing the population into five equal subsets.
3. Standardisation allows for valid comparisons between populations with differences in the variables which have been standardised. For instance, age-standardised figures mean that comparisons between states/territories or over time are not affected by differences in age structures in the different jurisdictions. However, standardised figures are not directly comparable with non-standardised figures or with those standardised by a different method.
4. The term *national average* and similar terms are used to refer to Australia-wide figures and should not be interpreted as being the average of the figures for each individual state and territory.
5. *Standard Error (SE)* measure indicates the extent to which a survey estimate is likely to deviate from the true population and is expressed as a number.

6. The *Relative Standard Error (RSE)* is the standard error expressed as a fraction of the estimate and is usually displayed as a percentage.
7. The *p-value* is the level of marginal significance within a statistical hypothesis test representing the probability of the occurrence of a given event.
8. A *two-tailed* test is a statistical test in which the critical area of a distribution is two-sided and tests whether a sample is greater than or less than a certain range of values.

#### **Important caveats**

1. Data from the South Australian Monitoring and Surveillance System (SAMSS) is based on a sample survey conducted monthly.
2. All sample surveys are subject to sampling and non-sampling error. Sampling error is a measure of the variability that occurs by chance because a sample, rather than the entire population, is surveyed. This can be expressed as a margin of error around the estimate. Non-sampling error may occur in any data collection, whether it is based on a sample or a full count such as a census. Sources of non-sampling error include non-response, errors in reporting by respondents or in recording of answers by interviewers, and occasional errors in coding and processing data.
3. Proportions by state for arthritis prevalence are age standardised to the 2001 Australian standard population and should not be compared to non-standardised figures.
4. South Australian Monitoring and Surveillance System (SAMSS) presents estimates using raked weighted data to reflect the South Australian population, where data was not just weighted by age, sex and area of residence, but also includes education level, renting status, country of birth, marital status and employment status.

#### **Methodologies used for statistical analysis**

1. *Linear regression* was used to test the trend of mean over the last decade using Data Analysis techniques in an excel spreadsheet. Regression with *Significance Factor* less than 0.05 determines if the trend is statistically significant.
2. *RSE* over 25% are subject to high sampling error and should be used with caution while *RSE* over 50% are subject to very high sampling error and should be used with extreme caution and are also considered too unreliable.
3. Fisher's exact test is a statistical significance test used in the analysis of contingency tables using <http://www.langsrud.com/stat/fisher.htm>. The 2-Tail: p-value lesser than 0.05, indicates a statistically significant difference between the rates.

### 4-3 Mental health conditions

#### Rationale for reporting

Mental health conditions are among the most important chronic conditions that can affect the health of the population. Data reported can help to identify healthcare service needs and inequalities in specialist health service provision and planning needs.

#### Measures Reported

1. Size of population living with mental health conditions, expressed as percentage of adult population, by region and over time.
2. Demographic distribution of the population living with mental health conditions, expressed as percentage of adult population, by sex and 10-year age bands.
3. Socio-economic status distribution of the population living with mental health conditions, expressed as percentage of adult population by socio-economic status quintiles.
4. Geographic distribution of the population living with mental or behavioural problems, expressed as percentage of population, by state or territory.
5. Size of the Aboriginal population living with mental health problems, expressed as percentage of population, by region.

#### Data source agencies, release frequency and time period

#	Source	Release Frequency	Time period
1	South Australian Monitoring and Surveillance System Online (SAMSS) customised extract 2018, Prevention and Population Health, Mental Health-Doctor diagnosed (Age 18+), SA Health.	Annual	Calendar year
2	Australian Bureau of Statistics 2015, National Health Survey: First Results, cat. no. 4364.0.55.001	Three years	Point in time
3	Population Research and Outcome Studies(PROs), University of Adelaide 2014, South Australian Aboriginal health survey	irregular	Point in time

#### Definitions

1. *Socio-economic status* summarises a range of information about the economic and social conditions of people and households within an area. The measure used here is the Australian Bureau of Statistics' Socio-economic Index for Areas (SEIFA), Index of Relative Socio-economic Disadvantage (IRSD), under which lower scores indicate relatively greater disadvantage in general.
2. A *quintile* is one of five subsets of a population, providing information about the distribution of observations. Each quintile contains the same number of observations, dividing the population into five equal subsets.
3. Standardisation allows for valid comparisons between populations with differences in the variables which have been standardised. For instance, age-standardised figures mean that comparisons between states/territories or over time are not affected by differences in age structures in the different jurisdictions. However, standardised figures are not directly comparable with non-standardised figures or with those standardised by a different method.
4. *Standard Error (SE)* measure indicates the extent to which a survey estimate is likely to deviate from the true population and is expressed as a number.
5. The *Relative Standard Error (RSE)* is the standard error expressed as a fraction of the estimate and is usually displayed as a percentage.

6. The *p-value* is the level of marginal significance within a statistical hypothesis test representing the probability of the occurrence of a given event.
7. A *two-tailed* test is a statistical test in which the critical area of a distribution is two-sided and tests whether a sample is greater than or less than a certain range of values

#### **Important caveats**

1. Data from the South Australian Monitoring and Surveillance System (SAMSS) is based on a sample survey conducted monthly.
2. All sample surveys are subject to sampling and non-sampling error. Sampling error is a measure of the variability that occurs by chance because a sample, rather than the entire population, is surveyed. This can be expressed as a margin of error around the estimate. Non-sampling error may occur in any data collection, whether it is based on a sample or a full count such as a census. Sources of non-sampling error include non-response, errors in reporting by respondents or in recording of answers by interviewers, and occasional errors in coding and processing data.
3. South Australian Monitoring and Surveillance System (SAMSS) presents estimates using raked weighted data to reflect the South Australian population, where data was not just weighted by age, sex and area of residence, but also includes education level, renting status, country of birth, marital status and employment status.
4. Proportions by state for doctor-diagnosed mental and behavioural problems are age standardised to the 2001 Australian standard population and should not be compared to non-standardised figures.
5. Reported rates from the National Health Survey for long-term mental and behavioural problems are not comparable with rates reported from the previous survey (for 2011-12) or earlier owing to a change in collection methodology.

#### **Methodologies used for statistical analysis**

1. *Linear regression* was used to test the trend of mean over the last decade using Data Analysis techniques in an excel spreadsheet. Regression with *Significance Factor* less than 0.05 determines if the trend is statistically significant.
2. *RSE* over 25% are subject to high sampling error and should be used with caution while *RSE* over 50% are subject to very high sampling error and should be used with extreme caution and are also considered too unreliable.
3. Fisher's exact test is a statistical significance test used in the analysis of contingency tables using <http://www.langsrud.com/stat/fisher.htm>. The 2-Tail: p-value lesser than 0.05, indicates a statistically significant difference between the rates.

## 4-4 Asthma prevalence

### Rationale for reporting

Asthma is a commonly occurring condition that can substantially affect people's quality of life. Understanding the extent of asthma and differences in its prevalence across population subgroups provides insight into healthcare service needs and delivery planning.

### Measures Reported

1. Size of population living with asthma, expressed as percentage of adult population, by region and over time.
2. Demographic distribution of the population living with asthma, expressed as percentage of adult population, by sex and 10-year age bands.
3. Socio-economic status distribution of the population living with asthma, expressed as percentage of adult population by socio-economic status quintiles.
4. Geographic distribution of the population living with asthma, expressed as percentage of population, by state or territory.
5. Size of the Aboriginal population living with asthma, expressed as percentage of population, by state or territory.

### Data source agencies, release frequency and time period

#	Source	Release Frequency	Time period
1	South Australian Monitoring and Surveillance System Online (SAMSS) customised extract 2018, Prevention and Population Health, Asthma prevalence (Age 18+), SA Health.	Annual	Calendar year
2	Australian Bureau of Statistics 2015, National Health Survey: First Results, cat. no. 4364.0.55.001	Three years	Point in time
3	Australian Bureau of Statistics 2013, <i>Australian Aboriginal and Torres Strait Islander health survey: First results 2012-13</i> , cat. no. 4727.0.55.001	irregular	Point in time

### Definitions

1. *Socio-economic status* summarises a range of information about the economic and social conditions of people and households within an area. The measure used here is the Australian Bureau of Statistics' Socio-economic Index for Areas (SEIFA), Index of Relative Socio-economic Disadvantage (IRSD), under which lower scores indicate relatively greater disadvantage in general.
2. A *quintile* is one of five subsets of a population, providing information about the distribution of observations. Each quintile contains the same number of observations, dividing the population into five equal subsets.
3. Standardisation allows for valid comparisons between populations with differences in the variables which have been standardised. For instance, age-standardised figures mean that comparisons between states/territories or over time are not affected by differences in age structures in the different jurisdictions. However, standardised figures are not directly comparable with non-standardised figures or with those standardised by a different method.
4. The term *national average* and similar terms are used to refer to Australia-wide figures and should not be interpreted as being the average of the figures for each individual state and territory.
5. *Standard Error (SE)* measure indicates the extent to which a survey estimate is likely to deviate from the true population and is expressed as a number.

6. The *Relative Standard Error (RSE)* is the standard error expressed as a fraction of the estimate and is usually displayed as a percentage.
7. The *p-value* is the level of marginal significance within a statistical hypothesis test representing the probability of the occurrence of a given event.
8. A *two-tailed* test is a statistical test in which the critical area of a distribution is two-sided and tests whether a sample is greater than or less than a certain range of values

#### **Important caveats**

1. Data from the South Australian Monitoring and Surveillance System (SAMSS) is based on a sample survey conducted monthly.
2. All sample surveys are subject to sampling and non-sampling error. Sampling error is a measure of the variability that occurs by chance because a sample, rather than the entire population, is surveyed. This can be expressed as a margin of error around the estimate. Non-sampling error may occur in any data collection, whether it is based on a sample or a full count such as a census. Sources of non-sampling error include non-response, errors in reporting by respondents or in recording of answers by interviewers, and occasional errors in coding and processing data.
3. South Australian Monitoring and Surveillance System (SAMSS) presents estimates using raked weighted data to reflect the South Australian population, where data was not just weighted by age, sex and area of residence, but also includes education level, renting status, country of birth, marital status and employment status.
4. Proportions by state for asthma prevalence are age standardised to the 2001 Australian standard population and should not be compared to non-standardised figures.

#### **Methodologies used for statistical analysis**

1. *Linear regression* was used to test the trend of mean over the last decade using Data Analysis techniques in an excel spreadsheet. Regression with *Significance Factor* less than 0.05 determines if the trend is statistically significant.
2. *RSE* over 25% are subject to high sampling error and should be used with caution while *RSE* over 50% are subject to very high sampling error and should be used with extreme caution and are also considered too unreliable.
3. Fisher's exact test is a statistical significance test used in the analysis of contingency tables using <http://www.langsrud.com/stat/fisher.htm>. The 2-Tail: p-value lesser than 0.05, indicates a statistically significant difference between the rates.

## 4-5 Diabetes prevalence

### Rationale for reporting

Diabetes is a commonly occurring condition that can substantially affect people's quality of life and is associated with other health conditions. Understanding the extent of diabetes and differences in its prevalence across population subgroups provides insight into healthcare service needs and delivery planning.

### Measures Reported

1. Size of population living with diabetes, expressed as percentage of adult population, by region and over time.
2. Demographic distribution of the population living with diabetes, expressed as percentage of adult population, by sex and 10-year age bands.
3. Socio-economic status distribution of the population living with diabetes, expressed as percentage of adult population by socio-economic status quintiles.
4. Geographic distribution of the population diagnosed with diabetes, expressed as percentage of population, by state or territory.
5. Size of the Aboriginal population living with diabetes, expressed as percentage of population, by state or territory.

### Data source agencies, release frequency and time period

#	Source	Release Frequency	Time period
1	South Australian Monitoring and Surveillance System Online (SAMSS) customised extract 2018, Prevention and Population Health, Diabetes prevalence (Age 18+), SA Health.	Annual	Calendar year
2	Australian Bureau of Statistics 2015, National Health Survey: First Results, cat. no. 4364.0.55.001	Three years	Point in time
3	Australian Bureau of Statistics 2014, Australian Aboriginal and Torres Strait Islander health survey: Updated results, cat. no. 4727.0.55.006	irregular	Point in time

### Definitions

1. *Socio-economic status* summarises a range of information about the economic and social conditions of people and households within an area. The measure used here is the Australian Bureau of Statistics' Socio-economic Index for Areas (SEIFA), Index of Relative Socio-economic Disadvantage (IRSD), under which lower scores indicate relatively greater disadvantage in general.
2. A *quintile* is one of five subsets of a population, providing information about the distribution of observations. Each quintile contains the same number of observations, dividing the population into five equal subsets.
3. Standardisation allows for valid comparisons between populations with differences in the variables which have been standardised. For instance, age-standardised figures mean that comparisons between states/territories or over time are not affected by differences in age structures in the different jurisdictions. However, standardised figures are not directly comparable with non-standardised figures or with those standardised by a different method.
4. *Standard Error (SE)* measure indicates the extent to which a survey estimate is likely to deviate from the true population and is expressed as a number.
5. The *Relative Standard Error (RSE)* is the standard error expressed as a fraction of the estimate and is usually displayed as a percentage.

6. The *p-value* is the level of marginal significance within a statistical hypothesis test representing the probability of the occurrence of a given event.
7. A *two-tailed* test is a statistical test in which the critical area of a distribution is two-sided and tests whether a sample is greater than or less than a certain range of values.

#### **Important caveats**

1. Data from the South Australian Monitoring and Surveillance System (SAMSS) is based on a sample survey conducted monthly.
2. All sample surveys are subject to sampling and non-sampling error. Sampling error is a measure of the variability that occurs by chance because a sample, rather than the entire population, is surveyed. This can be expressed as a margin of error around the estimate. Non-sampling error may occur in any data collection, whether it is based on a sample or a full count such as a census. Sources of non-sampling error include non-response, errors in reporting by respondents or in recording of answers by interviewers, and occasional errors in coding and processing data.
3. South Australian Monitoring and Surveillance System (SAMSS) presents estimates using raked weighted data to reflect the South Australian population, where data was not just weighted by age, sex and area of residence, but also includes education level, renting status, country of birth, marital status and employment status.
4. Proportions by state for diabetes prevalence are age standardised to the 2001 Australian standard population and should not be compared to non-standardised figures.
5. Reported rates from the National Health Survey for diabetes prevalence include people who reported they had diabetes but that it was not current at the time of interview. This is different from the definition used for previous releases of the survey data and so these rates are not comparable with rates published in previous editions of *State of Our Health*.

#### **Methodologies used for statistical analysis**

1. *Linear regression* was used to test the trend of mean over the last decade using Data Analysis techniques in an excel spreadsheet. Regression with *Significance Factor* less than 0.05 determines if the trend is statistically significant.
2. *RSE* over 25% are subject to high sampling error and should be used with caution while *RSE* over 50% are subject to very high sampling error and should be used with extreme caution and are also considered too unreliable.
3. Fisher's exact test is a statistical significance test used in the analysis of contingency tables using <http://www.langsrud.com/stat/fisher.htm>. The 2-Tail: p-value lesser than 0.05, indicates a statistically significant difference between the rates.

## 4-6 Cardiovascular disease prevalence

### Rationale for reporting

Being a common condition that can have substantial healthcare needs, understanding the extent to which cardiovascular disease affects the population is important for monitoring and understanding healthcare service provisions and likely future needs.

### Measures Reported

1. Size of population living with cardiovascular disease, expressed as percentage of adult population, by region and over time.
2. Demographic distribution of the population living with cardiovascular disease, expressed as percentage of adult population, by sex and 10-year age bands.
3. Socio-economic status distribution of the population living with cardiovascular disease, expressed as percentage of adult population by socio-economic status quintiles.
4. Geographic distribution of the population diagnosed with cardiovascular disease, expressed as percentage of population, by state or territory.
5. Size of the Aboriginal population living with cardiovascular disease, expressed as percentage of population, by state or territory.

### Data source agencies, release frequency and time period

#	Source	Release Frequency	Time period
1	South Australian Monitoring and Surveillance System Online (SAMSS) customised extract 2018, Prevention and Population Health, Cardiovascular disease prevalence (Age 18+), SA Health.	Annual	Calendar year
2	Australian Bureau of Statistics 2015, National Health Survey: First Results, cat. no. 4364.0.55.001	Three years	Point in time
3	Australian Bureau of Statistics 2014, Australian Aboriginal and Torres Strait Islander health survey: Updated results, cat. no. 4727.0.55.006	irregular	Point in time

### Definitions

1. *Socio-economic status* summarises a range of information about the economic and social conditions of people and households within an area. The measure used here is the Australian Bureau of Statistics' Socio-economic Index for Areas (SEIFA), Index of Relative Socio-economic Disadvantage (IRSD), under which lower scores indicate relatively greater disadvantage in general.
2. A *quintile* is one of five subsets of a population, providing information about the distribution of observations. Each quintile contains the same number of observations, dividing the population into five equal subsets.
3. Standardisation allows for valid comparisons between populations with differences in the variables which have been standardised. For instance, age-standardised figures mean that comparisons between states/territories or over time are not affected by differences in age structures in the different jurisdictions. However, standardised figures are not directly comparable with non-standardised figures or with those standardised by a different method.
4. The term *national average* and similar terms are used to refer to Australia-wide figures and should not be interpreted as being the average of the figures for each individual state and territory.
5. *Standard Error (SE)* measure indicates the extent to which a survey estimate is likely to deviate from the true population and is expressed as a number.

6. The *Relative Standard Error (RSE)* is the standard error expressed as a fraction of the estimate and is usually displayed as a percentage.
7. The *p-value* is the level of marginal significance within a statistical hypothesis test representing the probability of the occurrence of a given event.
8. A *two-tailed* test is a statistical test in which the critical area of a distribution is two-sided and tests whether a sample is greater than or less than a certain range of values.

### **Important caveats**

1. Data from the South Australian Monitoring and Surveillance System (SAMSS) is based on a sample survey conducted monthly.
2. All sample surveys are subject to sampling and non-sampling error. Sampling error is a measure of the variability that occurs by chance because a sample, rather than the entire population, is surveyed. This can be expressed as a margin of error around the estimate. Non-sampling error may occur in any data collection, whether it is based on a sample or a full count such as a census. Sources of non-sampling error include non-response, errors in reporting by respondents or in recording of answers by interviewers, and occasional errors in coding and processing data.
3. South Australian Monitoring and Surveillance System (SAMSS) presents estimates using raked weighted data to reflect the South Australian population, where data was not just weighted by age, sex and area of residence, but also includes education level, renting status, country of birth, marital status and employment status.
4. Proportions by state for cardiovascular disease prevalence are age standardised to the 2001 Australian standard population and should not be compared to non-standardised figures.
5. Reported rates from the National Health Survey for cardiovascular disease prevalence cover the noted circulatory conditions that are current and long-term (lasted or expected to last six months or more) as well as, in a change from previous such surveys, people who reported having ischaemic heart diseases and cerebrovascular diseases that were not current and long-term at the time of interview. Because of the definitional change, rates should not be compared with those previously derived from the 2011-12 and earlier editions of the source publication.

### **Methodologies used for statistical analysis**

1. *Linear regression* was used to test the trend of mean over the last decade using Data Analysis techniques in an excel spreadsheet. Regression with *Significance Factor* less than 0.05 determines if the trend is statistically significant.
2. *RSE* over 25% are subject to high sampling error and should be used with caution while *RSE* over 50% are subject to very high sampling error and should be used with extreme caution and are also considered too unreliable.
3. Fisher's exact test is a statistical significance test used in the analysis of contingency tables using <http://www.langsrud.com/stat/fisher.htm>. The 2-Tail: p-value lesser than 0.05, indicates a statistically significant difference between the rates.

## 4-7 Osteoporosis prevalence

### Rationale for reporting

Data on the prevalence of osteoporosis provides insight into population systemic health needs and inequalities in service provision requirements.

### Measures Reported

1. Size of population living with osteoporosis, expressed as percentage of adult population, by region and over time.
2. Demographic distribution of the population living with osteoporosis, expressed as percentage of adult population, by sex and 10-year age bands.
3. Socio-economic status distribution of the population living with osteoporosis, expressed as percentage of adult population by socio-economic status quintiles.
4. Geographic distribution of the population living with osteoporosis, expressed as percentage of population, by state or territory.
5. Size of the Aboriginal population living with osteoporosis, expressed as percentage of population, by state or territory.

### Data source agencies, release frequency and time period

#	Source	Release Frequency	Time period
1	South Australian Monitoring and Surveillance System Online (SAMSS) customised extract 2018, Prevention and Population Health, Osteoporosis prevalence (Age 18+), SA Health.	Annual	Calendar year
2	Australian Bureau of Statistics 2015, National Health Survey: First Results, cat. no. 4364.0.55.001	Three years	Point in time
3	Australian Bureau of Statistics 2013, <i>Australian Aboriginal and Torres Strait Islander health survey: First results 2012-13</i> , cat. no. 4727.0.55.001	irregular	Point in time

### Definitions

1. *Socio-economic status* summarises a range of information about the economic and social conditions of people and households within an area. The measure used here is the Australian Bureau of Statistics' Socio-economic Index for Areas (SEIFA), Index of Relative Socio-economic Disadvantage (IRSD), under which lower scores indicate relatively greater disadvantage in general.
2. A *quintile* is one of five subsets of a population, providing information about the distribution of observations. Each quintile contains the same number of observations, dividing the population into five equal subsets.
3. Standardisation allows for valid comparisons between populations with differences in the variables which have been standardised. For instance, age-standardised figures mean that comparisons between states/territories or over time are not affected by differences in age structures in the different jurisdictions. However, standardised figures are not directly comparable with non-standardised figures or with those standardised by a different method.
4. For statistics calculated from population samples, the *standard error* is a commonly used statistical measure of the sampling error, i.e., the random variation in point estimates that inherently arise from their being calculated from samples rather than from the whole population.

5. *Relative standard error* (RSE) is the *standard error* expressed as a fraction – typically a percentage – of the reported statistic (which is the point estimate of the true population value). Larger RSEs broadly indicate larger uncertainty in point estimates.
6. The term *national average* and similar terms are used to refer to Australia-wide figures and should not be interpreted as being the average of the figures for each individual state and territory.
7. *Standard Error* (SE) measure indicates the extent to which a survey estimate is likely to deviate from the true population and is expressed as a number.
8. The *Relative Standard Error* (RSE) is the standard error expressed as a fraction of the estimate and is usually displayed as a percentage.
9. The *p-value* is the level of marginal significance within a statistical hypothesis test representing the probability of the occurrence of a given event.
10. A *two-tailed* test is a statistical test in which the critical area of a distribution is two-sided and tests whether a sample is greater than or less than a certain range of values.

### **Important caveats**

1. Data from the South Australian Monitoring and Surveillance System (SAMSS) is based on a sample survey conducted monthly.
2. All sample surveys are subject to sampling and non-sampling error. Sampling error is a measure of the variability that occurs by chance because a sample, rather than the entire population, is surveyed. This can be expressed as a margin of error around the estimate. Non-sampling error may occur in any data collection, whether it is based on a sample or a full count such as a census. Sources of non-sampling error include non-response, errors in reporting by respondents or in recording of answers by interviewers, and occasional errors in coding and processing data.
3. South Australian Monitoring and Surveillance System (SAMSS) presents estimates using raked weighted data to reflect the South Australian population, where data was not just weighted by age, sex and area of residence, but also includes education level, renting status, country of birth, marital status and employment status.
4. Proportions by state for osteoporosis prevalence are age standardised to the 2001 Australian standard population and should not be compared to non-standardised figures.
5. Proportions by state for osteoporosis prevalence in the Aboriginal populations are subject to substantial uncertainty arising from sampling error which may affect the validity of comparisons between the states/territories.

### **Methodologies used for statistical analysis**

1. *Linear regression* was used to test the trend of mean over the last decade using Data Analysis techniques in an excel spreadsheet. Regression with *Significance Factor* less than 0.05 determines if the trend is statistically significant.
2. *RSE* over 25% are subject to high sampling error and should be used with caution while *RSE* over 50% are subject to very high sampling error and should be used with extreme caution and are also considered too unreliable.
3. Fisher's exact test is a statistical significance test used in the analysis of contingency tables using <http://www.langsrud.com/stat/fisher.htm>. The 2-Tail: p-value lesser than 0.05, indicates a statistically significant difference between the rates.

## 4-8 Chronic bronchitis or emphysema prevalence

### Rationale for reporting

Bronchitis and emphysema are common long-term conditions that can substantially affect people's quality of life and may indicate ancillary healthcare needs. Understanding the prevalence of these conditions and differences across population subgroups provides insight into healthcare service needs and delivery planning.

### Measures Reported

1. Size of population living with chronic bronchitis or emphysema, expressed as percentage of population by state or territory.

### Data source agencies, release frequency and time period

#	Source	Release Frequency	Time period
1	Australian Bureau of Statistics 2015, National Health Survey: First Results, cat. no. 4364.0.55.001	Three years	Point in time

### Definitions

1. Standardisation allows for valid comparisons between populations with differences in the variables which have been standardised. For instance, age-standardised figures mean that comparisons between states/territories or over time are not affected by differences in age structures in the different jurisdictions. However, standardised figures are not directly comparable with non-standardised figures or with those standardised by a different method.

### Important caveats

1. All sample surveys are subject to sampling and non-sampling error. Sampling error is a measure of the variability that occurs by chance because a sample, rather than the entire population, is surveyed. This can be expressed as a margin of error around the estimate. Non-sampling error may occur in any data collection, whether it is based on a sample or a full count such as a census. Sources of non-sampling error include non-response, errors in reporting by respondents or in recording of answers by interviewers, and occasional errors in coding and processing data.
2. Proportions by state are age standardised to the 2001 Australian standard population and should not be compared to non-standardised figures.

## 4-9 Back pain prevalence

### Rationale for reporting

Back pain and related conditions are common long-term health issues that can substantially affect people's quality of life and may indicate ancillary healthcare needs. Understanding the prevalence of these conditions and differences across population subgroups provides insight into healthcare service needs and delivery planning.

### Measures Reported

1. Size of population living with back pain or certain related conditions, expressed as percentage of population by state or territory.

### Data source agencies, release frequency and time period

#	Source	Release Frequency	Time period
1	Australian Bureau of Statistics 2015, National Health Survey: First Results, cat. no. 4364.0.55.001	Three years	Point in time

### Definitions

1. Standardisation allows for valid comparisons between populations with differences in the variables which have been standardised. For instance, age-standardised figures mean that comparisons between states/territories or over time are not affected by differences in age structures in the different jurisdictions. However, standardised figures are not directly comparable with non-standardised figures or with those standardised by a different method.

### Important caveats

1. All sample surveys are subject to sampling and non-sampling error. Sampling error is a measure of the variability that occurs by chance because a sample, rather than the entire population, is surveyed. This can be expressed as a margin of error around the estimate. Non-sampling error may occur in any data collection, whether it is based on a sample or a full count such as a census. Sources of non-sampling error include non-response, errors in reporting by respondents or in recording of answers by interviewers, and occasional errors in coding and processing data.
2. Proportions by state are age standardised to the 2001 Australian standard population and should not be compared to non-standardised figures.
3. Proportions by state for back pain are not comparable to previous years owing to changes in the definition in the underlying data; rates cited in previous editions of *State of Our Health* may also have been incorrect as the ABS has advised that they identified an issue during processing of the latest data which may have resulted in undercounts in 2011-12 data.

## Chapter 5 End of life

### 5-1 Death rate

#### Rationale for reporting

Death rates are an important component in determining changes in our population, understanding which is necessary for planning and delivering health services.

#### Measures Reported

1. Deaths, expressed as number of people who died.
2. Death rate, expressed as number of deaths per 1,000 population, by region, state, Aboriginal status and over time.

#### Data source agencies, release frequency and time period

#	Source	Release Frequency	Time period
1	Australian Bureau of Statistics 2017, Deaths, Australia 2016, cat. no. 3302.0	Annual	Reference year
2	Productivity Commission, Government of Australia, Part E, <i>Report on Government Services 2018</i> , Government of Australia	Annual	Five-year period

#### Definitions

1. Standardisation allows for valid comparisons between populations with differences in the variables which have been standardised. For instance, age-standardised figures mean that comparisons between states/territories or over time are not affected by differences in age structures in the different jurisdictions. However, standardised figures are not directly comparable with non-standardised figures or with those standardised by a different method.

#### Important caveats

1. In section 5-1-1, death rates for 2016 use preliminary estimated resident population figures for 28 August 2017 and may be subject to revision.
2. Death rates are age standardised and are expressed as deaths per 1,000 standard population. Figures in section 5-1-1 are average standardised death rates calculated using data for the three years ending in the reference year. Figures in section 5-1-2 are for a five-year period owing to the volatility of the small numbers involved.
3. Death rates for Aboriginal people are likely to be underestimates owing to inaccuracies in the identification of people as being Aboriginal; rates exclude deaths where Indigenous status is recorded as 'not stated'.

## 5-2 Median age at death

### Rationale for reporting

Monitoring differences in age at death between population subgroups can expose inequalities in health service provision and need; changes over time in age at death reveal long-term health performance trends and assist in identifying future service needs.

### Measures Reported

1. Average age of the population at death, expressed as median years of age, by region, state, sex, and over time.

### Data source agencies, release frequency and time period

#	Source	Release Frequency	Time period
1	Australian Bureau of Statistics 2017, Deaths, Australia 2016, cat. no. 3302.0	Annual	Reference year

### Definitions

1. The *median* is a commonly used measure of central tendency, like the average. The median, or 50th percentile, is the exact midpoint of a distribution, the number at which half the observations are smaller and the other half are larger. The median is less susceptible than the average to the influence of particularly large or small observations (outliers) in the dataset.

### 5-3 Perinatal deaths

#### Rationale for reporting

The rate of perinatal deaths can expose information affecting the need for and provision of maternal and early childhood health, including any inequalities between population subgroups.

#### Measures Reported

1. Perinatal deaths, expressed as number of perinatal deaths per 1,000 of all births, by state, Aboriginal status, and over time.

#### Data source agencies, release frequency and time period

#	Source	Release Frequency	Time period
1	Australian Bureau of Statistics 2017, Causes of death, Australia, 2016, cat. no. 3303.0	Annual	Calendar year

#### Definitions

1. The term *national average* and similar terms are used to refer to Australia-wide figures and should not be interpreted as being the average of the figures for each individual state and territory.

#### Important caveats

1. Perinatal death rates covering the most recent two years are based on preliminary and revised data and may be subject to further revision.
2. Aboriginal perinatal death rates are likely to be underestimates owing to inaccuracies in the identification of people as being Aboriginal; rates exclude deaths where Indigenous status is recorded as 'not stated'.

## 5-4 Infant mortality

### Rationale for reporting

Information on infant deaths can expose information affecting the need for and provision of early childhood health, including any inequalities between population subgroups.

### Measures Reported

1. Deaths of people under one year of age, expressed as numbers of deaths per 1,000 live births, by state, Aboriginal status and over time.

### Data source agencies, release frequency and time period

#	Source	Release Frequency	Time period
1	Australian Bureau of Statistics 2017, Deaths, Australia 2016, cat. no. 3302.0	Annual	Reference year

### Definitions

1. The term *national average* and similar terms are used to refer to Australia-wide figures and should not be interpreted as being the average of the figures for each individual state and territory.

### Important caveats

1. In section 5-4-1, mortality rates for 2016 have been calculated using preliminary estimated resident population figures for 28 August 2017 and may be subject to revision.
2. Mortality rates for Aboriginal people are likely to be underestimates owing to inaccuracies in the identification of people as being Aboriginal and because of lags in registrations of deaths; rates exclude deaths where Indigenous status is recorded as 'not stated'. As a result, changes between years may also not be completely comparable. Volatility over time in infant mortality rates is partially due to the relatively small number of infant deaths registered.
3. Mortality rates for Aboriginal people are averaged over a three year period owing to the small numbers involved.

## 5-5 Leading causes of death by age group in South Australia

### Rationale for reporting

Knowing the most common causes of death provides valuable insight into end-of-life care needs and healthcare service requirements in later life.

### Measures Reported

1. Deaths, expressed as deaths per 100,000 population, by cause of death and sex.
2. Deaths of people under one year of age, expressed as deaths per 1,000 live births, by cause of death and sex.
3. Deaths of people aged one year or over, expressed as deaths per 100,000 population, by cause of death, sex and 10-year age bands.

### Data source agencies, release frequency and time period

#	Source	Release Frequency	Time period
1	Australian Bureau of Statistics 2017, Causes of death, Australia, 2016, cat. no. 3303.0	Annual	Calendar year

### Definitions

1. The *ICD-10* is the 10th revision of the International Classification of Diseases, a global standard endorsed by the World Health Organisation for the structured classification of diseases and other health problems.

### Important caveats

1. Death rates are shown for causes of death which are among the ten causes of death (by two-character ICD-10 code) with the largest number of deaths in Australia.

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# Health Performance Council



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