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Australian Institute of Health and Welfare

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Australia’s health
topic summaries

Australia’s health: topic summaries

This document is a point-in-time compilation of the Australia’s health: topic summaries (web pages) as at 7 July 2022. For the latest version of the topic summaries, including interactive content, visit: https://www.aihw.gov.au/australias-health/summaries.

Australia’s health: topic summaries are part of the *Australia’s health 2022* product suite.

About *Australia’s health 2022*

This edition of the AIHW’s biennial flagship report on health is comprised of the following product suite:

Australia’s health 2022: data insights

This is a collection of 10 in-depth articles on selected health topics, including a focus on the health impacts of COVID-19, the evolution of the health system over the last 100 years, and the importance of a strong evidence base for supporting the health of Australians. It is available as a print report and online as a PDF.

Australia’s health: topic summaries

This is a collection of 63 web pages that present key information and statistics on the health system, health of Australians and factors that can influence our health. They are available online in HTML (some updated when new data are available).

Australia’s health 2022: in brief

This presents key findings and concepts from the topic summaries and data insights to provide a holistic picture of health in Australia. It is available as a print report and online as a PDF.

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Health status

These topic summaries provide information on the leading causes of ill health in Australia, including cancer, cardiovascular disease, mental health conditions and musculoskeletal conditions.

Burden of disease

This topic summary is part of the Australian Burden of Disease Study 2018 – Key Findings report.

As this study (ABDS 2018) provides estimates of disease burden for the 2018 reference year, estimates of the burden due to COVID-19 are not included. However, as part of a separate project, AIHW calculated estimates of the fatal and non-fatal burden due to COVID-19 in Australia for 2020, presented in: The first year of COVID-19 in Australia: direct and indirect health effects. For 2021 estimates, see 'Chapter 1 The impact of a new disease: COVID-19 from 2020, 2021and into 2022' in Australia's health 2022: data insights. The forthcoming ABDS 2022 will present COVID-19 estimates for 2022.

What is burden of disease?

Burden of disease analysis is a way of measuring the impact of diseases and injuries on a population (in this report, the population of Australia). It looks at the fatal and non-fatal burden—both premature deaths and living with health impacts from disease or injury. These measures combined are referred to as 'total burden'. Burden of disease measures the difference between a population's actual health and its ideal health (that is, if everyone lived as long as possible and no one lived with illness or injury).

How is disease burden measured?

Disease burden is measured using the summary metric of disability-adjusted life years (DALY). One DALY is one year of healthy life lost to disease and injury. DALY caused by living in poor health (non-fatal burden) are known as 'years lived with disability' (or YLD). DALY caused by premature death (fatal burden) are known as 'years of life lost' (YLL) and are measured against an ideal life expectancy.

If a disease has a high number of DALY, it is considered to have a high burden on the population. Some diseases have a high fatal burden due to the number of premature deaths they cause (e.g. cancers), while others have a low fatal burden but cause a lot of non-fatal burden (e.g. musculoskeletal conditions). Burden of disease studies allow the impact of both deaths and living with illness to be compared and reported in a consistent manner.

Many diseases are linked to risk factors, such as smoking, alcohol consumption, or being overweight or obese. The 'attributable burden' refers to how much of the burden could be avoided if the risk factor were removed or reduced to the lowest possible exposure.

Living with illness or injury accounts for just over half of the burden

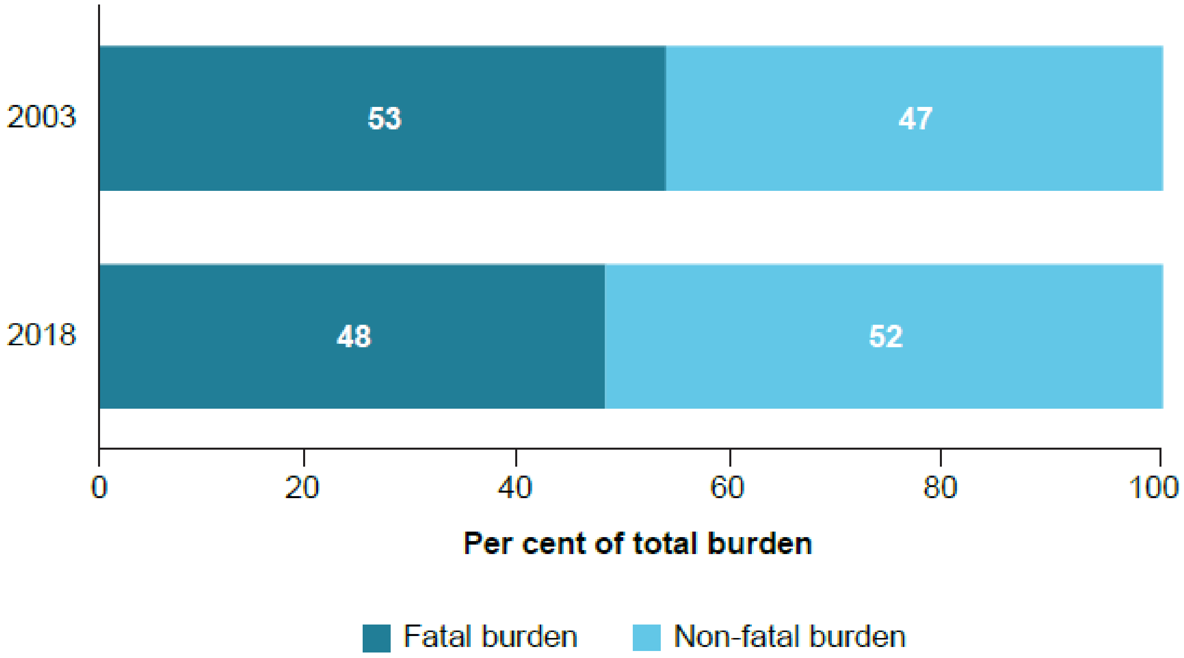
In 2018, Australians lost **5 million years of healthy life** (total burden, DALY) due to:

Living with illness (non-fatal)
52%
of total burden

Dying prematurely (fatal)
48%
of total burden

Living with illness or injury (non-fatal burden) caused slightly more total disease burden than dying prematurely (fatal). There has been a moderate shift from fatal to non-fatal burden being the biggest contributor to total burden between 2003 and 2018, driven by less premature deaths.

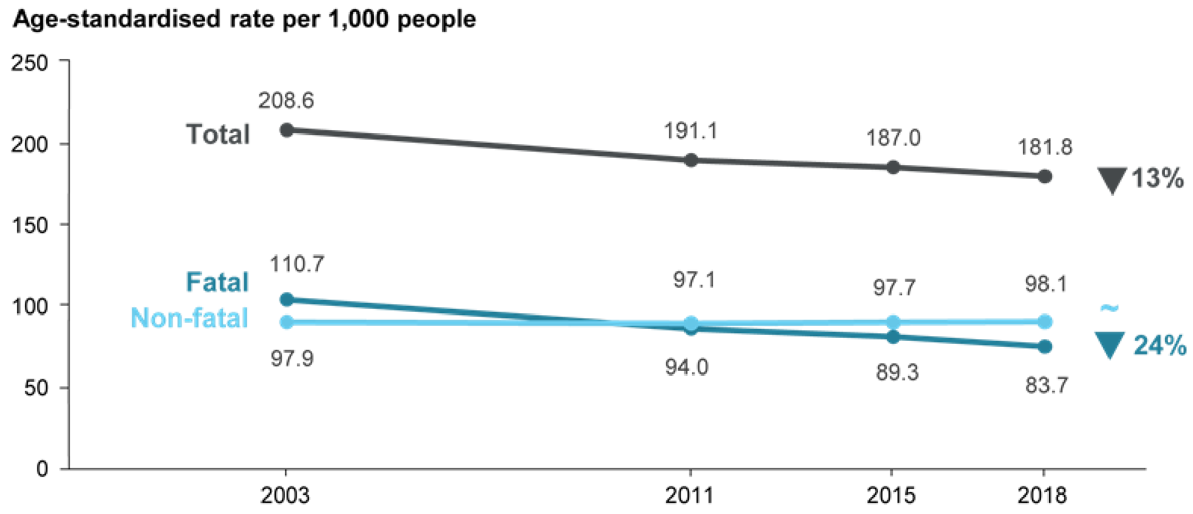
Figure 1: Proportion (%) of total burden due to fatal and non-fatal burden in 2003 and 2018



Significant improvements in fatal burden

Over the 15-year period from 2003 to 2018, and after adjusting for population growth and ageing, there was a 24% decline in fatal burden, with non-fatal burden rates remaining stable. This meant that the total burden decreased by 13%.

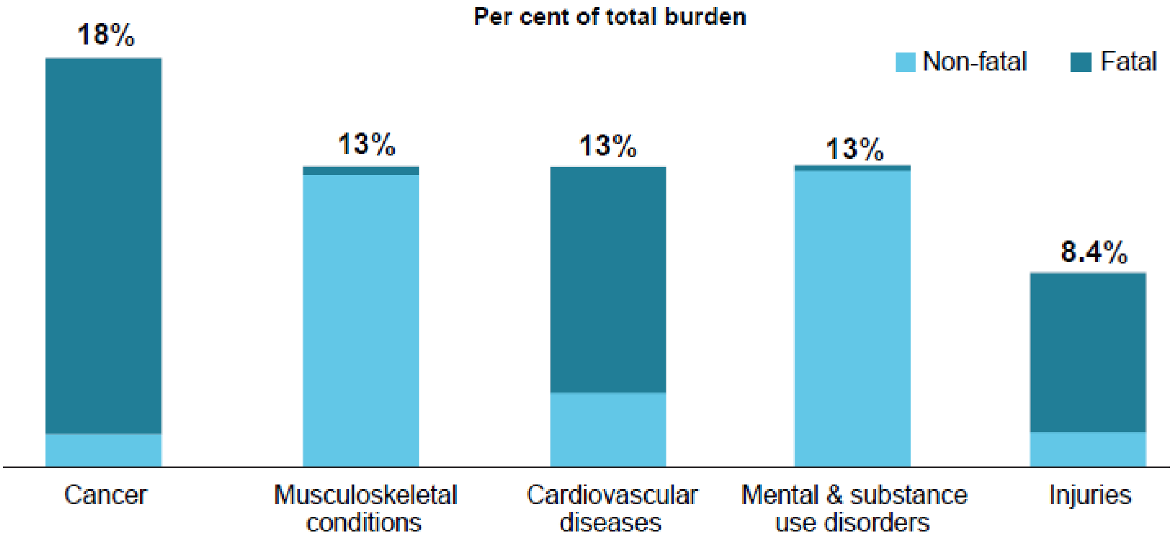
Figure 2: Change between 2003 and 2018 in the age-standardised total burden (DALY), fatal burden (YLL) and non-fatal burden (YLD) rate (per 1,000 population)



Chronic disease and injury cause most of the burden

In 2018, the 5 disease groups that caused the most burden were cancer, musculoskeletal conditions, cardiovascular diseases, mental & substance use disorders and injuries.

Figure 3: Proportion (%) of total burden, and fatal and non-fatal composition of total burden, for the leading 5 diseases groups in 2018



Together these disease groups accounted for around two-thirds (65%) of the total burden. With the exception of injuries, which includes acute injuries, these disease groups include mostly chronic, or long-lasting, conditions.

The cancer & other neoplasms disease group contributed the most burden across all years of the study.

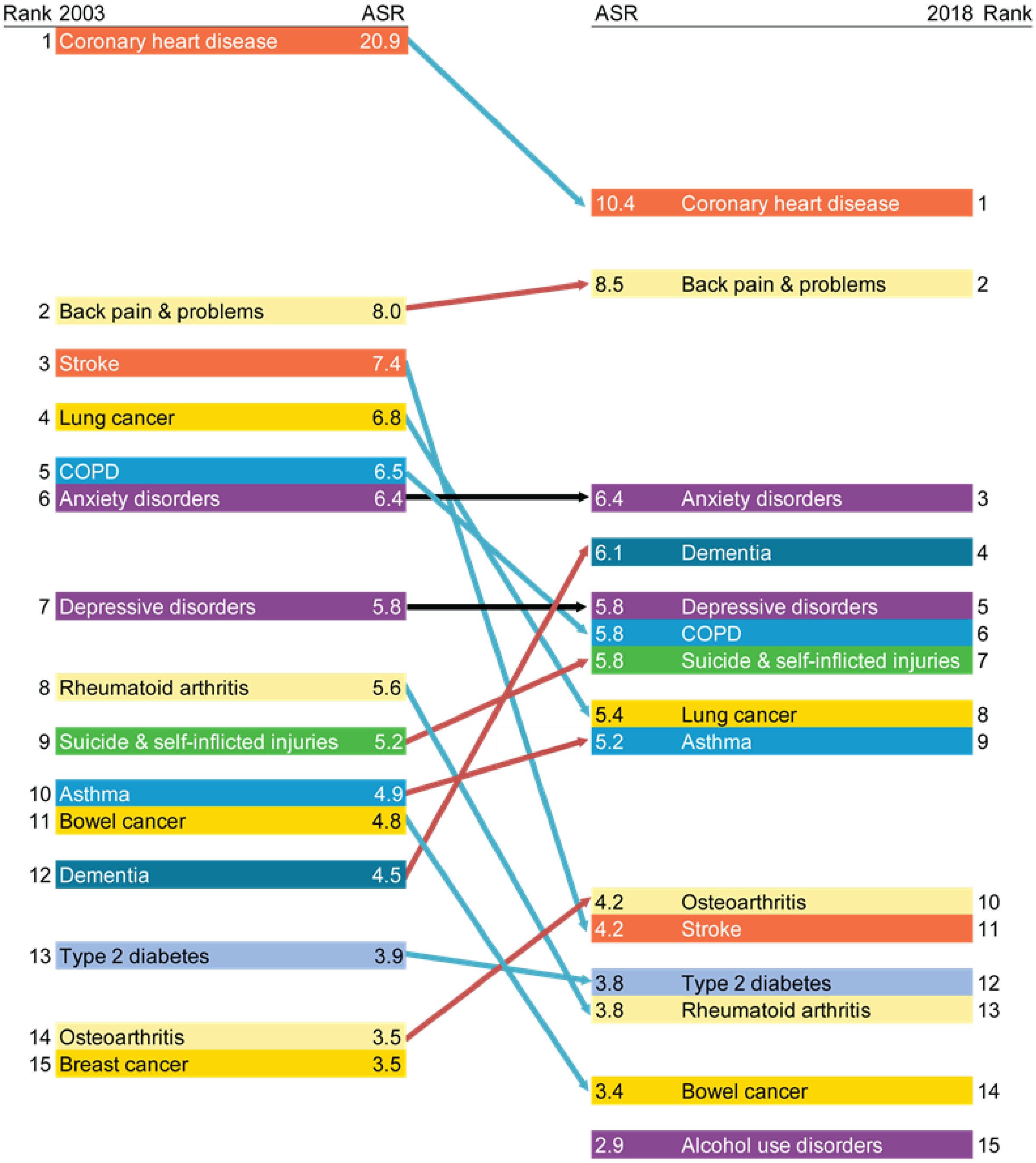
Coronary heart disease the leading specific cause of burden

When considering individual diseases, coronary heart disease was the leading cause of burden, and also showed the largest reduction in total burden over time—from 21 to 10 DALY per 1,000 people between 2003 and 2018. This reduction was mainly driven by large declines in fatal burden.

The leading **5 diseases** causing burden (% of total DALY) in 2018:

1. Coronary heart disease **6.3%**
2. Back pain & problems **4.5%**
3. Dementia **4.0%**
4. Chronic obstructive pulmonary disease (COPD) **3.5%**
5. Lung cancer **3.2%**

Figure 4: Change in disease ranking and age-standardised DALY rate (per 1,000 population), 2003 and 2018



ASR = Age-standardised rate.

Notes

1. Diseases are presented in descending order, from highest ASR to lowest ASR, with arrows indicating either an increase (red), decrease (blue) or no change (black) in the ASR over time.

2. ‘Other musculoskeletal conditions’ are excluded from the rankings.

3. There were changes in practices of coding deaths due to dementia; therefore, caution is recommended when interpreting changes over time for dementia burden.

4. A decline in total burden (based on age-standardised DALY rates) was also seen for stroke, lung and bowel cancer and rheumatoid arthritis. The total burden from dementia increased from 4.5 to 6.1 DALY per 1,000 (partly due to changes in practices of coding deaths due to dementia), and the rank increased from 12 in 2003 to 4 in 2018.

5. The leading diseases causing fatal burden were coronary heart disease (which had a large decline between 2003 and 2018), lung cancer (slight decline) and suicide & self-inflicted injuries (slight increase). Back pain & problems (which increased slightly between 2003 and 2018) was the leading cause of non-fatal burden, followed by anxiety disorders and depressive disorders (which remained stable).

More burden for males

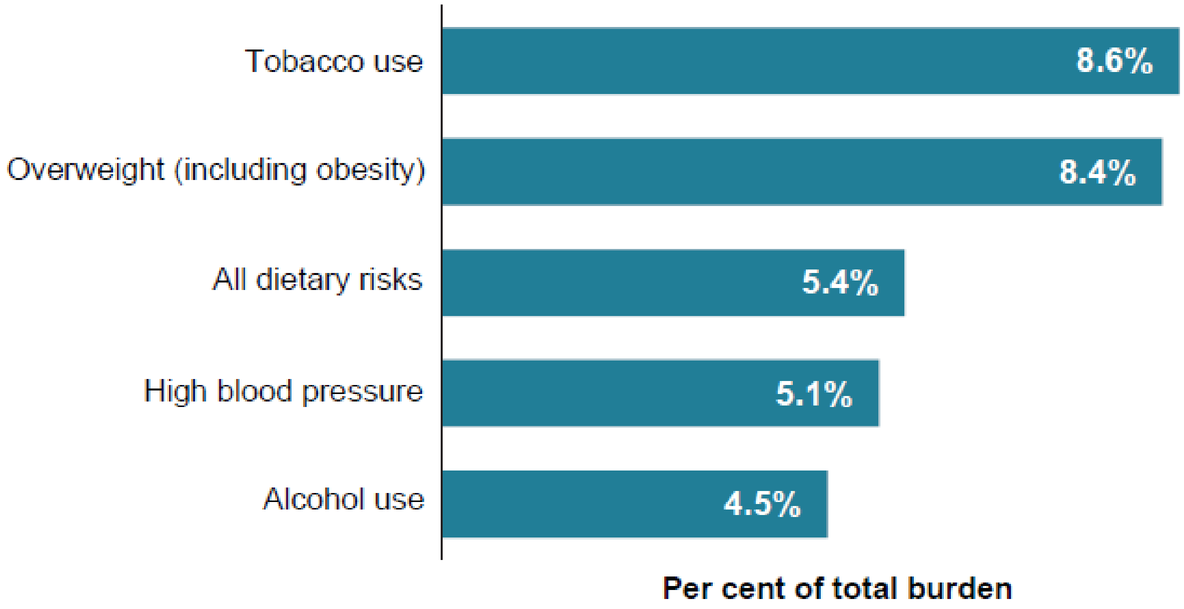
Males experienced more total burden than females for most age groups. In 2018, males suffered 1.6 times the rate of fatal burden (104 YLL per 1,000 population) experienced by females (65 YLL per 1,000 population). Males suffered almost 3 times the amount of burden due to suicide & self-inflicted injuries (ranked third in males) and more burden from lung cancer than females, while females experienced more burden from dementia (ranked first in females).

Over one-third of disease burden is potentially preventable

In 2018, 38% of the burden of disease could have been prevented by reducing or avoiding exposure to the modifiable risk factors examined in this study.

The risk factors contributing the most burden in 2018 were tobacco use (8.6%), overweight (including obesity) (8.4%), followed by dietary risks (5.4%), high blood pressure (5.1%), and alcohol use (4.5%).

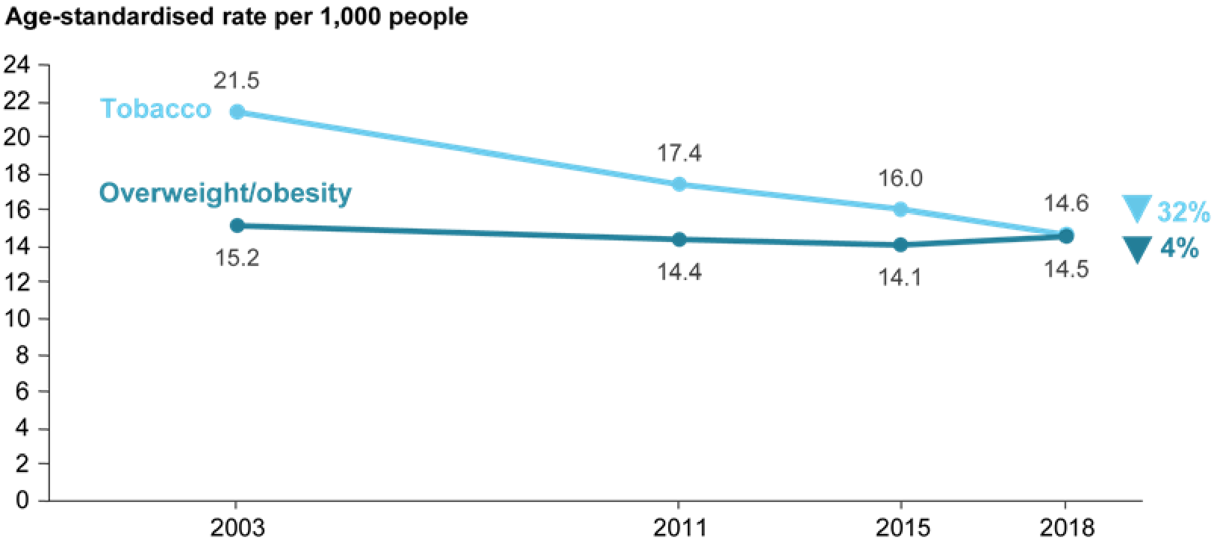
Figure 5: Proportion (%) of total burden attributable to the leading 5 risk factors in 2018



Tobacco use was the leading risk factor for both males and females and contributed the most to fatal burden, with almost 20,500 attributable deaths (13% of all deaths) in 2018. Overweight (including obesity) contributed the most to non-fatal burden.

After adjusting for population growth and ageing, the rates of burden attributable to the top 2 risk factors were shown to decrease over the period 2003 to 2018. For tobacco use, the decline in attributable burden was mainly driven by continued declines in smoking prevalence and major linked diseases. For overweight (including obesity), small declines were evident between 2003 and 2015, followed by a small increase between 2015 and 2018. These trends were partly driven by increasing rates of burden attributable to obesity and some linked diseases such as dementia; and declining rates in burden attributable to overweight (but not obesity) and linked diseases such as cardiovascular diseases.

Figure 6: Change between 2003 and 2018 in the age-standardised attributable DALY rate (per 1,000 population) for the leading 2 risk factors in 2018

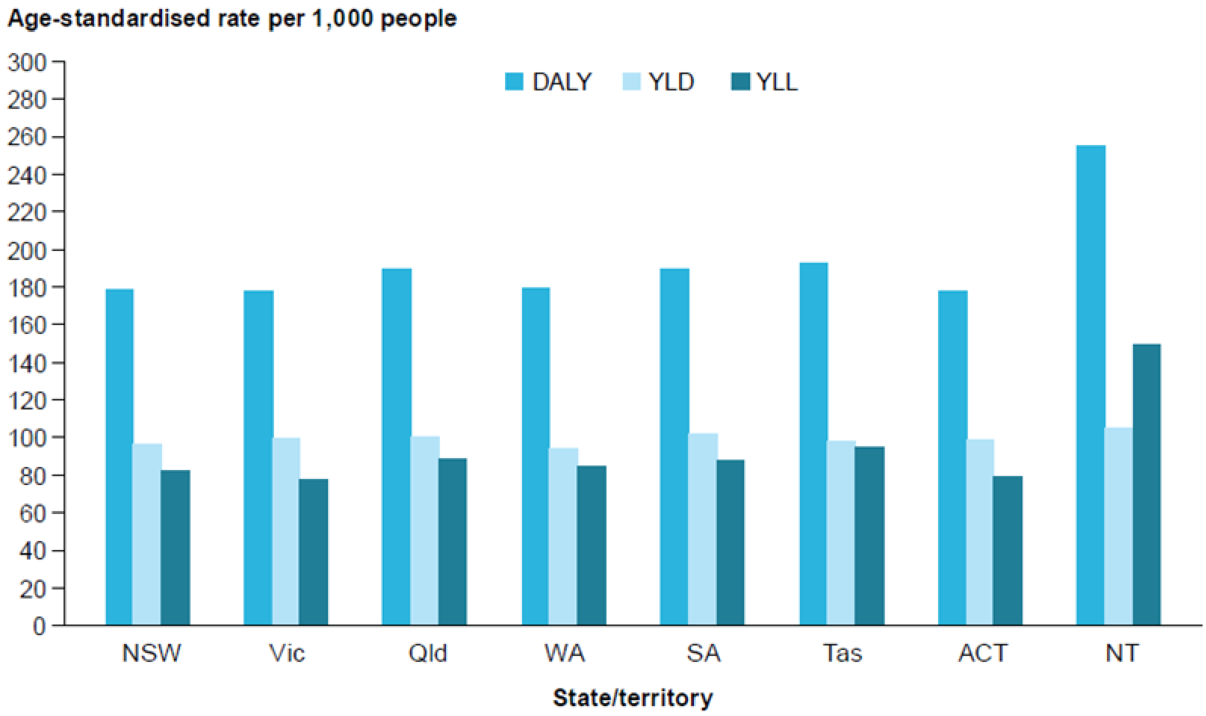


Declines were observed for most leading risk factors with the exception of illicit drug use for which the age-standardised DALY rate increased by 35% between 2003 and 2018, resulting in change in ranking from the 8th leading risk factor in 2003 to 6th in 2018.

Disease burden is not shared equally across Australia

The overall rate of total, fatal and non-fatal burden was similar across states and territories, except the Northern Territory where the age-standardised DALY rate was 1.4 times as high as the national rate. The Northern Territory has the smallest population, but also a younger population and a higher proportion identifying as Aboriginal or Torres Strait Islander than in other states and territories.

Figure 7: DALY, YLD and YLL age-standardised rates (per 1,000 population), by state or territory, 2018



Large inequalities were also found across socioeconomic groups and remoteness areas. The total burden (DALY rate) in:

Remote and very remote areas is
1.4 x
Major cities

Lowest socioeconomic group is
1.6 x
Highest socioeconomic group

Living longer but no change in proportion of life spent in full health

Australians are, on average, living longer and spending more years in full health (meaning no disease or injury; also referred to as health-adjusted life expectancy). However, years lived in ill health are also increasing, resulting in little change in the proportion of life spent in full health.

Males and females born in 2018 could expect to live an average of 89% and 87% of their lives in full health respectively (71.5 years of the 80.7 years of average life expectancy for males and 74.1 years of the 84.9 years of average life expectancy for females).

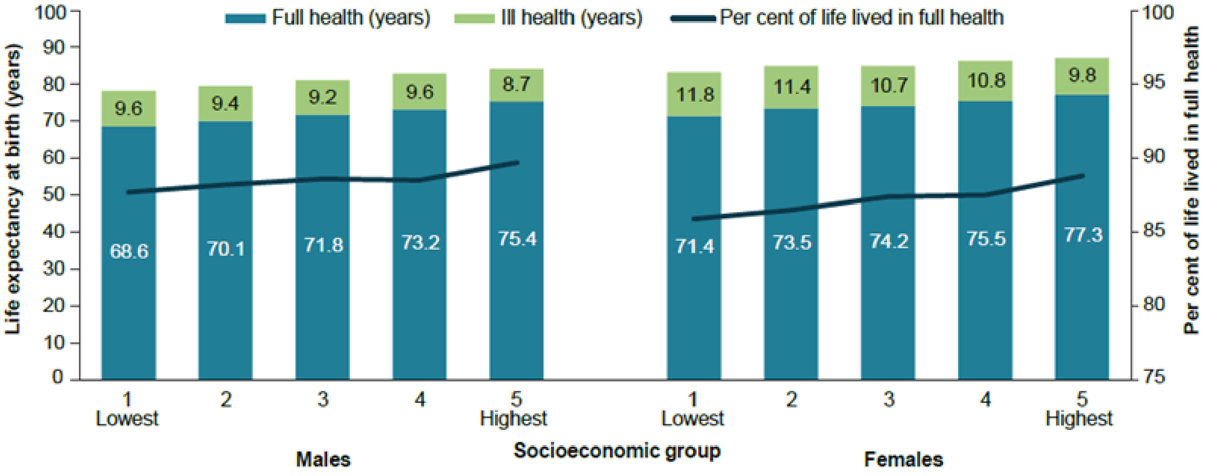
Between 2003 and 2018, the average proportion of life spent in full health remained largely the same for males (89%), but decreased slightly for females (from 88% to 87%).

The gap in both life expectancy and health-adjusted life expectancy between Major cities and Remote and very remote areas reduced between 2011 and 2018.

Lower socioeconomic groups live fewer years in full health

In 2018, males and females in the lowest (most disadvantaged) socioeconomic group lived fewer years in full health, and a smaller proportion of life expectancy (at birth) in full health, compared to those in the highest (least disadvantaged) socioeconomic group.

Figure 8: Expected years lived in full health and ill health (and proportion of life lived in full health), by sex and socioeconomic group, 2018



The proportion of life expectancy at birth lived in full health for the period 2011 to 2018 remained largely the same for males and females in the highest socioeconomic group, and declined for females in the lowest socioeconomic group (there was no change for males). Similar patterns were observed at age 65 except that declines in the lowest socioeconomic group were observed for both males and females, suggesting a slight widening of the gap in health-adjusted life expectancy between the lowest and highest socioeconomic groups at that age.

Cancer

Find the most recent version of this information at:
https://www.aihw.gov.au/reports/australias-health/cancer

Cancer is a large range of diseases in which some of the body's cells become defective, begin to multiply out of control, can invade and damage the area around them, and can also spread to other parts of the body to cause further damage.

There are more than 1 million people alive in Australia who have previously been diagnosed with cancer. During 1989–1993, 5 in 10 (52%) people survived for at least 5 years after their cancer diagnosis; by 2014–2018 survival had increased to 7 in 10 (70%) people surviving at least 5 years.

Impact of COVID-19

The full impact of the COVID-19 pandemic on cancer diagnosis and treatment will not be known for several years. However, COVID-19 restrictions appear to have affected the uptake of breast ultrasound, mammography, breast magnetic resonance imaging and colonoscopy.

After having increased by an average of 1% per year over the previous 20 years, the rate of cancer-related hospitalisations decreased by 1% between 2018–19 and 2019–20, noting that COVID-19 restrictions were in place during the last quarter of 2019–20. Following average growth of around 2% per annum between 2014 and 2019, the number of people having Medicare Benefits Schedule (MBS)-subsidised colonoscopies was 12% lower in 2020, and 3% lower in 2021, when compared with 2019.

Cancer incidence and mortality projections methods for 2021 used in the following paragraphs do not factor in possible COVID-19 impacts.

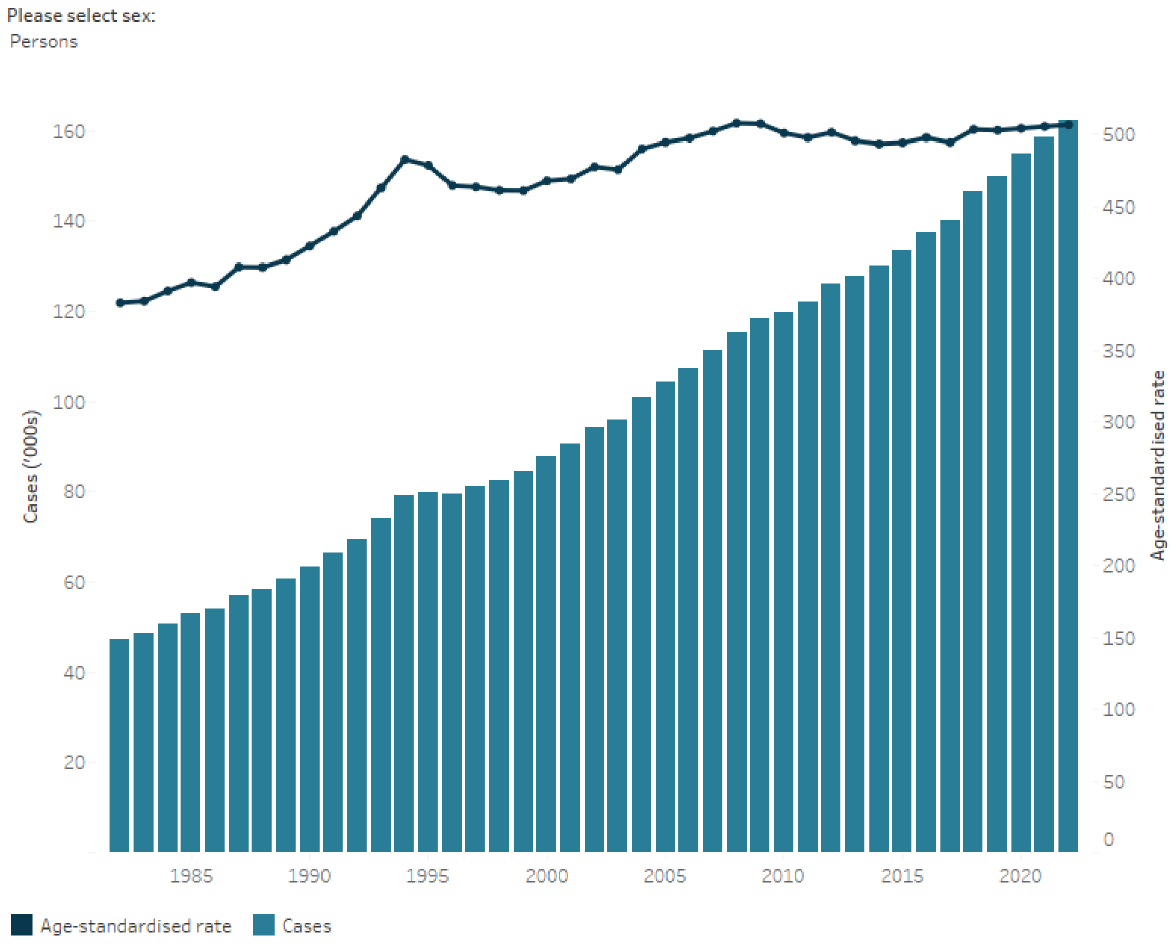
How common is cancer?

In 2022, it is estimated that:

- About 162,000 new cases of cancer were diagnosed in Australia, an average of over 440 every day; more than half (55%) of these cases were diagnosed in males.
- The most commonly diagnosed cancers in males were prostate cancer (24,217cases), melanoma of the skin (10,374 cases), colorectal cancer (8,300 cases) and lung cancer (7,707 cases).
- The most commonly diagnosed cancers in females were breast cancer (20,428 cases), colorectal cancer (7,413 cases), melanoma of the skin (7,382 cases) and lung cancer (6,822 cases).

The age-standardised incidence rate (see Glossary) of all cancers combined rose from 383 cases per 100,000 people in 1982 to a peak of 508 cases per 100,000 in 2008, to 504 cases per 100,000 in 2018. Age-standardised rates are estimated to have remained similar at 507 cases per 100,000 people in 2022 (Figure 1).

Figure 1: Cancer cases and age-standardised incidence rates, by sex, 1982 to 2022



Notes
1. Age-standardised rates are presented as cases per 100,000 of the selected sex (for example, if persons is selected, the rate will be cases per 100,000 persons).
2. Cases and rates for 2019, 2020, 2021 and 2022 are based on projections.
Source: Australian Cancer Database 2018.
http://www.aihw.gov.au

The increasing trend to 2008 was largely due to a rise in the number of diagnosed prostate cancers in males and breast cancer in females. This trend may have been the result of increased prostate-specific antigen testing, the introduction of national cancer screening programs, and improvements in technologies and techniques used to identify and diagnose cancer.

Cancer registrations

Registration of all cancers, excluding basal and squamous cell carcinomas of the skin, is required by law in each state and territory. Information on newly diagnosed cancers is collected by each state and territory population-based cancer registry and provided to the AIHW annually to form the Australian Cancer Database (ACD). Since basal and squamous cell carcinomas of the skin are not notifiable in all jurisdictions, data on these cancers are not included in the ACD. However, it is estimated that basal and squamous cell carcinomas of the skin are the most frequently diagnosed cancers in Australia. For more information about estimates of these cancers, see Cancer in Australia 2021. Also note these cancers are included in the treatment and impact sections of this page.

Australia's ageing population and cancer

The Australian population is ageing, and the risk of being diagnosed with cancer increases with age. With more Australians living to older ages, the number of cancer cases diagnosed each year continues to rise. The Australian population is expected to increase by 15% (about 4 million people) between 2021 and 2031 (ABS 2018), while cancer cases are estimated to increase by around 22%.

It is estimated that around 185,000 cases of cancer will be diagnosed in 2031, and that between 2022 and 2031, a total of around 1.7 million cases of cancer will be diagnosed.

Socio-economic factors

In the period 2012–2016, the age-standardised incidence rate for all cancers combined was highest for those living in the 2 lowest socioeconomic areas and lowest for those living in the 2 highest socioeconomic areas.

Age-standardised incidence rates tend to increase with increasing disadvantage for the following cancers:

- colorectal cancer (from 52 in the least disadvantaged areas to 61 cases per 100,000 people in the most disadvantaged areas)
- lung cancer (from 31 to 55 cases per 100,000 people)
- head and neck cancer (including lip) (from 14 to 21 cases per 100,000 people)
- kidney cancer (from 11 to 15 cases per 100,000 people)
- pancreatic cancer (from 11 to 13 cases per 100,000 people)
- cancer of unknown primary site (from 7.2 to 11 cases per 100,000 people)
- liver cancer (from 5.9 to 9.4 cases per 100,000 people)
- cervical cancer (from 5.9 to 8.8 cases per 100,000 females)
- uterine cancer (from 17 cases to 20 per 100,000 females).

In contrast, the age-standardised incidence rates tended to decrease with increasing disadvantage for the following cancers:

- breast cancer (from 138 in the least disadvantaged areas to 117 cases per 100,000 females in the most disadvantaged areas)
- prostate cancer (from 169 to 137 cases per 100,000 males).

Compared with people living in the least socioeconomically disadvantaged areas, cancer incidence rates for people living in the most disadvantaged areas were 5% higher, but 5-year observed survival rates were around 12 percentage points lower (56% compared to 68%), and cancer mortality rates were over 40% higher.

See Cancer in Australia 2021 for more information.

Indigenous Australians

In the period 2012–2016, an average of 1,665 cases of cancer were diagnosed among Indigenous Australian per year (in New South Wales, Victoria, Queensland, Western Australia and Northern Territory). The age-standardised incidence rate for all cancers combined was 14% higher for Indigenous Australians than non-Indigenous Australians.

For the 2012–2016 period:

- Prostate cancer was the most common cancer diagnosis in Indigenous males (on average, 141 cases per year).
- Breast cancer was the most common cancer diagnosis in Indigenous females (on average, 205 cases per year).
- Lung cancer was the most common cancer diagnosis for Indigenous Australians overall and the second most common cancer diagnosis for each sex (on average, 125 cases per year for males and 119 cases per year for females).

Stage at diagnosis

Cancer stage at diagnosis refers to the extent or spread of cancer at the time of diagnosis. The AIHW, Cancer Australia and state and territory cancer registries worked together to undertake a pilot to produce national population-level data on cancer stage at diagnosis for the 5 most commonly diagnosed cancers (breast, prostate, colorectal and lung cancers and melanoma of the skin) diagnosed in 2011. These cancers were assigned a ‘stage’ from I to IV. The higher the number, the further the cancer had spread at the time of diagnosis. The 2011 pilot data remain the most recent available.

Collection and analysis of data on cancer stage at diagnosis enhances the understanding of the variation in cancer stage at the time of diagnosis and how it affects survival.

In 2011:

- Most cancers were diagnosed at stage I or II (66%), with melanoma of the skin having the highest percentage diagnosed at stage I (78%).
- 12% of cases diagnosed with one of the 5 most commonly diagnosed cancers presented with a stage IV cancer.
- Stage IV cancer accounted for 42% of lung cancers diagnosed, which was the highest percentage of the 5 cancers.

Cancer treatment

While population-based cancer screening in Australia focuses on asymptomatic populations for breast, cervical and bowel cancers, treatments for cancer aim to improve outcomes for individuals once they have received a cancer diagnosis, irrespective of the cancer type. Summaries of some key areas of cancer treatment (hospitalisations, chemotherapy, radiotherapy and palliative care) are presented below.

Cancer-related hospitalisations

In the 2019–20 financial year, there were around 1.3 million cancer-related hospitalisations, accounting for about 1 in 9 of all hospitalisations in Australia. Of these:

- 74% were same-day hospitalisations (see Glossary). The large number of same-day hospitalisations is in part accounted for by the number of chemotherapy treatments.
- 26% were overnight hospitalisations (see Glossary), with an average length of stay of 7.5 days. Cancer of other central nervous system had the longest average length of stay (13.8 days), followed by leukaemia (12.6) and mouth cancer (11.5).
- non-melanoma skin cancer was the most common cancer recorded as a principal diagnosis (25%), followed by prostate cancer (9.2%) and cancer of secondary site (9.1%).

Chemotherapy

Chemotherapy involves the use of drugs (chemicals) to prevent or treat disease (in this case, cancer). Chemotherapy can be used on its own or in combination with other methods of treatment.

In 2020, 68,942 people received MBS-subsidised chemotherapy services. 46% of these services were provided to males.

Further information on chemotherapy treatments that were not subsidised through the MBS is available within Cancer in Australia 2021.

Radiotherapy

Radiotherapy is the use of X-rays to destroy or injure cancer cells so they cannot multiply and is an important part of cancer treatment (Barton et al. 2014). Radiotherapy can be used on its own or in combination with other treatment methods.

In 2020, around 77,200 people received more than 2.5 million MBS-subsidised radiotherapy services. Of these:

- patients had, on average, 33 radiotherapy services (34 for males and 31 for females)
- the Australian Government contributed, on average, $8,016 per patient ($8,476 for males and $7,514 for females)
- around 90% of patients were over the age of 50.

Further information on radiotherapy treatments which are not subsidised through the MBS is available within Cancer in Australia 2021.

Palliative care

Palliative care – sometimes referred to as 'hospice care', 'end-of-life care' and 'specialist palliative care' – is an approach that aims to improve the quality of life of patients and their families facing the problems associated with life-limiting illness. This is done through the prevention and relief of suffering by means of early identification and assessment and treatment of pain and other problems, physical, psychosocial and spiritual (WHO 2002).

In 2019–20, around 43,400 cancer-related hospitalisations in Australia involved palliative care – these accounted for 50% of all palliative care hospitalisations.

The most common type of cancer recorded for palliative care hospitalisation was secondary site cancer (20%), followed by lung cancer (13%) and colorectal (bowel) cancer (6.6%). Of the cancer related hospitalisations involving palliative care, 52% ended in death, 13% were transferred to another facility, and 30% were discharged to where the person usually lived.

See Cancer in Australia 2021 for more detail on cancer-related treatments.

Survival

Information on survival from cancer indicates cancer prognosis and the effectiveness of treatment available. Relative survival refers to the probability of being alive for a given amount of time after diagnosis compared to the general population (see Glossary). A 5-year relative survival figure of 100% means that the cancer has no impact on people's chance of still being alive 5 years after diagnosis, whereas a figure of 50% means that the cancer has halved that chance.

During 2014–2018 in Australia:

- Individuals diagnosed with cancer had, on average, a lower (70%) chance of surviving for at least 5 years after diagnosis compared with their counterparts in the general population (referred to as '5-year relative survival').
- Females had a slightly higher 5-year relative survival rate (72%) than males (69%).
- Survival rates vary considerably between cancer types – cancers such as testicular, thyroid and prostate cancer have 5-year survival rates over 95% while cancers such as pancreatic cancer and mesothelioma have 5-year survival rates of less than 20%.
- 5-year survival rates increased from 5 in 10 (52%) in 1989–1993 to 7 in 10 (70%) in 2014–2018.

Survival by stage of diagnosis

The stage of cancer at diagnosis and subsequent treatment outcomes are important determinants of cancer survival. Five-year relative survival rates were highest for cancers diagnosed at earlier stages.

For the 5 cancers where stage at diagnosis data was collected in 2011, 5-year relative survival for:

- Breast cancer in females at Stage I was 100%; at Stage IV it was 32%.
- Colorectal cancer at Stage I was 99%; at Stage IV it was 13%.
- Lung cancer at Stage I was 68%; at Stage IV it was 3.2%.
- Melanoma of the skin at Stage I was 99%; at Stage IV it was 26%.
- Prostate cancer in males at Stage 1 was 100%; at Stage IV it was 36%.

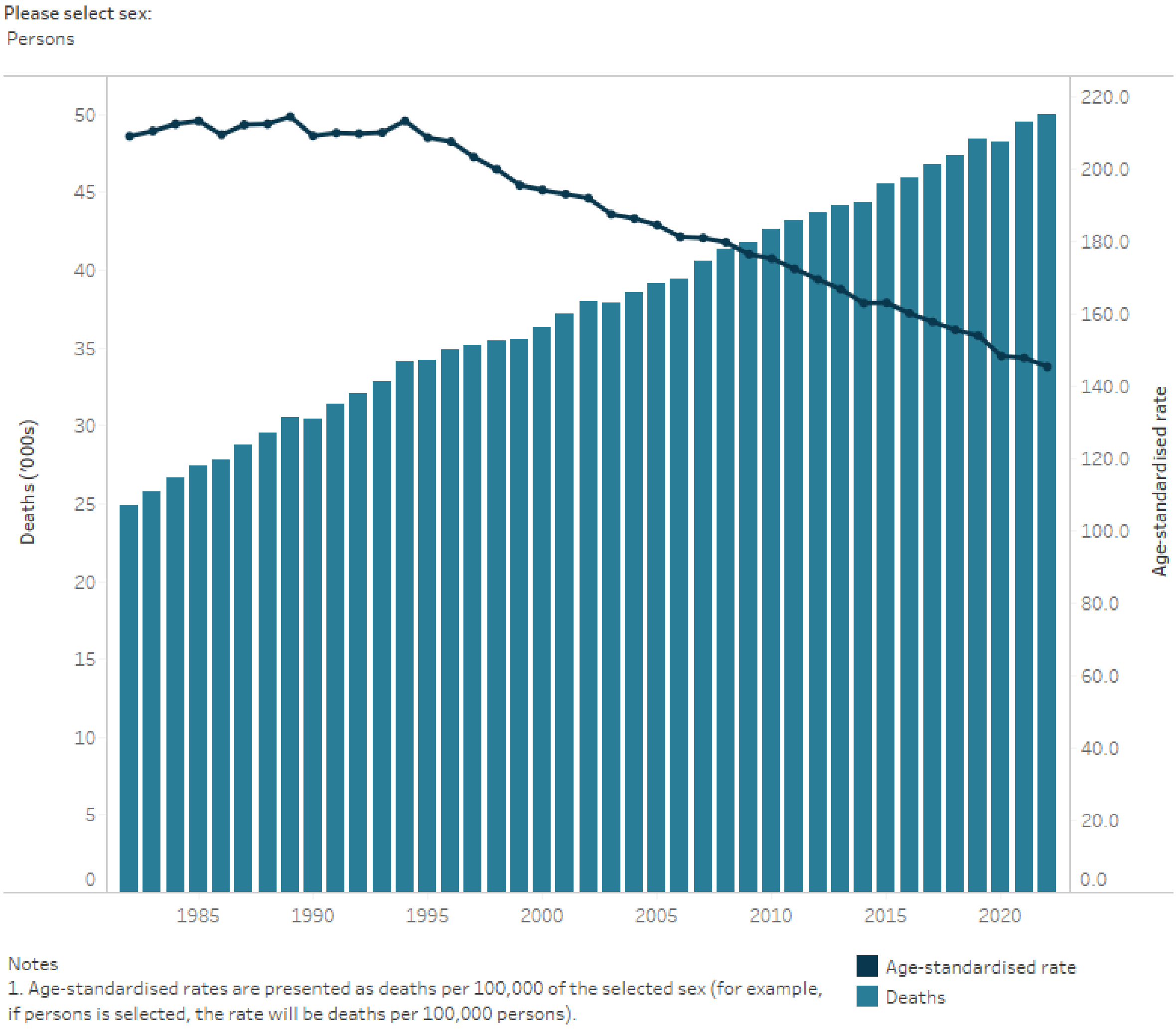
Impact

Deaths

Even though cancer survival rates have increased and cancer mortality rates continue to drop, cancer accounts for around 3 of every 10 deaths in Australia. It is estimated that, in 2022, around 50,000 people will have died from cancer, an average of around 137 deaths every day. Males are estimated to account for 56% of these deaths.

The age-standardised cancer mortality rate is estimated to have decreased from 209 deaths per 100,000 people in 1982 to 145 deaths per 100,000 people in 2022 (Figure 2). See Causes of death.

Figure 2: Cancer-related deaths and age-standardised mortality rates, by sex, 1982 to 2022



Notes

1. Age-standardised rates are presented as deaths per 100,000 of the selected sex (for example, if persons is selected, the rate will be deaths per 100,000 persons).

2. Deaths and mortality rates for 2021 and 2022 are based on projections.

Source: National Mortality Database.

http://www.aihw.gov.au

Burden of disease

Burden of disease analysis measures the impact of disease and injury in a population by estimating the 'disability-adjusted life years' (DALY) experienced by the population. This measure counts the combined years of healthy life lost due to living with disease and injury (non-fatal burden), and dying prematurely (fatal burden).

In 2018, cancer contributed to 18% of the total disease burden, which was more than any other disease group. Dying from cancer accounted for 34% of the fatal burden in Australia. See Burden of disease.

Expenditure

In 2018–19, total recurrent expenditure on health goods and services was $184.9 billion, of which, $134 billion (72%) was able to be attributed to specific disease groups. Cancer and other neoplasms (tumours) was the disease group with the third greatest health system expenditure and accounted for 8.8% of the $134 billion disease-specific expenditure ($11.7 billion). See Health expenditure.

Where do I go for more information?

For more information on cancer, see:

- Australian Burden of Disease Study 2018: key findings. Australian Burden of Disease Study series 24
- Cancer data in Australia
- Cancer in Australia 2021
- Disease expenditure in Australia 2018-19

Visit Cancer for more on this topic.

Causes of death

This topic summary is part of the Deaths in Australia report.

Looking at how many people die and what caused their death can provide vital information about the health of a population. Examining patterns and trends in deaths can help explain differences and changes in the health of a population, contribute to the evaluation of health strategies and interventions, and guide planning and policy-making.

In 2020, there were 161,300 deaths in Australia (84,588 males; 76,712 females). Less than 1% of all deaths registered in Australia in 2020 occurred among children aged 0–4 years, while two-thirds (66%) were among people aged 75 and over.

About deaths data

Causes of death are documented on death certificates by medical practitioners or coroners, and coded by the Australian Bureau of Statistics using the World Health Organization International Statistical Classification of Diseases and Related Health Problems, 10th revision (ICD-10).

The ICD allows diseases that cause death to be grouped in a way that is meaningful for monitoring population health. The AIHW uses the disease groups recommended by the World Health Organization (Becker et al. 2006), with minor modifications to suit the Australian context.

Leading causes of death presented in this page are based on the 'underlying cause of death', which is the disease or injury that began the train of events leading to death. The leading causes of death are those causes which account for the greatest number of deaths (or proportion of total deaths) in a specified population for a given period.

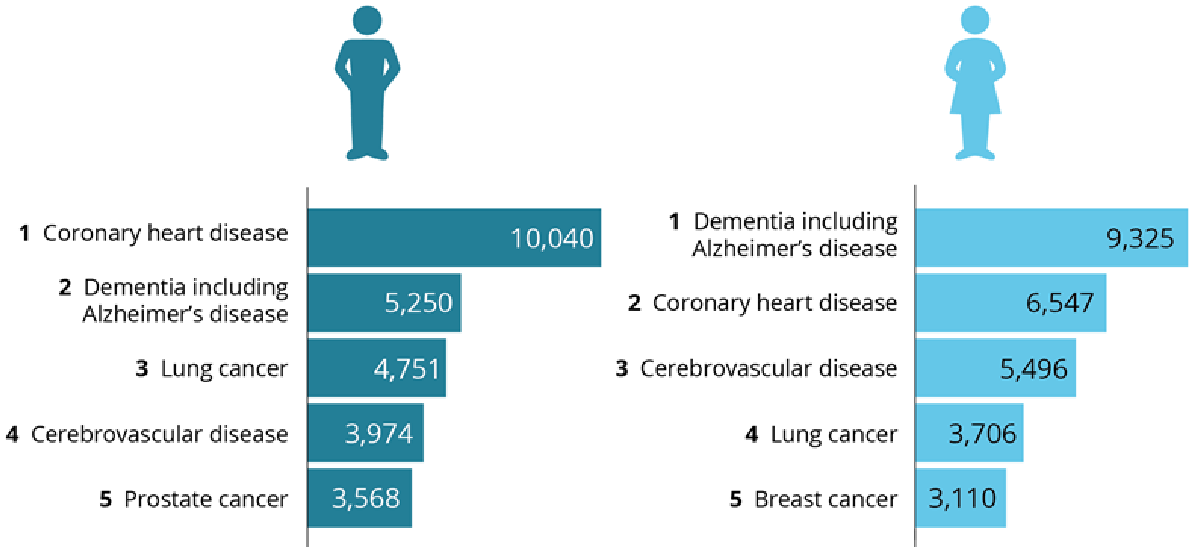
Most deaths, however, result from more than one contributing disease or condition. Analyses using 'associated causes of death' may offer insight into the disease processes occurring at the end of life or, for injury causes of death, the nature of the injury. 'Multiple causes of death' statistics are based on both the underlying and associated causes of death.

See Technical notes for more information.

Leading causes of death by sex and age

In 2020, the leading cause of death for males was coronary heart disease, accounting for 10,040 (12%) deaths, followed by dementia including Alzheimer's disease (Figure 1). For females, dementia including Alzheimer's disease was the leading cause of death, accounting for 9,325 (12%) deaths, followed by coronary heart disease. Other diseases among the 5 leading causes of deaths for males and females were: cerebrovascular disease (which includes stroke), lung cancer, breast cancer (for females) and prostate cancer (for males).

Figure 1: Leading underlying causes of death in Australia, by sex, 2020



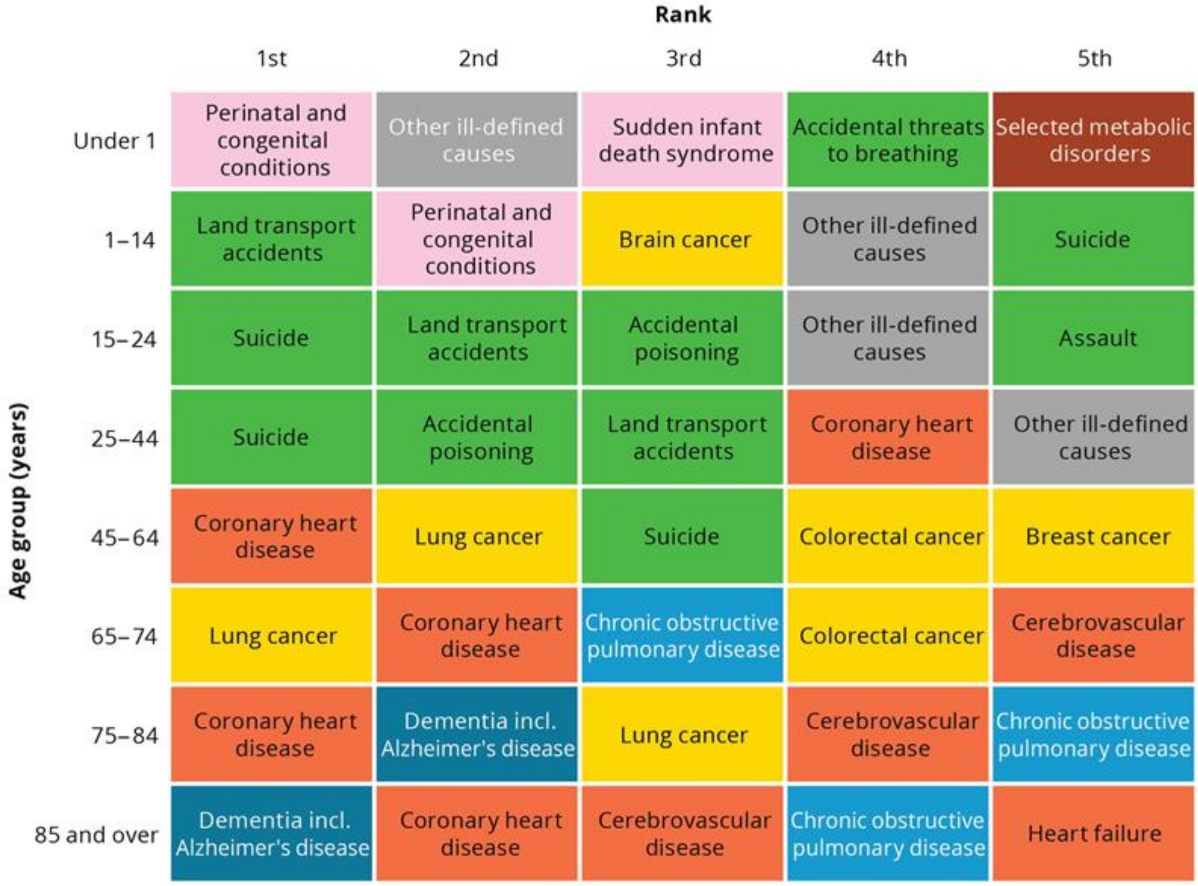
Source: AIHW National Mortality Database.

As well as differences by sex, the leading causes of death vary by age (Figure 2). Among infants, most deaths in 2020 were due to perinatal and congenital conditions. Land transport accidents were the most common cause of death among children aged 1–14. Suicide was the leading cause of death among people aged 15–44.

Chronic diseases caused more deaths among older age groups. Coronary heart disease and lung cancer were the leading causes of death for people aged 45–74, while coronary heart disease and dementia including Alzheimer's disease were the leading causes for people aged 75 and over.

See Leading cause of death for more information.

Figure 2: Leading underlying causes of death in Australia, by age group, 2018–2020



Age group (years)	1st	2nd	3rd	4th	5th
Under 1	Perinatal and congenital conditions	Other ill-defined causes	Sudden infant death syndrome	Accidental threats to breathing	Selected metabolic disorders
1–14	Land transport accidents	Perinatal and congenital conditions	Brain cancer	Other ill-defined causes	Suicide
15–24	Suicide	Land transport accidents	Accidental poisoning	Other ill-defined causes	Assault
25–44	Suicide	Accidental poisoning	Land transport accidents	Coronary heart disease	Other ill-defined causes
45–64	Coronary heart disease	Lung cancer	Suicide	Colorectal cancer	Breast cancer
65–74	Lung cancer	Coronary heart disease	Chronic obstructive pulmonary disease	Colorectal cancer	Cerebrovascular disease
75–84	Coronary heart disease	Dementia incl. Alzheimer's disease	Lung cancer	Cerebrovascular disease	Chronic obstructive pulmonary disease
85 and over	Dementia incl. Alzheimer's disease	Coronary heart disease	Cerebrovascular disease	Chronic obstructive pulmonary disease	Heart failure

Notes

‘Other ill-defined causes’ include the following codes: Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified (ICD-10 codes R00–R99, excluding R95: Sudden infant death syndrome (SIDS)); Respiratory failure of newborn (P28.5); Respiratory failure, unspecified (J96.9). AIHW General Record of Incidence of Mortality (GRIM) books are available for selected leading causes of death.

There were no suicide deaths in children under 5. The number of deaths of children attributed to suicide can be influenced by coronial reporting practices, see ABS 3303.0 – Causes of Death, Australia, 2017 (Explanatory Notes 91–100) for further information.

Source: AIHW National Mortality Database.

Deaths due to COVID-19

In 2020, there were 899 deaths due to COVID-19 registered in Australia. The majority of deaths occurred among people aged 85 and over, and among people residing in Victoria (59% and 89% of all COVID-19 deaths in 2020, respectively). See COVID-19 deaths.

For the latest statistics on deaths due to COVID-19, see Australian Bureau of Statistics (ABS) reports Provisional Mortality Statistics and COVID-19 Mortality in Australia, and ‘Chapter 1 The impact of a new disease: COVID-19 from 2020, 2021 and into 2022’ in Australia’s health 2022: data insights (AIHW 2022 forthcoming).

Trends in deaths over time

In Australia, death rates have continued to decline since at least the early 1900s. Between 1907 and 2020, the crude death rate decreased by 42% (44% for males and 39% for females). When accounting for changes in the population age structure over this period, the age-standardised death rate fell by 76% (74% for males and 78% for females). This was largely driven by the decline of infant and child deaths during this period; from 2,412 deaths per 100,000 children under 5 in 1907 to 71 per 100,000 in 2020 (decrease of 97%).

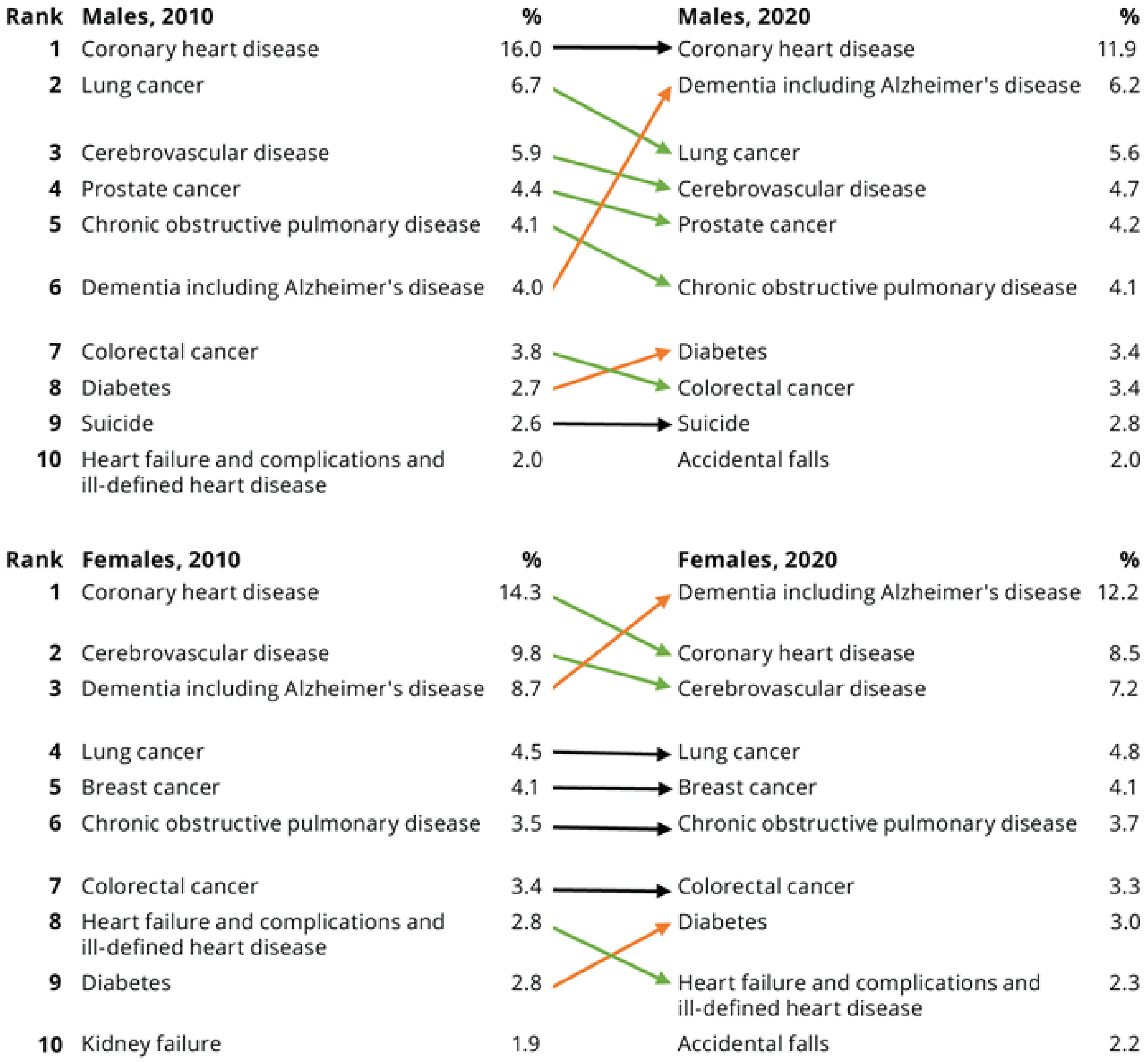
As in many other developed nations, Australia has experienced a 'health transition' during the 20th century (Beaglehole and Bonita 1997). While infectious diseases such as influenza and tuberculosis caused the most deaths in the early 1900's, from the 1930's onwards cardiovascular diseases and cancers were the leading causes of death. See also 'Chapter 4 Changing patterns of mortality in Australia since 1900' in Australia's health 2022: data insights (AIHW 2022 forthcoming).

In the last decade, the 10 leading causes of death have generally remained the same, albeit with different rankings (Figure 3).

- In both 2010 and 2020, coronary heart disease was the leading cause of death for males. For females, the leading cause of death in 2010 was coronary heart disease, however in 2020 it was dementia including Alzheimer's disease.
- For both males and females, diabetes and dementia including Alzheimer's disease increased in rank between 2010 and 2020.
- Deaths due to lung, prostate, and colorectal cancer decreased in ranking for males over this period, whereas for females there was no change in the rankings for deaths due to lung, breast, and colorectal cancer.

See Trends in deaths& for more information.

Figure 3: Change in disease ranking and the proportion of all deaths for the leading 10 underlying causes of death in Australia, by sex, between 2010 and 2020



Note: Colour lines link the same leading causes of death in 2010 with those in 2020; a black line means the ranking of the cause of death remained the same in 2020 as in 2010; an orange line, that the ranking of the cause of death in 2020 increased compared with that in 2010; and a green line, that the ranking of the cause of death in 2020 decreased compared with that in 2010.

Source: AIHW National Mortality Database.

Variation between population groups

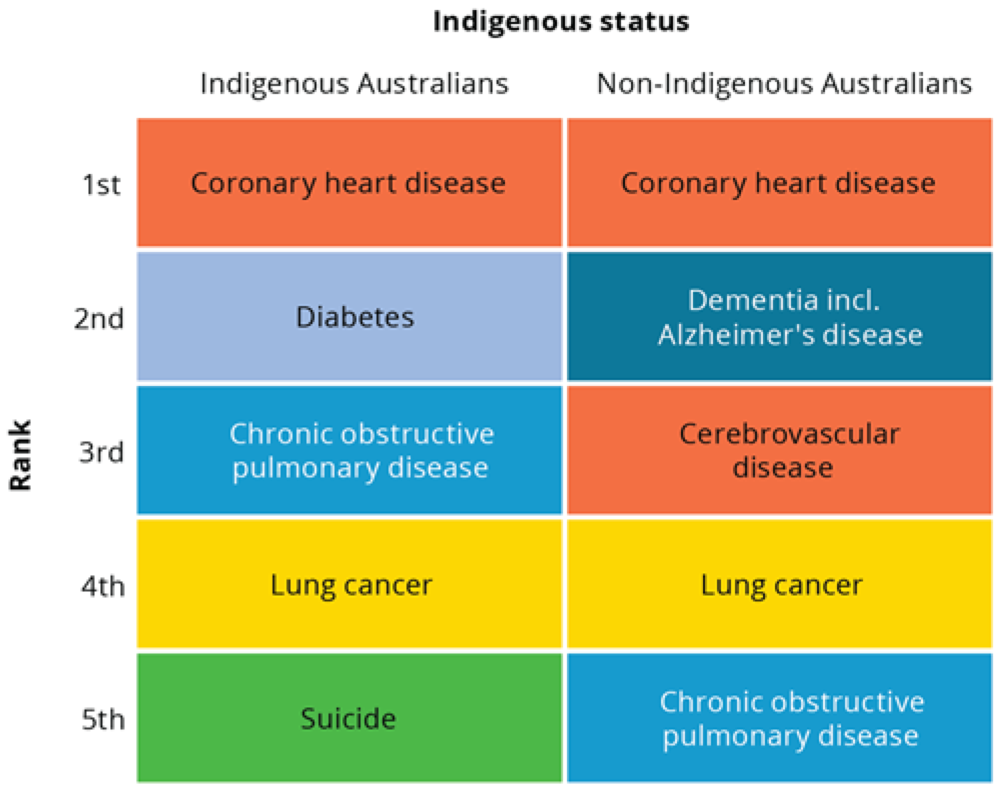
Aboriginal and Torres Strait Islander people

- In the period 2016–2020, the crude death rate for Aboriginal and Torres Strait Islander people was 442 deaths per 100,000 population.

- Age-standardisation is used to compare populations with different age structures. In 2016–2020, the age-standardised death rate among Indigenous Australians was 1.7 times the rate of non-Indigenous Australians (935 and 541 deaths per 100,000 population respectively).
- The 3 leading causes of death for Indigenous Australians were coronary heart disease, diabetes, and chronic obstructive pulmonary disease (COPD), whereas for non-Indigenous Australians they were coronary heart disease, dementia including Alzheimer's disease, and cerebrovascular disease (Figure 4).

See Indigenous health and wellbeing.

Figure 4: Leading underlying causes of death in Australia, by Indigenous status, 2016–2020



	Indigenous status	
Rank	Indigenous Australians	Non-Indigenous Australians
1st	Coronary heart disease	Coronary heart disease
2nd	Diabetes	Dementia incl. Alzheimer's disease
3rd	Chronic obstructive pulmonary disease	Cerebrovascular disease
4th	Lung cancer	Lung cancer
5th	Suicide	Chronic obstructive pulmonary disease

Note: Mortality data by Indigenous status are restricted to those 5 states and territories where information on Indigenous status is considered of sufficient quality and completeness of reporting: New South Wales, Queensland, Western Australia, South Australia and the Northern Territory.

Source: AIHW National Mortality Database.

Remoteness areas

- In the period 2016–2020, crude death rates were highest in *Inner regional* areas (831 deaths per 100,000) and lowest in *Very remote* areas (534 per 100,000).
- Age-standardised death rates increased with increasing remoteness. For people living in *Very remote* areas the age-standardised death rate was 1.5 times the rate for

people living in *Major cities* (743 and 489 deaths per 100,000 population, respectively).

- Coronary heart disease, COPD and lung cancer were among the 5 leading causes of death in all remoteness areas.
- Diabetes and suicide were among the 5 leading causes of death in *Very remote* areas only; dementia including Alzheimer's disease and cerebrovascular disease were among the 5 leading causes in all remoteness areas except *Very remote* areas.

See Rural and remote health.

Socioeconomic areas

- In the period 2016–2020, crude death rates were highest in the lowest socioeconomic areas (821 deaths per 100,000) and lowest in the highest socioeconomic areas (510 per 100,000 population).
- Age-standardised death rates decreased with increasing socioeconomic position. For people living in the lowest socioeconomic areas, the age-standardised death rate was 1.5 times the rate for people living in the highest socioeconomic areas (623 and 414 deaths per 100,000 population, respectively).
- Four of the 5 leading causes of death were the same across all socioeconomic areas (coronary heart disease, dementia including Alzheimer's disease, cerebrovascular disease, and lung cancer), however for all of these causes, the age-standardised death rate was highest in the lowest socioeconomic area, and lowest in the highest area.

See Health across socioeconomic groups and Variations between population groups.

Multiple causes of death

Death statistics are usually compiled using the 'underlying cause of death' only. However, in most cases, more than one disease contributes to death. Causes listed on a death certificate that are not the underlying cause of death are called 'associated causes of death'.

In 2020, 79% of natural deaths (that is, deaths **not** due to external causes such as accidents, injury and poisoning, or ill-defined causes) had more than one cause recorded on the death certificate and, on average, 3.2 causes were recorded. Some underlying causes of deaths had a higher number of associated causes of deaths than others, and some diseases were more likely to be reported as either the underlying or as an associated cause of death.

See Multiple causes of death for more information.

Life expectancy

Life expectancy measures how long, on average, a person is expected to live based on current age and sex-specific death rates. Life expectancy at birth is expressed as the number of years of life a newborn is expected to live.

Australia has one of the highest life expectancies in the world – ranked sixth (males and females combined) in 2020, among the 38 member countries of the Organisation for Economic Co-operation and Development (OECD) (OECD 2021). In Australia, a boy born in 2018–2020 can expect to live to the age of 81.2 and a girl can be expected to live to 85.3 (ABS 2021). As with death rates and leading causes of death, life expectancy varies between population groups within Australia. For Indigenous Australians born in 2015–2017, life expectancy is estimated to be 8.6 years lower than that of the non-Indigenous population for males (71.6 years compared with 80.2) and 7.8 years lower for females (75.6 years compared with 83.4) (ABS 2018).

See Life expectancy for more information.

Where do I go for more information?

- For more information on causes on death in Australia, see:
- General Record of Incidence of Mortality (GRIM) books
- Mortality Over Regions and Time (MORT) books
- Australian Bureau of Statistics (ABS) Deaths, Australia, 2020
- ABS Causes of death, Australia, 2020

See Life expectancy & deaths for more on this topic.

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Chronic conditions and multimorbidity

Find the most recent version of this information at:
https://www.aihw.gov.au/reports/australias-health/chronic-conditions-and-multimorbidity

Chronic conditions are an ongoing cause of substantial ill health, disability and premature death, making them an important global, national and individual health concern. Also referred to as chronic diseases, non-communicable diseases or long-term health conditions, chronic conditions are generally characterised by their long-lasting and persistent effects.

Chronic conditions often have complex and multiple causes. They are not usually immediately life-threatening but tend to develop gradually, becoming more common with age. Once present, they often persist throughout a person's life, so there is generally a need for long-term management by individuals and health professionals.

People with chronic conditions can also be more vulnerable to the effects of certain communicable diseases, including Influenza and COVID-19. While most people will only experience relatively mild/moderate symptoms after contracting these diseases, people with chronic conditions including cardiovascular disease, diabetes, chronic respiratory disease and cancer can develop more serious illness (NSW Health 2021; OECD 2021; WHO 2021).

Many people with chronic conditions do not have a single, predominant condition, but rather they experience multimorbidity—the presence of 2 or more chronic conditions in a person at the same time. People living with multimorbidity often have complex health needs and report poorer overall quality of life. See Chronic condition multimorbidity for further detail.

Selected chronic conditions

Although the term 'chronic conditions' covers a diverse group of conditions, 10 chronic conditions are the focus of analysis on this page: arthritis; asthma; back problems; cancer; chronic kidney disease; chronic obstructive pulmonary disease (COPD); diabetes; mental and behavioural conditions (including mood disorders, alcohol and drug problems and dementia); osteoporosis; selected heart, stroke and vascular diseases.

These 10 conditions were selected because they are common, pose significant health problems, and have been the focus of ongoing national surveillance efforts (ABS 2018). See the NHS Users' Guide 2017–18 for more information.

In many instances, action can be taken to prevent these conditions, making them an important focus for preventive health initiatives (Department of Health 2021a).

Chronic condition data

Chronic condition prevalence data for 2020–21 is based on self-reported data from the Australian Bureau of Statistics (ABS) 2020–21 National Health Survey (NHS).

Previous versions of the NHS have primarily been administered by trained ABS interviewers and were conducted face-to-face. The 2020–21 NHS was conducted during the COVID-19 pandemic. To maintain the safety of survey respondents and ABS Interviewers, the survey was primarily collected via online, self-completed forms.

Non-response is usually reduced through interviewer follow up of households who have not responded. As this was not possible during lockdown periods, there were lower response rates than previous NHS cycles, which impacted sample representativeness for some sub-populations. Additionally, the impact of COVID-19 and lockdowns might also have had direct or indirect impacts on people's usual behaviour over the 2020–21 period.

Due to these changes, comparisons to previous NHS data over time are not recommended.

Detailed analysis of multimorbidity, including comparisons between population groups and how living with multimorbidity affects the lives of individuals are based on data from the NHS 2017–18 (ABS 2018).

Multimorbidity estimates presented here therefore provide baseline information on chronic condition multimorbidity in Australia, before the COVID-19 pandemic.

How common are chronic conditions?

Almost half of Australians (47%, or 11.6 million people) were estimated to have one or more of the 10 selected chronic conditions in 2020–21 (ABS 2022a).

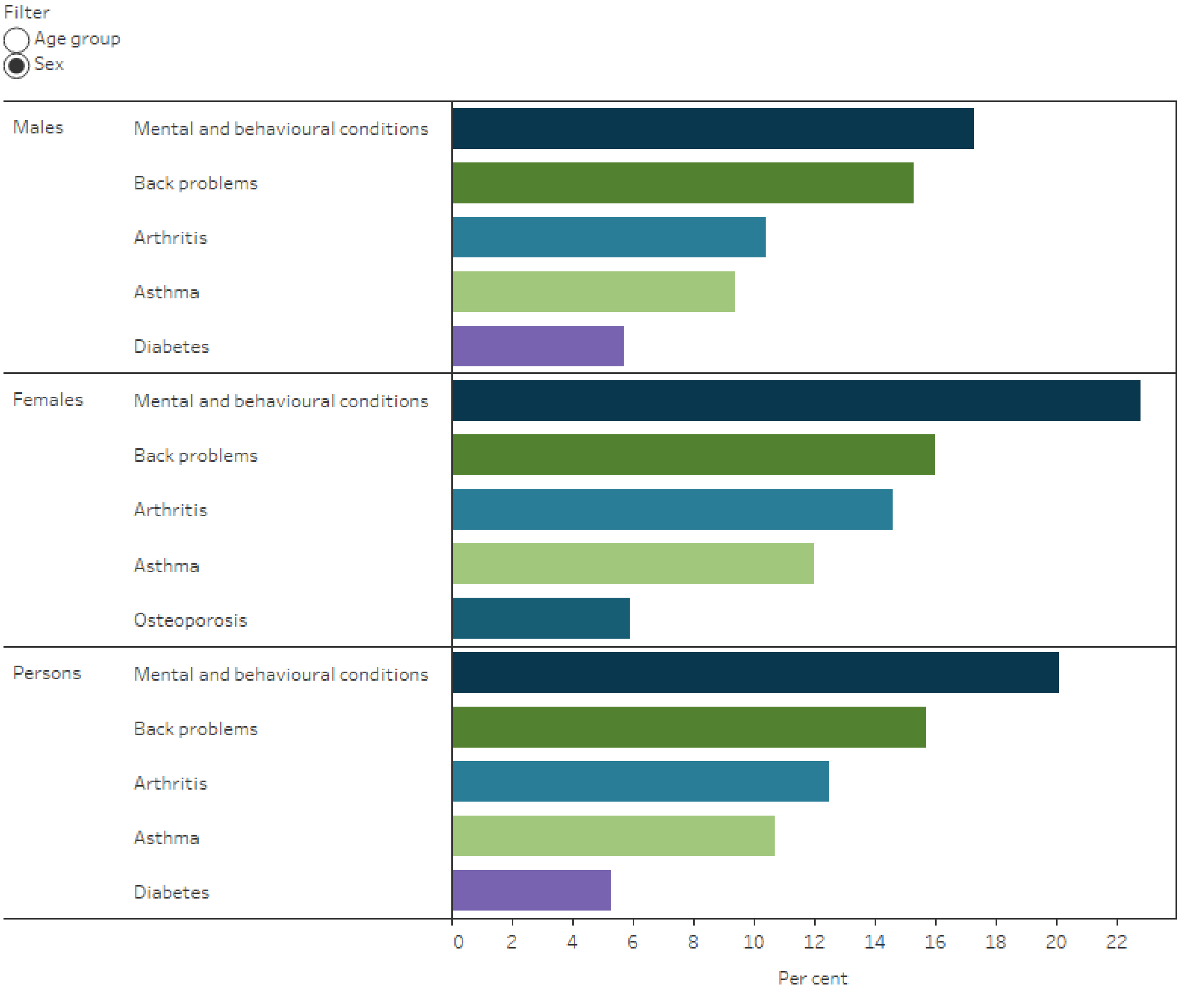
Mental or behavioural conditions; back problems; and arthritis were the most common of the 10 selected chronic conditions. Based on self-reported information from the 2020–21 NHS, it was estimated that about:

- 5.0 million (20%) people had a mental or behavioural condition, which was the most commonly reported chronic condition for both males and females.
- 3.9 million (16%) had back problems, which include sciatica, disc disorders, and curvature of the spine.
- 3.1 million (12%) had arthritis, with females (15%) more likely than males (10%) to have the condition (Figure 1).

The most common chronic conditions varied by age group. Of the 10 selected conditions in 2020–21:

- Mental and behavioural conditions were the most common conditions among people aged 15–44 (25%).
- Back problems were the most common conditions among people aged 45–64 (23%).
- 41% of people aged 65 and over were estimated to have arthritis – the most common chronic condition among people in this age group (ABS 2022b).

Figure 1: Most common chronic conditions by sex and age, 2020–21



[Notes]

Source: ABS 2022b.
http://www.aihw.gov.au/

Estimates presented here may differ from those reported elsewhere due to differences in the data source used, including differences in the method of data collection (for example, self-report survey or diagnostic survey). For further detail on some of the most common chronic conditions see: Cancer, Chronic kidney disease, Chronic musculoskeletal conditions, Chronic respiratory conditions, Coronary heart disease, Dementia, Diabetes, and Mental health.

Long-term health conditions in the 2021 Census

The 2021 Census conducted by the Australian Bureau of Statistics (ABS) contained a new item on long-term health conditions. People were asked if they have been told by a doctor or nurse that they have one or more of the following conditions: arthritis, asthma, cancer, dementia, diabetes, heart disease, kidney disease, lung conditions, mental health conditions, stroke, or any other long-term health condition not listed on the form.

Over 8 million Australians reported having at least 1 long-term health condition in the 2021 Census.

The Census is one of several ABS sources of long-term health conditions data. Census estimates of the number of people with a long-term health condition may differ from other data sources due to differences in how the question is asked and the conditions included; the scope, size, and characteristics of the sample; and the collection methodology.

Large sample health surveys, including the NHS, the National Aboriginal and Torres Strait Islander Health Survey and the National Study of Mental Health and Wellbeing, are the definitive and correct source for national prevalence rates (ABS 28 June 2022). The long-term health conditions question in the Census allows for the analysis of long-term health condition data at more detailed geographic and sub-population levels (including country of birth and service in the Australian Defence Force) compared with other ABS health surveys.

Find out more: on the ABS website Health: Census.

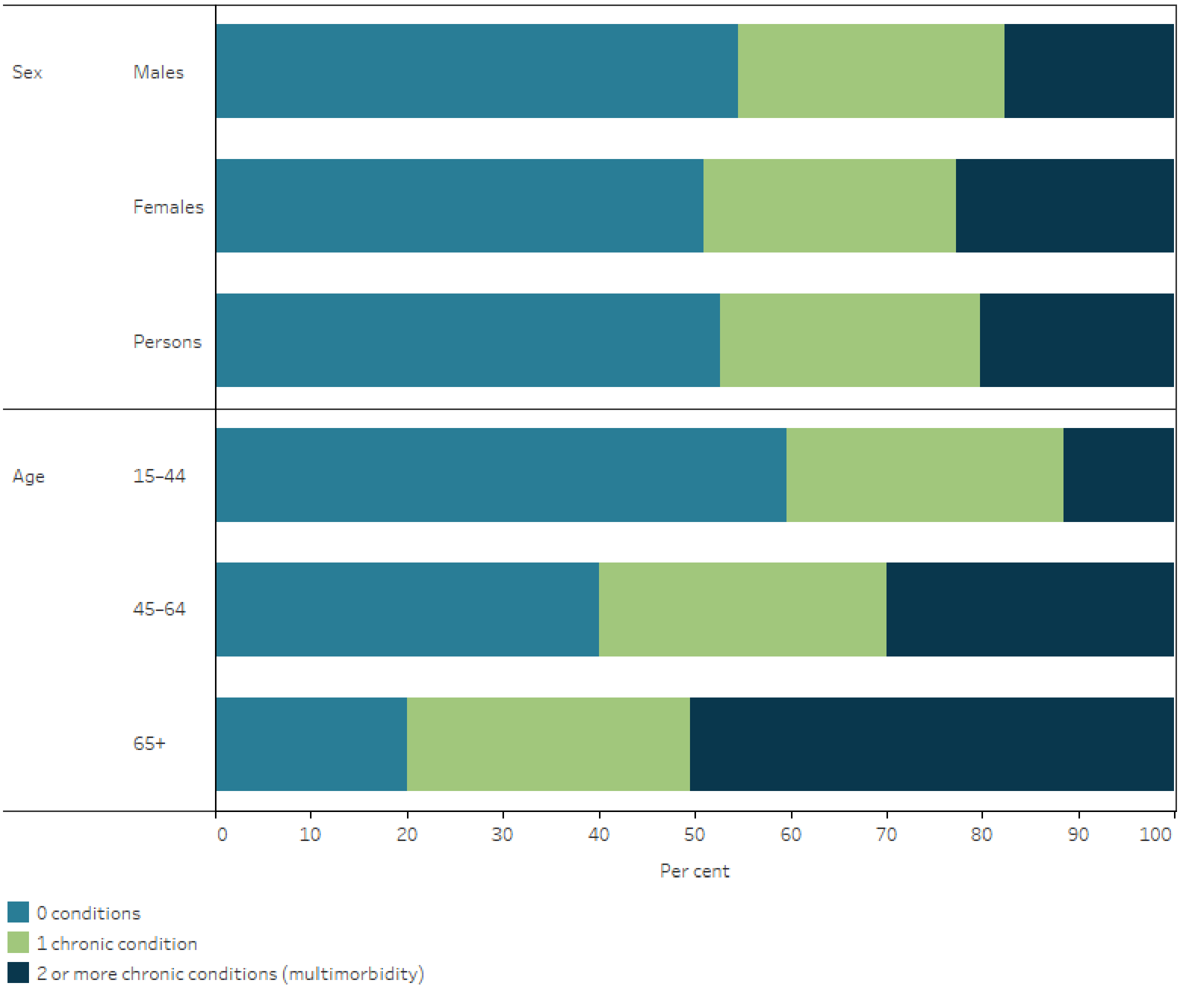
How common is multimorbidity?

It is estimated that 20% of Australians (4.9 million people) had 2 or more of the 10 selected chronic conditions in 2017–18, a state of health known as multimorbidity (AIHW analysis of ABS 2019).

Females were more likely to have multimorbidity than males (23% compared with 18%) (AIHW analysis of ABS 2019) (Figure 2). This difference remained after adjusting for differences in the age structure between females and males.

Multimorbidity becomes more common with age. In 2017–18, people aged 65 and over were more likely to have 2 or more of the 10 selected conditions compared with people aged 15–44 (51% compared with 12%) (Figure 2).

Figure 2: Number of chronic conditions experienced by sex and age, 2017–18



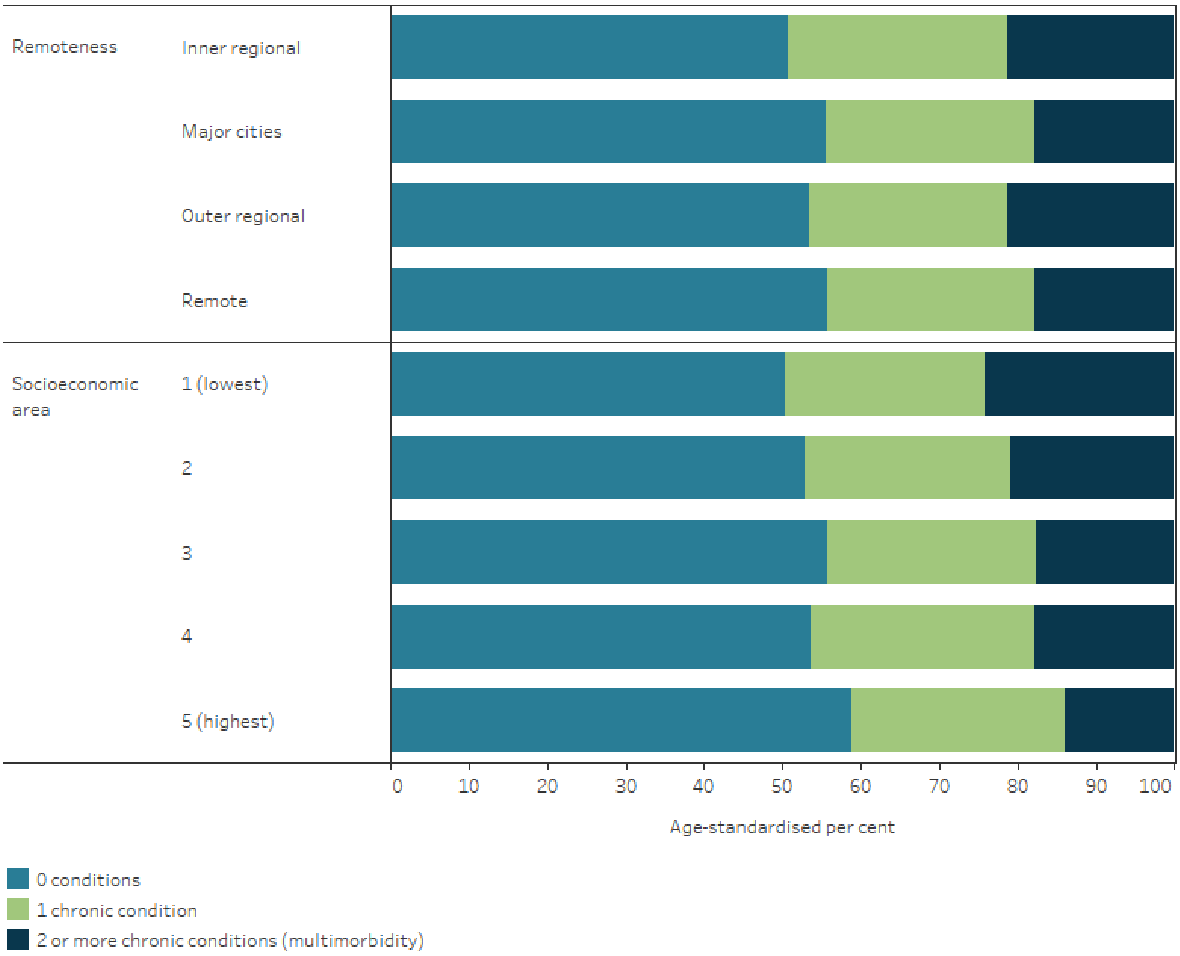
[Notes]

Source: AIHW analysis of ABS 2019.
http://www.aihw.gov.au/

Variation between population groups

Certain groups of people are more likely to experience multimorbidity than others. In 2017–18, the prevalence of multimorbidity tended to increase with increasing socioeconomic disadvantage, ranging from 14% in the highest socioeconomic areas to 24% in the lowest socioeconomic areas. However, the prevalence of multimorbidity was similar across remoteness areas (ranging from 18% in *Major cities* and *Remote* areas to 21% in *Inner* and *Outer regional* areas) (Figure 3). These findings adjust for differences in the age structure of the populations being compared. See Rural and remote health for more information on the health of these population groups.

Figure 3: Number of chronic conditions experienced by remoteness and socioeconomic area, 2017–18



[Notes]

Source: AIHW analysis of ABS 2019.
http://www.aihw.gov.au/

Impact

Burden of disease refers to the quantified impact of living with and dying prematurely from a disease or injury.

Analysis of the National Mortality Database and Australian Burden of Disease Study 2018 data show the 10 selected chronic conditions contributed to nearly 9 in 10 deaths (89%) in 2020 and contributed to around 66% of the total burden of disease (fatal and non-fatal) in 2018 (excluding burden associated with osteoporosis which is not available within current burden of disease estimates) (AIHW 2021). See Burden of disease for more information on definitions and the burden of disease associated with these conditions.

Living with chronic conditions can have a substantial impact on an individual's health, affect their quality of life and have social and economic effects. The impact is even greater for people living with multimorbidity.

Based on self-reported data from the 2017–18 NHS, people with multimorbidity were less likely to be in the labour force (working or seeking work) than people with no chronic conditions. Of all people aged 18−64 with multimorbidity, 71% were working or seeking work compared with 86% of people aged 18−64 with no chronic conditions (AIHW analysis of ABS 2019).

Compared with those with no long-term conditions, people aged 18 and over with multimorbidity also had higher levels of:

- disability, restriction or limitation (50% of people aged 18 and over with multimorbidity experienced disability, restriction or limitation compared with 7.9% of people of the same age with no long-term conditions)
- high or very high psychological distress (35% compared with 4.3%)
- bodily pain experienced in the previous 4 weeks (88% compared with 55%)
- fair or poor health (32% compared with 5.3%) (AIHW analysis of ABS 2019).

These comparisons adjust for differences in the age structure of the populations being compared.

Risk factors

Many chronic conditions share common risk factors that are largely preventable or treatable, for example: tobacco smoking, insufficient physical inactivity, poor diet, overweight and obesity and other biomedical risk factors such as high blood pressure. Preventing or modifying these risk factors can reduce the risk of developing a chronic condition and result in large population and individual health gains by reducing illness and rates of death.

As with chronic conditions, these risk factors tend to be more prevalent in the lowest socioeconomic areas and in regional and remote areas (see: Health across socioeconomic groups and Rural and remote health).

Treatment and management

Primary care

Most care for chronic conditions is provided in the primary health care setting by general and allied health practitioners. Effective primary health care can help prevent unnecessary hospitalisations and improve health outcomes (AMA 2021; OECD 2021). Mental and behavioural conditions (including anxiety, depression and mood disorders), musculoskeletal (including arthritis), respiratory (including asthma) and endocrine and metabolic conditions (including diabetes) were the most common health concerns managed by general practitioners in 2021.

See also: General practice, allied health and other primary care services and Potentially preventable hospitalisations.

Hospitalisations

Analysis of the National Hospitals Morbidity Database shows the 10 selected chronic conditions were involved in 5.8 million hospitalisations (52% of all hospitalisations) in 2019–20.

In 2019–20, the number of hospitalisations in Australia decreased by 2.8% compared with 2018–19, whereas previous year-to-year changes indicated a consistent upward trend (AIHW 2022). This decrease was driven by hospitalisations that did not involve the 10 selected chronic conditions, which were 4.6% lower in 2019–20 (5.3 million in 2019–20 compared with 5.5 million in 2018–19). In contrast, hospitalisations that involved the selected conditions were relatively stable in the same period, with 1.1% fewer hospitalisations in 2019–20.

For further detail on health service use for the selected chronic conditions, including the possible impact of COVID-19, see: Cancer screening, Chronic kidney disease, Chronic musculoskeletal conditions, Chronic respiratory conditions, Coronary heart disease, Dementia, Diabetes, and Mental health. See 'Chapter 2 Changes in the health of Australians during the COVID-19 period' in Australia's health 2022: data insights for information on the indirect effects of COVID-19 in terms of foregone and delayed health care, including early evidence of changes to health outcomes for specific chronic conditions.

See also: Australia's hospitals.

Coordinated approaches

Within Australia, it is recognised that multimorbidity increases the complexity of patient care and can require ongoing management and coordination of specialised care across multiple parts of the health system (Harrison and Siriwardena 2018). This places a heavy demand on Australia's health care system, and requires substantial economic investment.

People living with multiple chronic conditions have more, and longer, medical appointments and more medications to manage (RACGP 2019, 2021), yet historically there has been a lack of coordination and communication between different parts of the Australian health care system (AHMAC 2017; RACGP 2021). A key focus of the Australian health system, therefore, is the prevention and better management of chronic conditions to improve health outcomes (Department of Health 2021a).

The Australian Government has implemented a number of approaches with the aim of improving coordination and care for people with chronic conditions, including:

- access to care plans and assessments through the Medicare Benefits Schedule for the planning and management of chronic conditions

- subsidies through the Pharmaceutical Benefits Scheme for a range of medicines used in the treatment of chronic conditions
- trialling new approaches to support coordinated care for people with chronic and complex health conditions such as Health Care Homes to inform ongoing improvements.

In 2017, all Australian health ministers endorsed the National Strategic Framework for Chronic Conditions (the Framework). The Framework provides guidance for the development and implementation of policies, strategies, actions and services to tackle chronic conditions. It moves away from a disease-specific approach and better caters for shared health determinants, risk factors and multimorbidities across a broad range of chronic conditions.

The Framework outlines 3 objectives that focus on preventing chronic conditions, and thus minimising multimorbidities; providing efficient, effective and appropriate care to manage them; and targeting priority populations (AHMAC 2017). The Framework is complemented by the development of a 10-year National Preventive Health Strategy launched by the Minister for Health in December 2021 (Department of Health 2021b).

Where do I go for more information?

For further information on chronic conditions and multimorbidity, see:

- Chronic condition multimorbidity
- COPD, associated comorbidities and risk factors
- Asthma, associated comorbidities and risk factors
- Musculoskeletal conditions and comorbidity in Australia
- Heart, stroke and vascular disease—Australian facts
- Australian Bureau of Statistics National Health Survey: first results, 2017–18

Visit Chronic disease for more on this topic.

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Chronic kidney disease

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https://www.aihw.gov.au/reports/australias-health/chronic-kidney-disease

Chronic kidney disease (CKD) refers to all conditions of the kidney affecting the filtration and removal of waste from the blood for more than 3 months. CKD is identified by reduced filtration by the kidney and/or by the leakage of protein or albumin from the blood into the urine. CKD frequently occurs as a comorbidity of cardiovascular disease and diabetes (White 2020).

CKD is mostly diagnosed at more advanced stages when symptoms become more apparent. Kidney failure (also known as end-stage kidney disease) occurs when the kidneys can no longer function adequately, at which point people require kidney replacement therapy (KRT) – a kidney transplant or dialysis – to survive.

CKD is largely preventable because many of its risk factors – high blood pressure, tobacco smoking, and overweight and obesity – are modifiable. Other chronic diseases, such as cardiovascular disease and diabetes, are also risk factors for CKD (KHA 2020).

Early detection of CKD by simple blood or urine tests enables treatment to prevent or slow its progression.

How common is chronic kidney disease?

An estimated 10% of people (1.7 million Australians) aged 18 and over had biomedical signs of CKD in 2011–12, according to the Australian Bureau of Statistics latest National Health Measures Survey (NHMS) (ABS 2013).

The total number of people affected by CKD (the 'prevalence') increases rapidly with age, affecting around 42% of people aged 75 and over (AIHW 2018).

Only 6.1% of NHMS respondents who showed biomedical signs of CKD self-reported having the disease, indicating that CKD is a largely underdiagnosed condition (ABS 2013). This may be because up to 90% of kidney function can be lost before a person begins to feel unwell (KHA 2017).

Change over time

Two national surveys have been conducted in Australia that provide data on biomarkers of CKD – the 1999–2000 Australian Diabetes, Obesity and Lifestyle Study (AusDiab) and the 2011–12 NHMS.

Between 1999–2000 and 2011–12, the age-standardised CKD prevalence rate remained stable, but the number of Australians with moderate to severe loss of kidney function nearly doubled, from 322,000 in 1999–2000 to 604,000 in 2011–12. This increase was mostly driven by growth in the population of older people (as people live longer) and survival of people with kidney failure receiving KRT (AIHW 2018).

Kidney failure

Not everyone with kidney failure chooses to receive KRT, opting instead for end-of-life care. Therefore, estimates of the prevalence of kidney failure need to count kidney failure both with and without KRT. The most recent data available to examine this are linked data from the Australia and New Zealand Dialysis and Transplant (ANZDATA) registry and the National Death Index, covering the period from 1997 to 2013 (AIHW 2016).

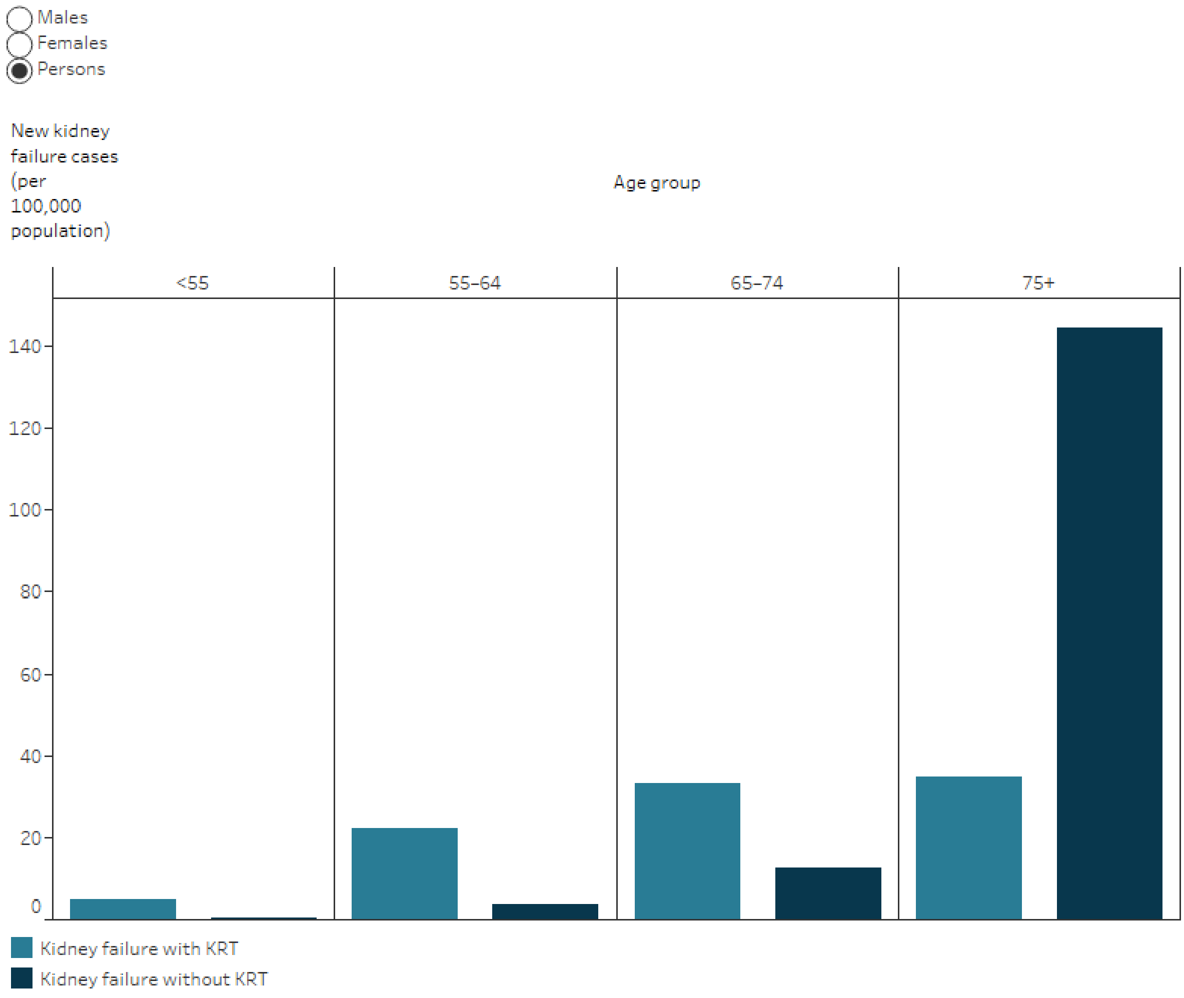
There were around 5,100 new cases of kidney failure in Australia in 2013, which equates to around 14 new cases per day. Of these, around 50% were receiving KRT.

Whether people with kidney failure are treated with KRT varies with age. Prior to age 75, most new cases of kidney failure are treated with KRT, however this trend reverses after age 75, where there was an 11-fold increase in kidney failure without KRT compared with ages 65–74 (from 13 to 145 per 100,000 population) (Figure 1).

In 2013, 92% of new people newly diagnosed with kidney failure aged under 55 received KRT, compared with 19% of people newly diagnosed with kidney failure aged 75 and over.

Figure 1: Incidence of kidney failure (end-stage kidney disease), by age, sex and kidney replacement therapy (KRT) treatment status, 2013

Figure 1: Incidence of kidney failure (end-stage kidney disease), by age, sex and kidney replacement therapy (KRT) treatment status, 2013



Source: Linked ANZDATA, AIHW National Mortality Database and National Death Index.
https://www.aihw.gov.au/

Between 1997 and 2013, the number of new cases of kidney failure with KRT and without KRT increased by 71% and 35% respectively. After accounting for changes in the age structure of the population between 2001 and 2013 (age-standardising), the incidence rate for both treatment groups has remained relatively stable (AIHW 2016).

Impact

Burden of disease

Burden of disease refers to the quantified impact of living with and dying prematurely from a disease or injury.

The contribution of CKD to the total disease burden (fatal and non-fatal) in Australia has increased since 2003. In 2018, CKD was responsible for 1.0% of the total burden, compared with 0.8% in 2003. The burden of CKD increased rapidly with age, being the 18th leading cause of fatal burden across all age groups and the eighth and ninth leading cause of fatal burden amongst females and males aged 85 and over, respectively (AIHW 2021b).

Impaired kidney function contributes to the burden of CKD as well as several other diseases, including gout, peripheral vascular disease, dementia, coronary heart disease and stroke. In 2018, 1.9% of total disease burden could have been prevented if people had not had impaired kidney function (AIHW 2021a).

Among Aboriginal and Torres Strait Islander people, CKD was the 10th leading cause of total burden (2.5% of all burden in 2018). This was higher for females than males – CKD was the eighth leading cause of total burden among females, accounting for 3.1% of the total burden. In males, CKD accounted for 2.3% of the total burden and was the 13th leading cause of total burden (AIHW 2022b).

See Burden of disease.

Deaths

CKD contributed to around 17,700 deaths in 2020 (11% of all deaths in Australia). Twenty-four per cent of these deaths had CKD recorded as the underlying cause of death, while 76% of these recorded CKD as an associated cause of death. The number of CKD-related deaths has increased by 75% since 2000 (10,200 deaths). The age-standardised death rate has remained stable over this time (Figure 2).

CKD is more often recorded as an associated cause of death, as the disease itself may not lead directly to death. When CKD was an associated cause of death, the most common underlying causes of death were:

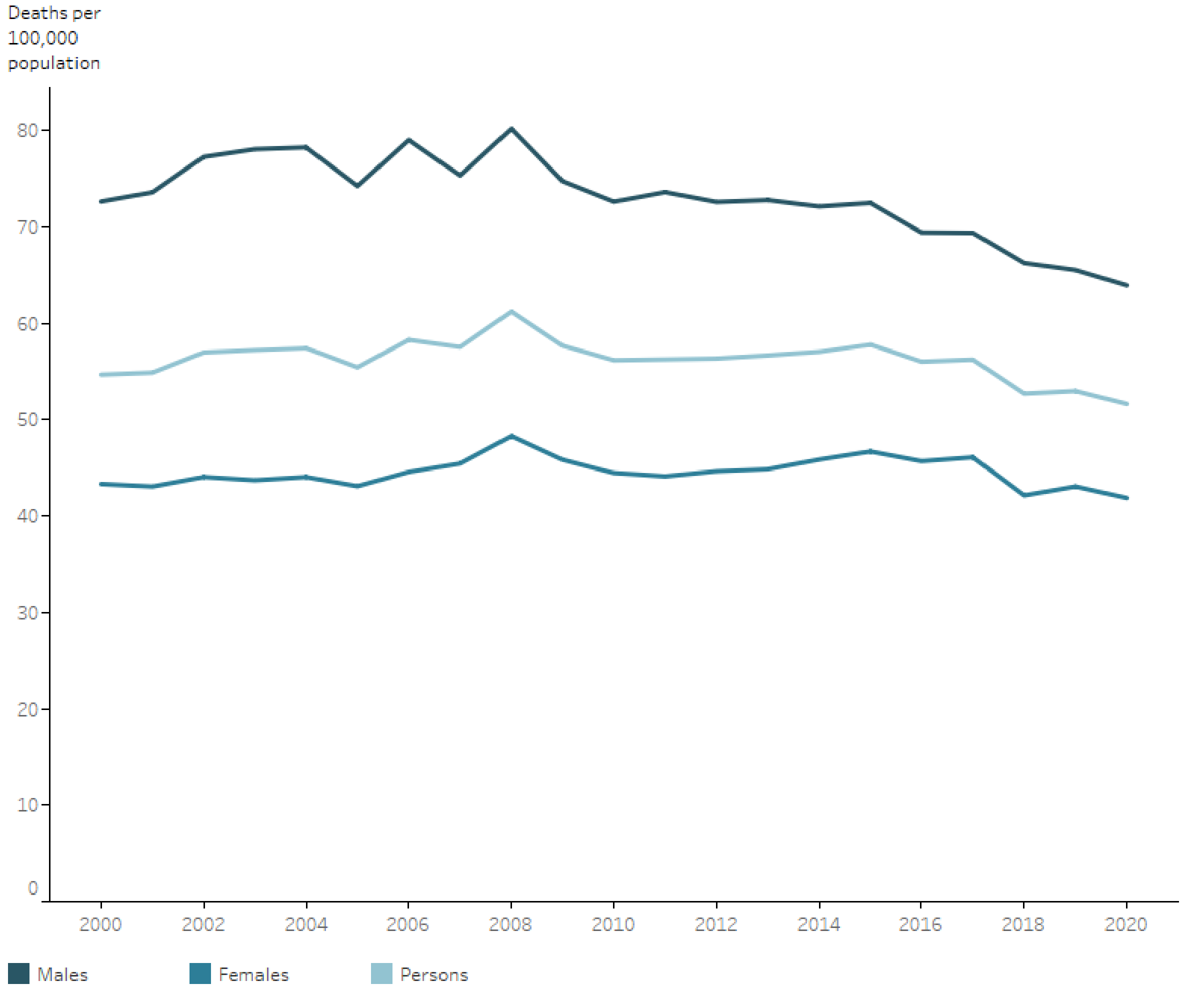
- diseases of the circulatory system (33%), such as coronary heart disease, and heart failure and cardiomyopathy
- cancers (21%), such as prostate, lung, blood, and bladder cancer
- endocrine, nutritional and metabolic diseases (10%), in particular type 2 diabetes
- diseases of the respiratory system (8%), such as chronic obstructive pulmonary disease and pneumonia.

CKD is often under-reported as a cause of death, as shown by linked data from the ANZDATA registry and National Death Index, in which 53% of the people with kidney failure who received KRT and who died during the period 1997–2013 did not have kidney failure recorded on their death certificate (AIHW 2016).

See Causes of death.

Figure 2: Trends in chronic kidney disease deaths (underlying or associated cause), by sex, 2000 to 2020

Figure 2: Trends in chronic kidney disease deaths (underlying or associated cause), by sex, 2000 to 2020



Note: Age-standardised to the 2001 Australian standard population.
Source: AIHW National Mortality Database.
http://www.aihw.gov.au/

Treatment and management

Hospitalisations

In 2019–20, CKD was recorded as the principal or additional diagnosis of around 1.9 million hospitalisations – 17% of all hospitalisations in Australia.

Dialysis was the most common reason for hospitalisation in Australia in 2019–20, accounting for 14% of all hospitalisations, and 81% of CKD hospitalisations (1.5 million). Age-standardised rates for dialysis have increased by 5.5% over the last decade.

There were 374,000 hospitalisations with a diagnosis of CKD (excluding dialysis as a principal diagnosis) in 2019–20. Eighty-six per cent of these had CKD as an additional (rather than principal) diagnosis.

The number of hospitalisations for CKD as the principal diagnosis (excluding dialysis) more than doubled between 2000–01 and 2019–20, from 24,000 to 54,100 hospitalisations. The age-standardised hospitalisation rate for CKD increased by 56% between 2000–01 and 2019–20.

See Hospitals.

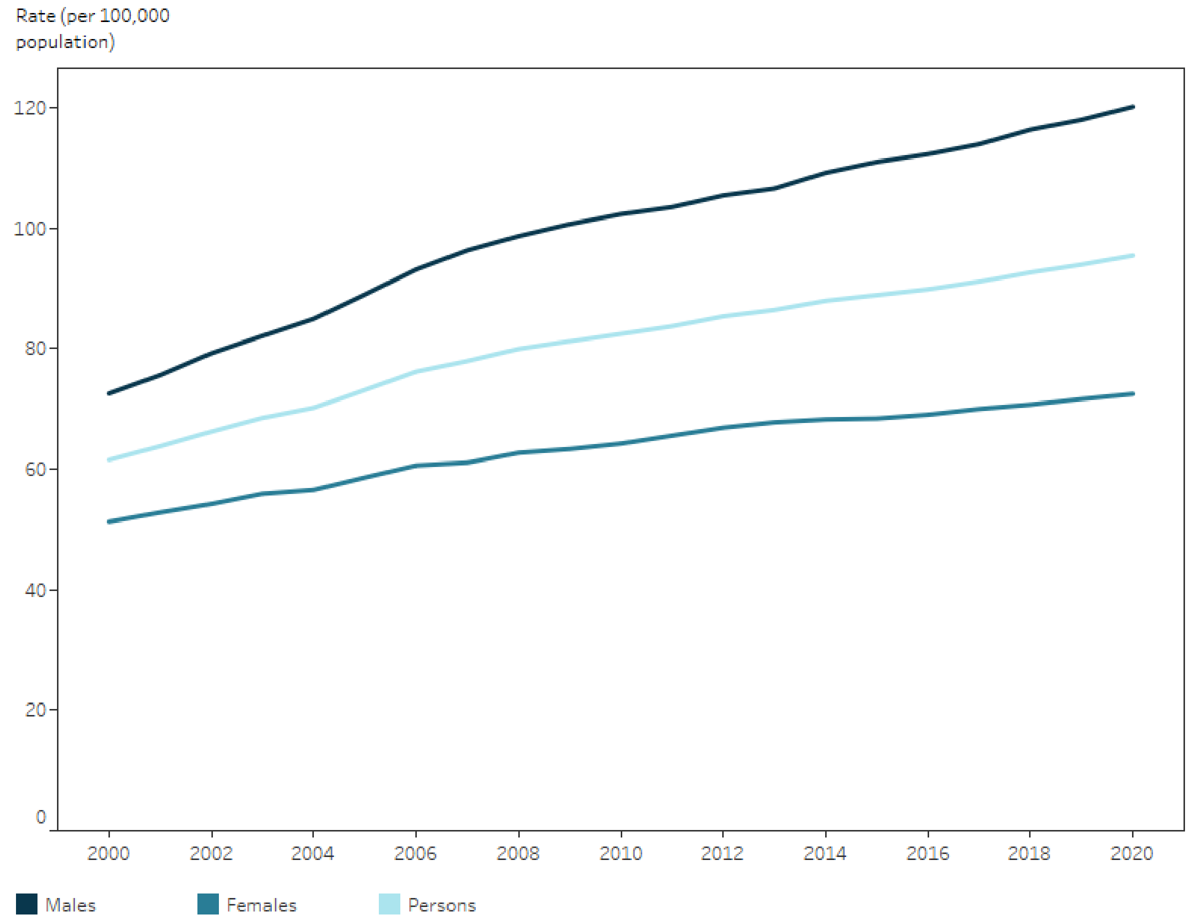
Kidney replacement therapy

In 2020, around 27,700 people received KRT.

KRT rates were higher in males than females across all ages. Of all people receiving KRT, 53% had dialysis while 47% had a kidney transplant. The number of people receiving KRT has more than doubled since 2000, from around 11,700 to 27,700. The age-standardised KRT rate in 2020 was 1.6 times as high as the rate in 2000 (Figure 3).

Figure 3: Trends in people with kidney failure receiving kidney replacement therapy (KRT), by sex, 2000 to 2020

Figure 3: Trends in people with kidney failure receiving kidney replacement therapy (KRT), by sex, 2000 to 2020



Notes
1. Age-standardised to the 2001 Australian standard population.
2. Excludes people with ESKD who recovered their kidney function, who were lost to follow-up or who were deceased as at December 31, 2020.
Source: AIHW analysis of the Australia and New Zealand Dialysis and Transplant (ANZDATA) Registry.

Variation between population groups

The impact of CKD varies between population groups. To account for differences in the age structures of these groups, the data presented below is based on age-standardised rates.

CKD was 2.1 times as prevalent among Indigenous Australians compared with non-Indigenous Australians, based on data from the 2011-12 NHMS and the 2012-13 National Aboriginal and Torres Strait Islander Health Measures Survey. The overall burden of disease was 7.8 times as high in Indigenous Australians compared to non-Indigenous Australians (AIHW 2021b, 2022a).

Generally, the impact of CKD increases with rising socioeconomic disadvantage and remoteness. Rates of CKD hospitalisation in 2019-20 were 2.2 times as high in the lowest socioeconomic areas compared with the highest, and 3.0 times as high in *Remote and very remote* regions compared with *Major cities* (Figure 4).

Figure 4: Impact of CKD – variation between selected population groups

Figure 4: Variation in the impact of chronic kidney disease between selected population groups

Hover on the numbers for more information on the impact of CKD in each population group.

Comparing rates for:	Indigenous / non-Indigenous	Remote and Very remote / Major cities	Lowest / highest socioeconomic areas
Having CKD	2.1 ×	n.a.	1.6 ×
Hospitalised for CKD (excluding dialysis)	5.2 ×	3.0 ×	2.2 ×
Dying from CKD	3.9 ×	1.9 ×	1.8 ×
Receiving KRT	5.3 ×	2.6 ×	1.7 ×
Burden of disease	7.8 ×	3.1 ×	2.2 ×

Note: This figure uses age-standardised rates to remove the impact of differences in age structures between these groups.
Sources: AIHW 2014, 2015, 2021c, 2022b, 2022c; ANZDATA 2020.
http://www.aihw.gov.au/

COVID-19 and chronic kidney disease

Measures to manage COVID-19 (for example, stay-at-home orders and selected service closures or suspensions) resulted in changes to health service use for people with CKD.

Organ donation numbers and transplants have declined since 2019, as a result of the pandemic (OTA, 2021). Pauses in kidney transplant surgery particularly affect CKD, as more than half of transplanted organs are kidneys. In 2020, there was an 18% decrease in the number of kidney transplants from deceased donors compared to 2019, and 2021 saw a decrease of 7% compared with 2020. There was a 24% drop in living kidney donors in 2020; in 2021 the number of living kidney donors increased by 12% compared with 2020 (OTA, 2020, 2021).

In 2020–21, there were over 4,700 hospitalisations in Australia that involved a COVID-19 diagnosis. Almost 400 (8.4%) of these hospitalisations were for people who had a diagnosis of CKD recorded on the admission. Of these, 64 (16%) required a stay in the intensive care unit, 48 (12%) required continuous ventilatory support (AIHW 2022a).

People hospitalised with COVID-19 and CKD in 2020-21 died in hospital at a higher rate than people with any other comorbid condition (29%, 113 deaths), with the exception of chronic obstructive pulmonary disease (31%, 65 deaths). This includes type 2 diabetes (19%, 188 deaths) and cardiovascular disease (20%, 189 deaths), which are often comorbid with CKD. The death rate for people with CKD and COVID-19 was also higher than for people with multiple comorbid conditions who were hospitalised with COVID-19 (26%) and people with no comorbid conditions (4.7%) (AIHW 2022a).

Where do I go for more information?

More information on CKD is available at:

- Chronic kidney disease
- Geographical variation in disease: diabetes, cardiovascular and chronic kidney disease
- Chronic kidney disease prevalence among Australian adults over time
- Incidence of end-stage kidney disease in Australia 1997–2013
- Australian Bureau of Statistics Australian Health Survey: Biomedical Results for Chronic Diseases, 2011-12

Visit Chronic kidney disease for more on this topic.

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Chronic musculoskeletal conditions

Find the most recent version of this information at:
https://www.aihw.gov.au/reports/australias-health/bone-and-joint-health

Conditions that affect the bones, muscles and joints are known as musculoskeletal conditions. These conditions include long-term (chronic) conditions such as osteoarthritis, rheumatoid arthritis, juvenile arthritis, back problems, gout, and osteoporosis or osteopenia (low bone density) (see Glossary).

Chronic musculoskeletal conditions for 2020–21

Data for 2020–21 are based on information self-reported by the participants of the Australian Bureau of Statistics (ABS) 2020–21 National Health Survey (NHS).

Previous versions of the NHS have primarily been administered by trained ABS interviewers and were conducted face-to-face. The 2020–21 NHS was conducted during the COVID-19 pandemic. To maintain the safety of survey respondents and ABS Interviewers, the survey was collected via online, self-completed forms.

Non-response is usually reduced through Interviewer follow up of households who have not responded. As this was not possible during lockdown periods, there were lower response rates than previous NHS cycles, which impacted sample representativeness for some sub-populations. Additionally, the impact of COVID-19 and lockdowns might also have had direct or indirect impacts on people's usual behaviour over the 2020–21 period.

Due to these changes, comparisons with previous chronic musculoskeletal conditions data over time are not recommended.

On this page, comparisons over time (trends) only contain data from the NHS 2017–18 and prior collections.

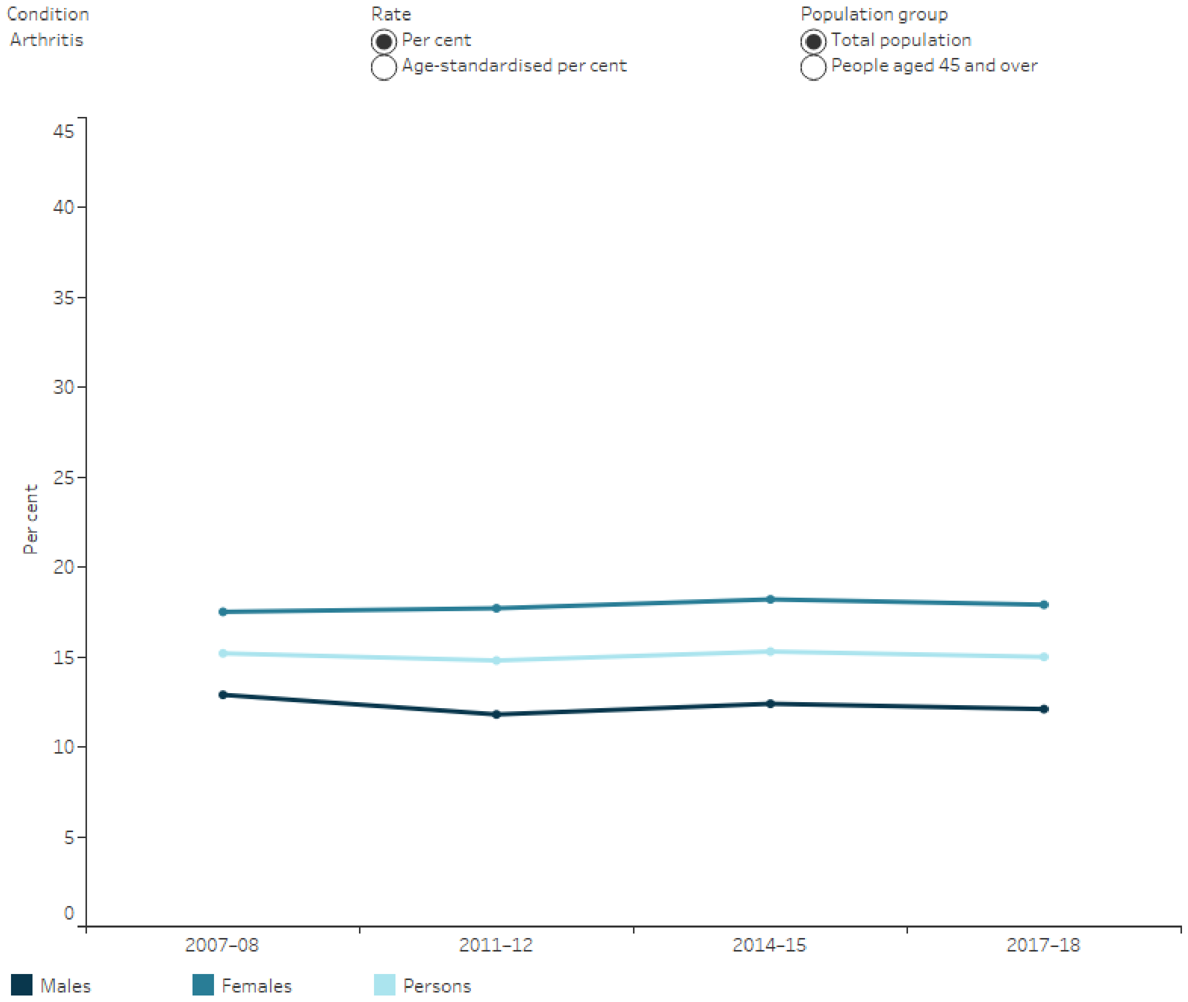
How common are chronic musculoskeletal conditions?

Chronic musculoskeletal conditions affect about 3 in 10 Australians. Self-reported data from the Australian Bureau of Statistics 2020–21 NHS provide estimates of the number of Australians affected by musculoskeletal conditions. These data indicate that, of the nearly 6.9 (27% of all Australians) million people with chronic musculoskeletal conditions, 3.9 million (16%) had back problems (the most common musculoskeletal condition), 3.1 million (12%) had arthritis and 889,000 (3.6%) had osteoporosis (ABS 2022a).

Note: The information below is from the 2017–18 and earlier NHS.

Rates of chronic musculoskeletal conditions were relatively consistent from 2007–08 to 2017–18 (Figure 1).

Figure 1: Prevalence of chronic musculoskeletal conditions, by sex, 2007–08 to 2017–18



Condition
Arthritis

Rate
● Per cent
○ Age-standardised per cent

Population group
● Total population
○ People aged 45 and over

[Notes]

Source: AIHW analysis of ABS 2010, ABS 2013, ABS 2016, 2019a
http://www.aihw.gov.au/

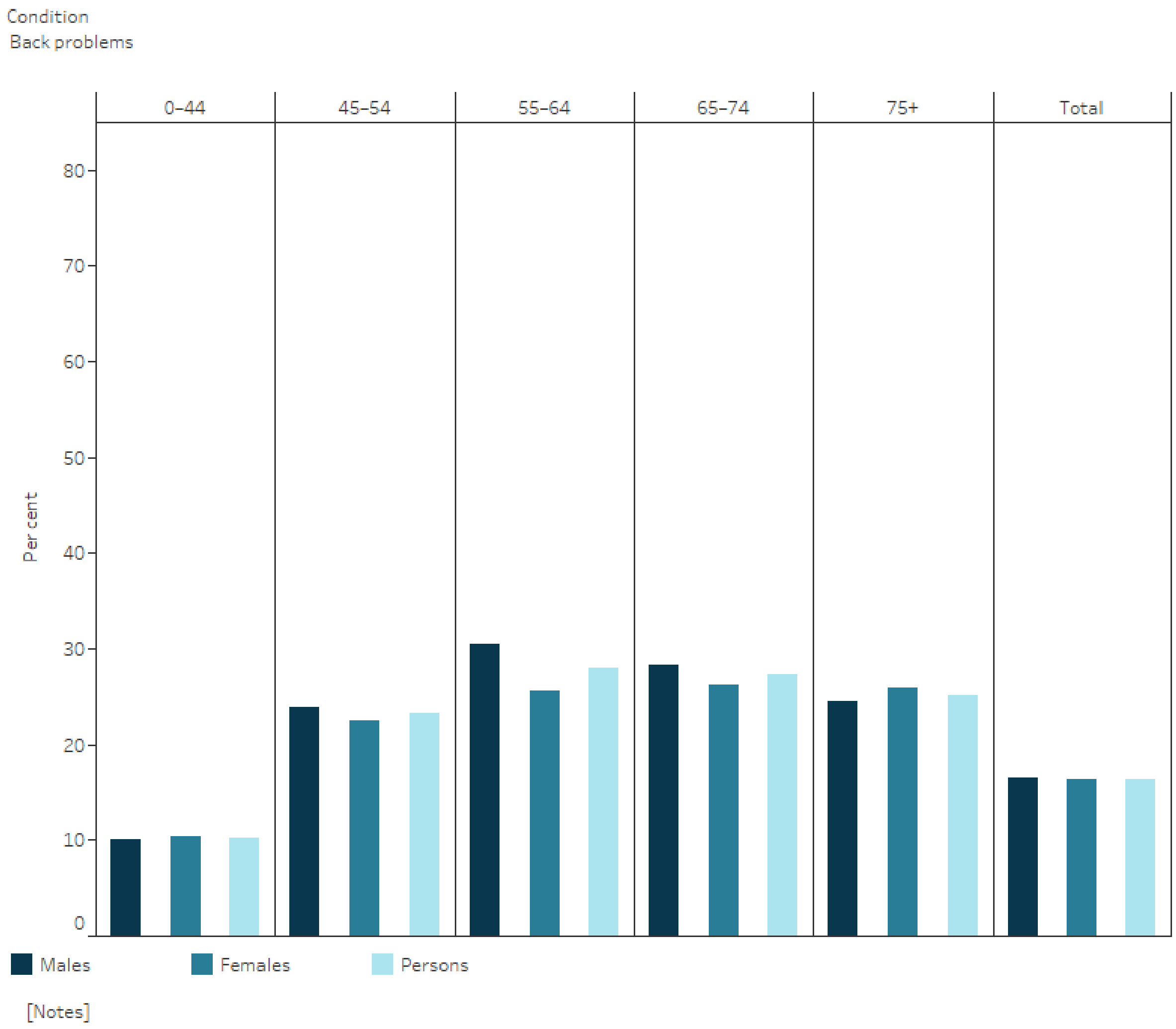
Females and older people are at greater risk

Females and older people were more likely to have chronic musculoskeletal conditions. The 2017–18 NHS shows that:

- Females were 1.2 times as likely to have a musculoskeletal condition and more than 4 times as likely to have osteoporosis compared with males.

- The prevalence of arthritis was similar in males and females aged 0–44, but overall females were 1.5 times as likely to have arthritis compared with males.
- The prevalence of back problems was similar in males and females across all age groups.
- More than 2 in 3 (68%) people aged 75 and over had a musculoskeletal condition (Figure 2).

Figure 2: Prevalence of chronic musculoskeletal conditions, by sex and age, 2017–18



Source: AIHW analysis of ABS 2019a.
http://www.aihw.gov.au/

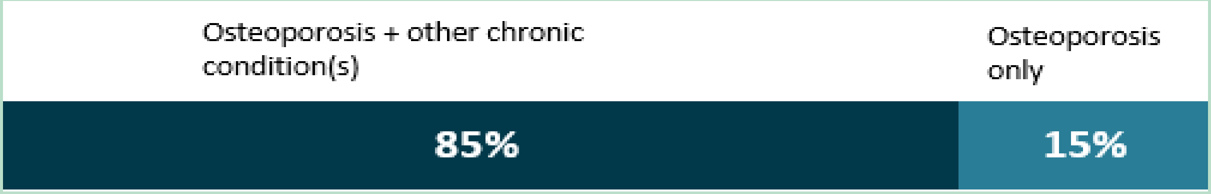
Comorbidity

People with musculoskeletal conditions often have other long-term conditions. This is called ‘comorbidity’, which describes any additional disease that is experienced by a person with a disease of interest (the index disease).

Prevalence of comorbidity

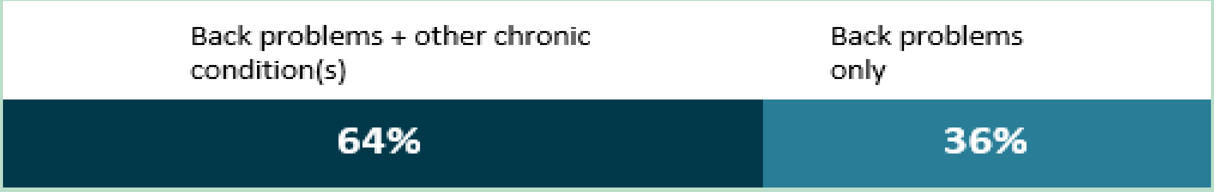
In the 2017–18 NHS, for people aged 15 and over with:

Osteoporosis, 85% had at least one other chronic condition



Arthritis, 74% had at least one other chronic condition

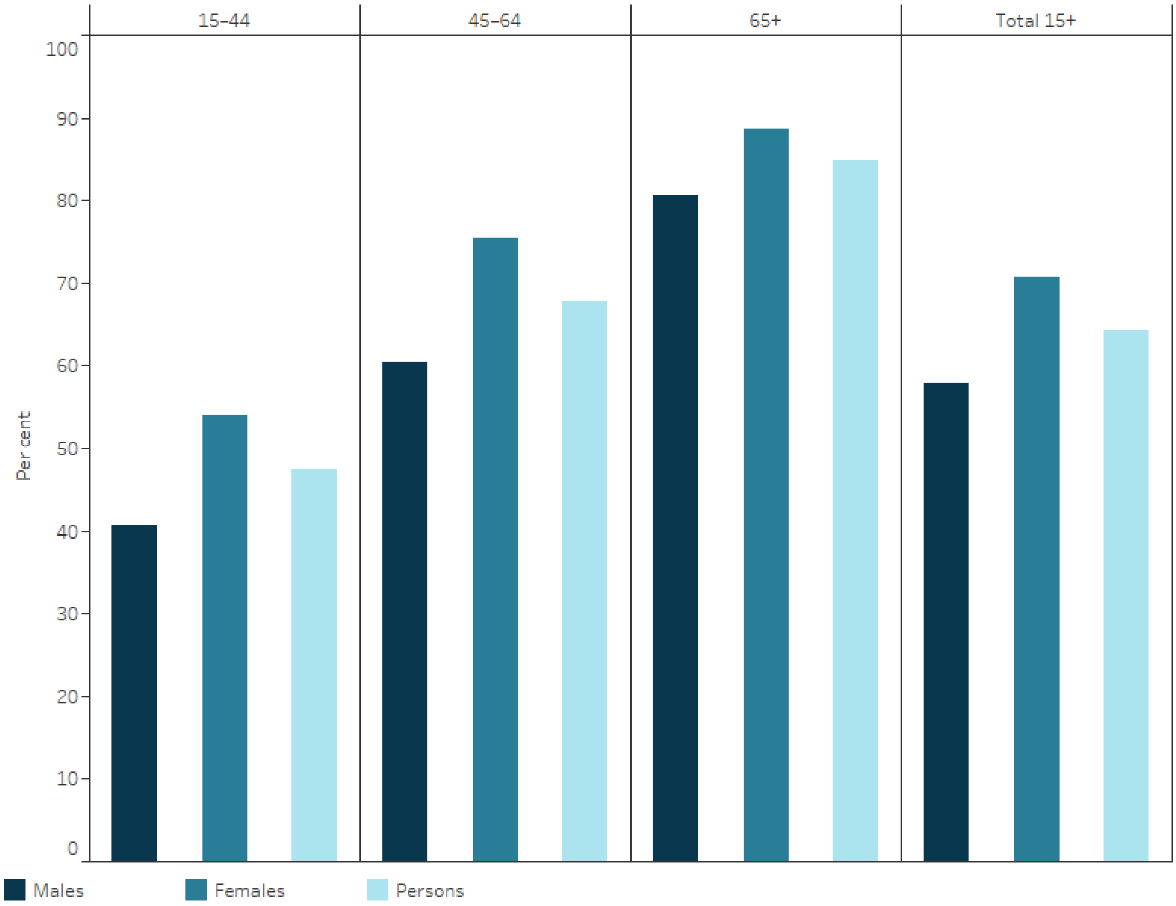
Back problems, 64% had at least one other chronic condition



The number of comorbidities varies by age and sex. For example, the proportion of people with back problems who had at least one other chronic condition increased with age, from 47% (aged 15–44) to 85% (aged 65 and over). Among those with back problems, the proportion of people with comorbidities was higher in females than males across all age groups (Figure 3).

Figure 3: Proportion of people with musculoskeletal conditions who have at least one other chronic condition in people aged 15 and over, by sex and age, 2017–18

Condition
Back problems



[Notes]

Source: AIHW analysis ABS 2019a.
http://www.aihw.gov.au/

Musculoskeletal conditions often co-occur. In comparison to those without the condition, people aged 45 and over with:

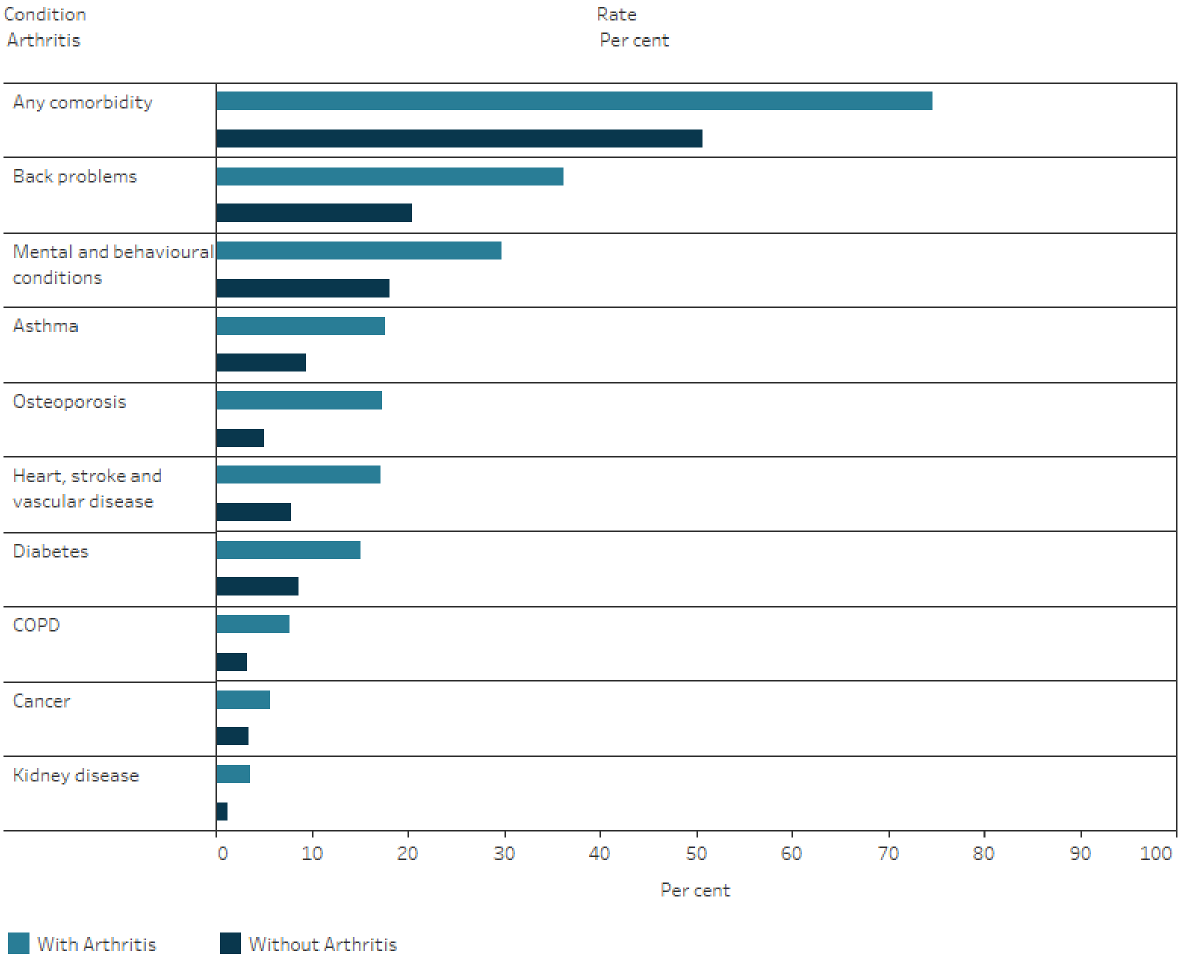
- arthritis, were 1.8 times as likely to also have back problems
- back problems, were 1.6 times as likely to also have arthritis
- people with osteoporosis were 2.1 times as likely to also have arthritis.

Mental and behavioural conditions commonly co-occur with musculoskeletal conditions. Compared with people without these musculoskeletal conditions, for people aged 45 and over with mental and behavioural conditions were:

- 1.9 times as likely in people with back problems
- 1.6 times as likely in people with arthritis
- 1.5 times as likely in people with osteoporosis (Figure 4).

Adjusting for differences in the age structure of the groups did not affect the pattern of these results.

Figure 4: Prevalence of other chronic conditions in people aged 45 and over, with and without musculoskeletal conditions, 2017–18



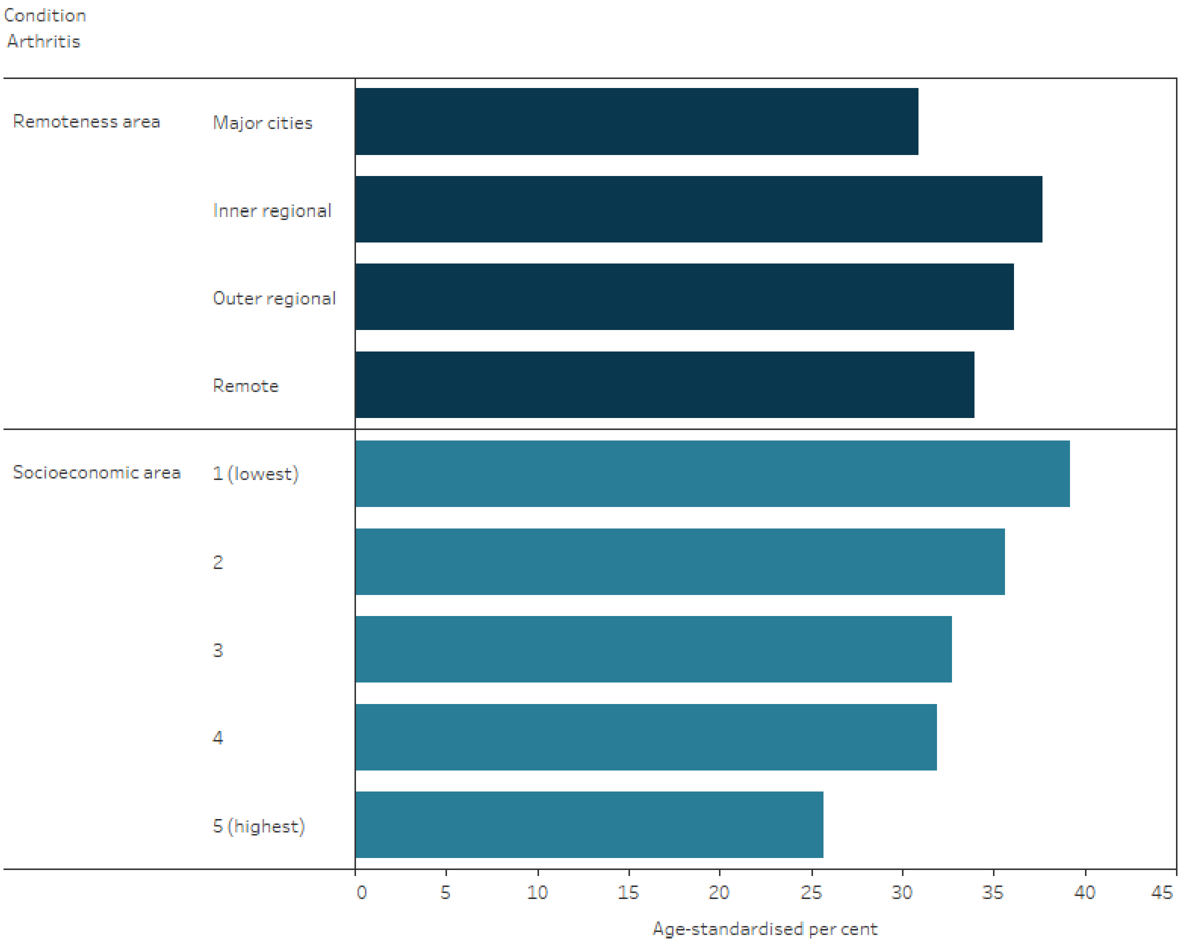
[Notes]

Source: AIHW analysis of ABS 2019a.
http://www.aihw.gov.au/

Variation between population groups

The prevalence of musculoskeletal conditions generally increases with increasing socioeconomic disadvantage, but is similar across remoteness areas, after adjusting for differences in age structures (Figure 5 shows a comparison for people aged 45 and over).

Figure 5: Prevalence of chronic musculoskeletal conditions in people aged 45 and over, by remoteness area and socioeconomic area, 2017–18



[Notes]

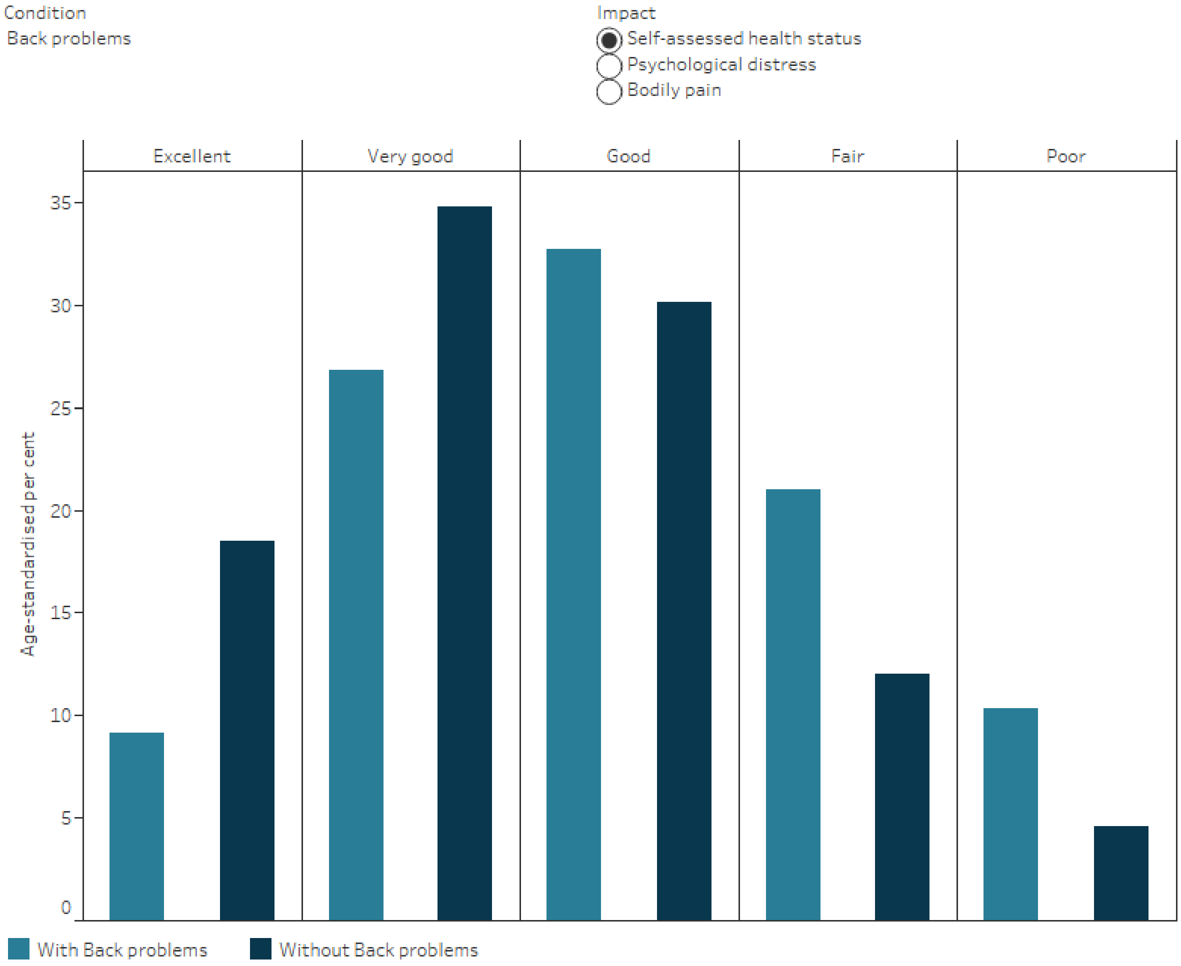
Source: ABS 2019a.
http://www.aihw.gov.au/

Impact

Chronic musculoskeletal conditions are large contributors to illness, pain and disability in Australia. People with these conditions report higher rates of poor health, psychological distress and pain, after adjusting for age (Figure 6). This may affect their ability to participate in social, community and occupational activities (Briggs et al. 2016).

The 2018 Survey of Disability, Ageing and Carers found that, of the people with disability in Australia, an estimated 13% had back problems and another 13% had arthritis as the main long-term health condition causing the disability (ABS 2019b).

Figure 6: Impact of musculoskeletal conditions in people aged 45 and over, with and without the condition, 2017–18



[Notes]

Source: AIHW analysis of ABS 2019a.
http://www.aihw.gov.au/

Burden of disease

Burden of disease refers to the quantified impact of living with and dying prematurely from a disease or injury.

Ill health caused by musculoskeletal conditions can have both a human and a financial cost. According to the Australian Burden of Disease Study 2018, musculoskeletal conditions contributed to:

- 13% of the total disease burden (fatal and non-fatal) in Australia. This disease group was the second leading contributor to total burden after cancer.

- 24% of non-fatal burden (that is, the impact of living with illness and injury). This was the leading disease group contributing to non-fatal burden.
- a higher total burden among females than males – musculoskeletal conditions contributed to 15% of total female burden compared with 11% of total male burden
- a higher total burden among people aged 60–64 years compared to other 5-year age groups
- the largest component of non-fatal burden for people aged 50–84 years (AIHW 2021a).

Modifiable risk factors contribute to burden

Some of the total burden due to musculoskeletal conditions can be attributed to modifiable risk factors. In 2018:

Overweight and obesity contributed to:

- **8.9%** of the total burden of all musculoskeletal conditions
- **28%** of the burden from osteoarthritis.

Occupational exposures and hazards contributed to:

- **5.6%** of the total burden of all musculoskeletal conditions
- **17%** of the burden of back problems (AIHW 2021b).

See Burden of disease for information on definitions and the burden of disease associated with these conditions.

Expenditure

The Australian Disease Expenditure Study found that musculoskeletal conditions was the disease group with the highest estimated expenditure in 2018–19, costing the Australian health system $13.9 billion (10% of total disease expenditure) (AIHW 2021c). See Disease expenditure in Australia 2018–19.

Condition specific expenditure

Of the $13.9 billion health system expenditure attributed to musculoskeletal conditions in 2018–19, an estimated:

- 28% ($3.9 billion) was attributed to osteoarthritis
- 24% ($3.3 billion) was attributed to back problems
- 6.5% ($902 million) was attributed to rheumatoid arthritis
- 1.5% ($203 million) was attributed to gout
- 40% ($5.6 billion) was attributed to other musculoskeletal conditions.

Areas of expenditure

In 2018–19, private hospital services and public hospital admissions were the areas of expenditure with the highest spending for all musculoskeletal conditions, at 36% and 18% respectively ($5.0 billion, and $2.5 billion).

In 2018–19, musculoskeletal conditions was the disease group with the highest spending for the following areas:

- medical imaging (29% of all disease groups)
- private hospital services (21% of all disease groups)
- public hospital outpatient services (12% of all disease groups).

Age and sex breakdown of expenditure

The relative expenditure on musculoskeletal conditions by age and sex reflects the relative prevalence of musculoskeletal conditions by age and sex. Both expenditure and prevalence are higher for females and higher for older people. In 2018–19:

- Musculoskeletal expenditure was 1.2 times higher for females compared with males ($7.4 billion and $6.1 billion, respectively).
- People aged 55 and older represented 67% of musculoskeletal expenditure.

Treatment and management

Primary care

Musculoskeletal conditions are usually managed by general practitioners and allied health professionals. Treatment can include physical therapy, medicines (for pain and inflammation), self-management (such as diet and exercise), education on self-management and living with the condition, and referral to specialist care where necessary (WHO 2019). Based on survey data, an estimated 1 in 6 (18%) general practice visits in 2015–16 were for management of musculoskeletal conditions (Britt et al. 2016). See General practice, allied health and other primary care services.

Hospital treatment

People with musculoskeletal conditions that are very severe, or who require specialised treatment or surgery, can also be managed in hospitals. In 2019–20, there were around 744,000 hospitalisations for musculoskeletal conditions – 6.7% of all hospitalisations in that year (AIHW 2022b). These hospitalisations included:

- osteoarthritis (34% of all musculoskeletal hospitalisations)
- back problems (23%)
- rheumatoid arthritis (2.0%)
- osteoporosis (1.0%)

- gout (1.0%)
- other musculoskeletal conditions (39%).

Osteoarthritis is the most common condition leading to hip and knee replacement surgery in Australia (AOANJRR 2021).

- Between 2009–10 and 2016–17, rates of total hip replacement and total knee replacement surgery, where osteoarthritis was the principal diagnosis, both trended up. Over this period these rates increased by 2.9% and 2.7% per year on average, respectively, after standardising age structures (Figure 7).
- Then between 2016–17 and 2018–19 the rate of total hip replacement surgery was stable, and the rate of total knee replacement surgery declined slightly (Figure 7).

Impact of COVID-19 on hospital treatment

The COVID-19 pandemic had substantial impacts on hospital activity. The range of social, economic, business and travel restrictions, including restrictions on, or suspension of, some hospital services, and associated measures in other healthcare services to support physical distancing in Australia resulted in an overall decrease in hospital activity between 2019–20 and 2020–21 (AIHW 2022a).

- In 2019–20 there were 7.8% fewer hospitalisations for musculoskeletal conditions than in 2018–19. This decrease was driven by the April–June 2020 quarter, which saw 33% fewer hospitalisations than April-June 2019.

At the beginning of the COVID-19 pandemic in Australia, non-urgent elective surgery was suspended for one month, from late March to late April 2020. For more information on how the pandemic has affected the population's health in the context of longer-term trends, see 'Chapter 2 Changes in the health of Australians during the COVID-19 period' in <Australia's health 2022: data insights>.

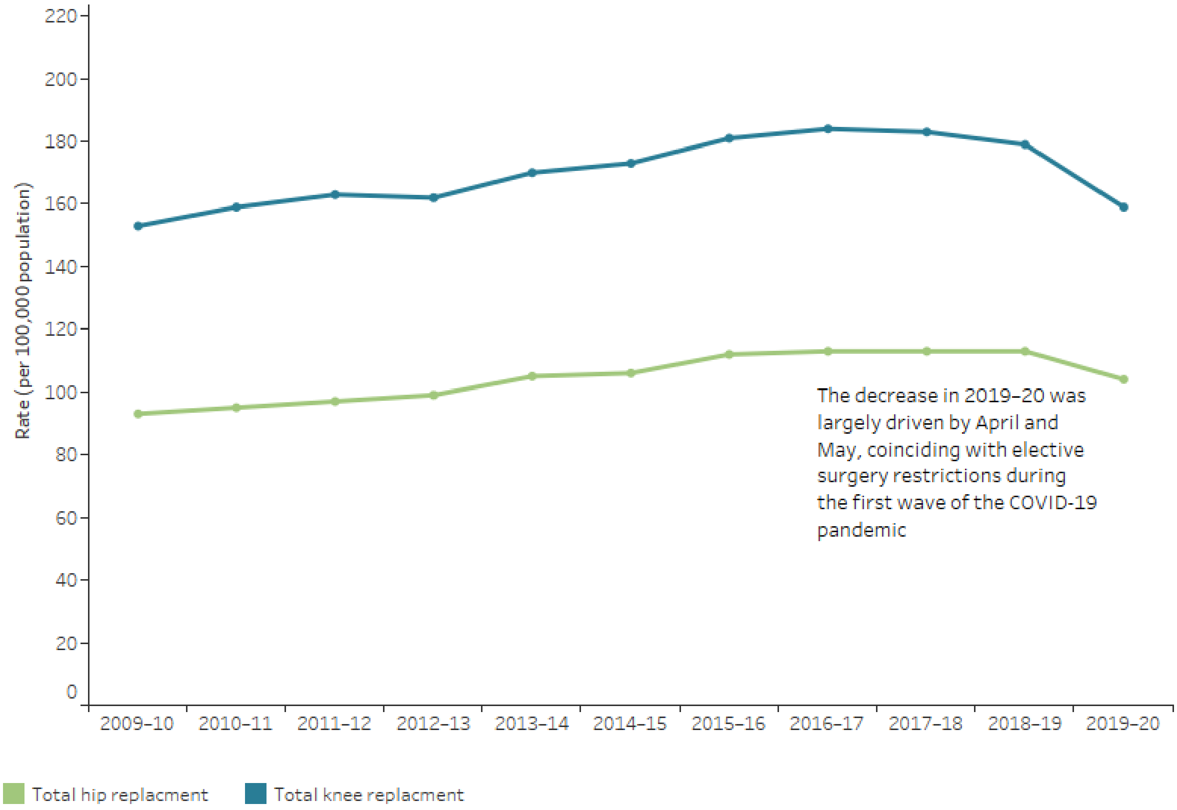
- In 2019–20, the age standardised rate of total hip and knee replacement surgery where osteoarthritis was the principal diagnosis declined 8.0% and 11.2% respectively from 2018–19 (Figure 7).
- For each month in 2019–20, Figure 8 shows the change (per cent) in joint replacement surgeries from the same month in the previous year. The greatest impact was seen in April.

Figure 7: Age standardised rate of total hip and knee replacement surgeries, for osteoarthritis, 2009–10 to 2019–20

Rate type

● Age standardised rate (per 100,000 population)

○ Crude rate (per 100,000 population)

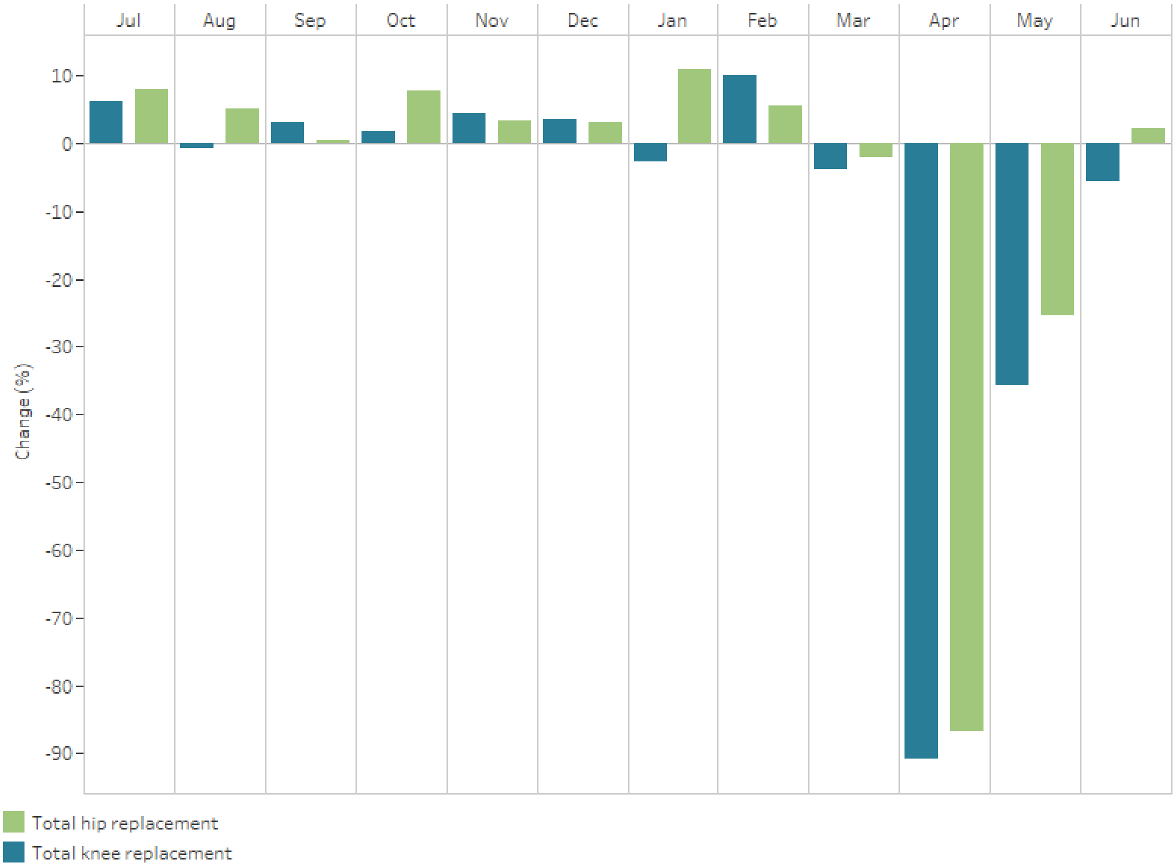


The decrease in 2019–20 was largely driven by April and May, coinciding with elective surgery restrictions during the first wave of the COVID-19 pandemic

[Notes]

Source: AIHW National Hospitals Morbidity Database.
http://www.aihw.gov.au

Figure 8: Year on year change (%) in joint replacement surgeries for osteoarthritis in 2019–20, by month



[Notes]

Source: AIHW National Hospitals Morbidity Database.
http://www.aihw.gov.au

Restrictions continued in some jurisdictions during 2020–21, and the associated impacts are still relatively unknown. As of March 2022, elective surgery waiting times are a source of treatment data available for the 2020–21period. Waiting times for elective surgeries increased notably for 2020–21 admissions.

- In 2020–21, the median waiting times for total hip replacement surgery and total knee replacement surgery increased from 2019–20 by 49% and 38% respectively. This compares to an increase of 23% for all elective surgery (AIHW 2021d).
- In 2020–21, the percentage of total hip replacements and total knee replacements with waiting times exceeding one year were 21% and 32% respectively. These represent 13 and 20 percentage point increases on 2019–20, which compares to a 4.8 percentage point increase for all elective surgeries (AIHW 2021d).

Data limitations

The prevention, management and treatment of musculoskeletal conditions beyond hospital settings cannot currently be examined in detail due to limitations in available data on:

- primary and allied health care at the national level
- use of over-the-counter medicines to manage pain and inflammation
- diagnosis information for prescription pharmaceuticals (which would allow a direct link between musculoskeletal conditions and use of subsidised medicines)
- patient outcomes, pathways through the health system and quality of care.

Where do I go for more information?

For more information on the musculoskeletal conditions covered in this report, see:

- Back problems
- Arthritis
- Osteoarthritis
- Osteoporosis
- Rheumatoid arthritis
- Australian Bureau of Statistics National Health Survey: first results, 2017–18
- Australian Bureau of Statistics Health Conditions Prevalence, 2020–21

Visit Chronic musculoskeletal conditions for more on this topic.

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Chronic respiratory conditions

Find the most recent version of this information at:
https://www.aihw.gov.au/reports/australias-health/chronic-respiratory-conditions

Chronic respiratory conditions affect the airways, including the lungs and the passages that transfer air from the mouth and nose into the lungs. These conditions are characterised by symptoms such as wheezing, shortness of breath, chest tightness and cough. Chronic respiratory conditions can be grouped in a variety of ways, including obstructive lung diseases and restrictive lung diseases. Obstructive lung diseases are diseases that cause more difficulty with exhaling air, such as asthma, chronic obstructive pulmonary disease (COPD) and bronchiectasis. Restrictive lung diseases are diseases that can cause problems by restricting a person's ability to inhale air, such as pulmonary fibrosis, chronic sinusitis and occupational lung diseases (Leader 2019). This page focuses on asthma and COPD as these are common respiratory conditions and are associated with poor health and wellbeing.

Risk factors associated with chronic respiratory conditions can be behavioural, environmental or genetic. Risk factors that cannot be changed include age and genetic predisposition. Risk factors that can be changed include smoking; exposure to environmental fumes, carbon-based cooking and heating fuels; occupational hazards; poor nutrition; overweight/obesity; and sedentary lifestyle.

Chronic respiratory conditions for 2020–21

Data for 2020–21 are based on information self-reported by the participants of the Australian Bureau of Statistics (ABS) 2020–21 National Health Survey (NHS). Using the self-reported data from NHS 2020–21, almost one-third (30%) of Australians reported having chronic respiratory conditions. Of the estimated 7.5 million Australians with these conditions, 5.1 million (20% of the total population) had allergic rhinitis ('hay fever'); 2.7 million (11%) had asthma and 2.0 million (8.0%) had chronic sinusitis (ABS 2022).

Previous versions of the NHS have primarily been administered by trained ABS Interviewers and were conducted face-to-face. The 2020–21 NHS was conducted during the COVID-19 pandemic. To maintain the safety of survey respondents and ABS Interviewers, the survey was collected via online, self-completed forms.

Non-response is usually reduced through Interviewer follow up of households who have not responded. As this was not possible during lockdown periods, there were lower response rates than previous NHS cycles, which impacted sample representativeness for some sub-populations. Additionally, the impact of COVID-19 and lockdowns might also have had direct or indirect impacts on people's usual behaviour over the 2020–21 period.

Due to these changes, comparisons with previous asthma and COPD data over time are not recommended.

On this page, comparisons over time (trends) only contain data from the NHS 2017–18 and prior versions.

How common are chronic respiratory conditions?

The ABS 2017–18 NHS provides estimates of the self-reported prevalence of chronic respiratory conditions. Chronic respiratory conditions affect almost one-third (31%) of Australians. Of the estimated 7.4 million Australians with these conditions, 4.7 million (19% of the total population) had allergic rhinitis ('hay fever'); 2.7 million (11%) had asthma and 2.0 million (8.4%) had chronic sinusitis.

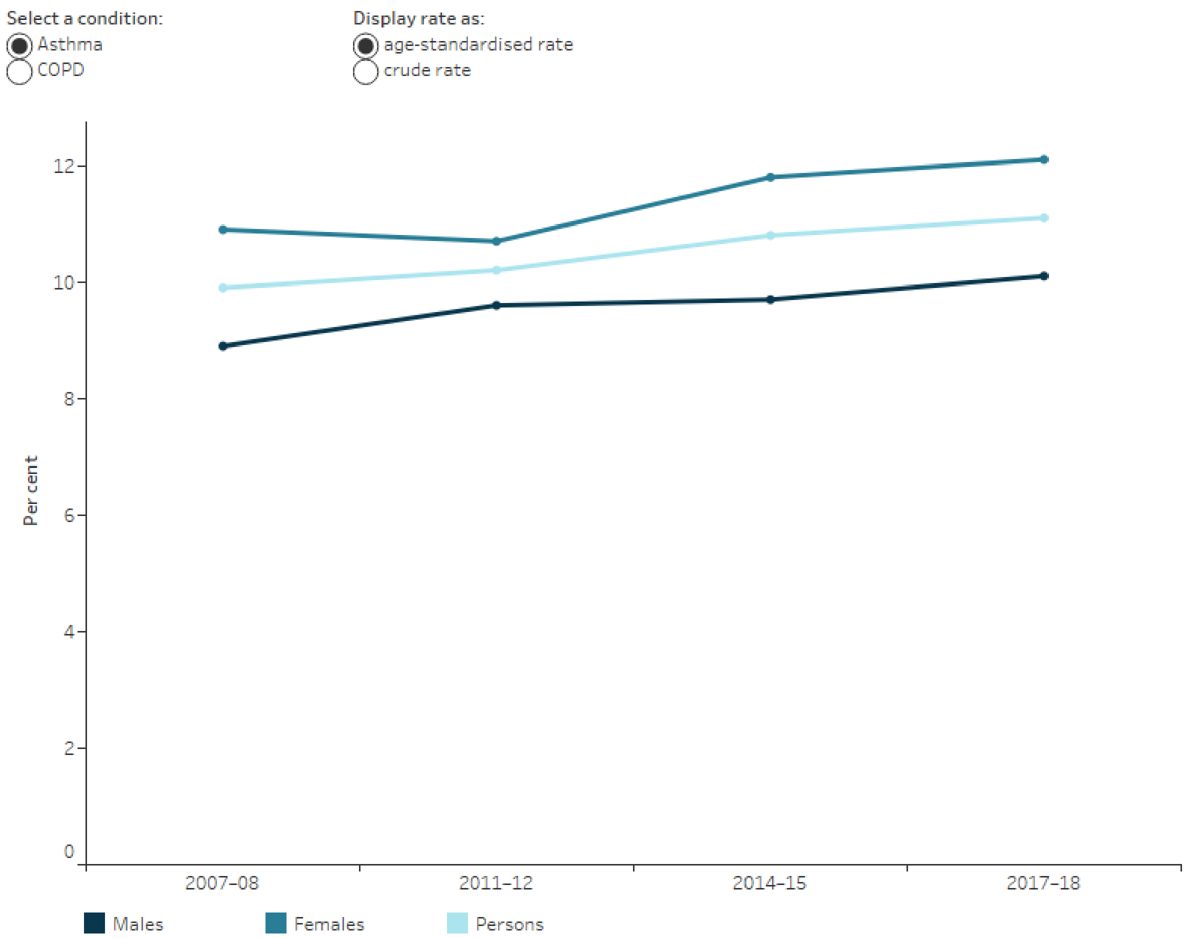
COPD affects mainly middle-aged and older people. While it is occasionally reported in younger age groups, in those aged 45 and over there is more certainty that the condition is COPD and not another respiratory condition. The 2017–18 NHS estimated that 464,000 (4.8%) Australians aged 45 and over had COPD (ABS 2019). A range of estimates of the prevalence of COPD have been derived from different surveys (for example, Toelle et al. 2013). It is important to note that accurately estimating the prevalence of COPD requires clinical testing.

Trend

During the last decade:

- The prevalence of asthma has increased, from 9.9% of the population in 2007–08 to 11% of the population in 2017–18 after adjusting for differences in age structure.
- The prevalence of COPD among people aged 45 and over has remained relatively stable after adjusting for differences in age structure (3.9% of the population in 2007–08 and 4.6% of the population in 2017–18) (Figure 1).

Figure 1: Prevalence of asthma, people of all ages, by sex, 2007–08 to 2017–18



Select a condition:
● Asthma
○ COPD

Display rate as:
● age-standardised rate
○ crude rate

[Notes]

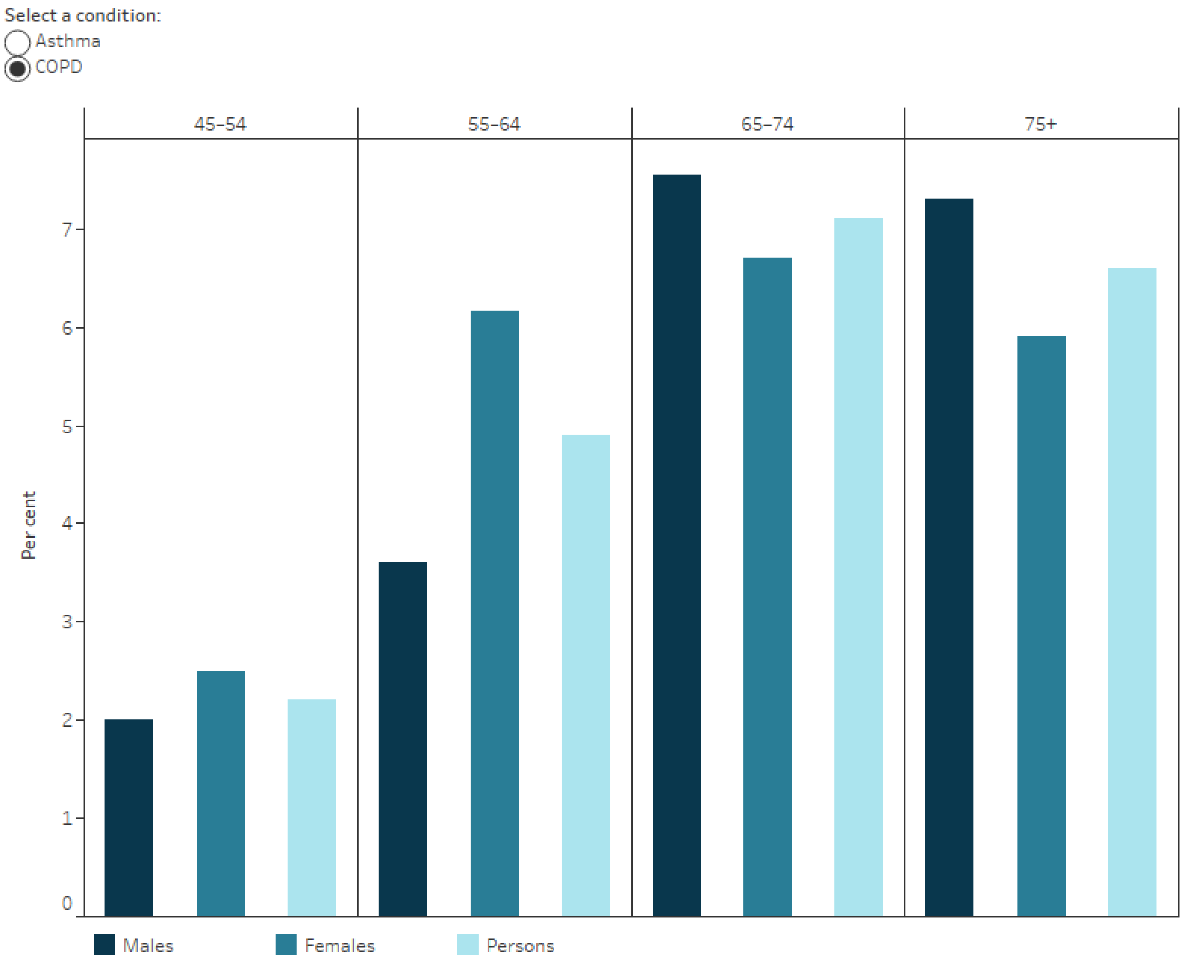
Source: AIHW analysis of ABS 2010, 2013, 2016, 2019.
http://www.aihw.gov.au/

Sex and age

The prevalence of asthma and COPD varied by sex and age (Figure 2):

- Asthma affects people of all ages. Asthma was more common in boys at younger ages (0–14) and more common in women at older ages (25 years and over, with the exception of the 35–44 year age group which was similar between men and women).
- COPD mainly occurs in people aged 45 and over, and the prevalence tends to increase with age. COPD was more prevalent in women than men for those aged 55–64; however, the prevalence was similar between the sexes in other age groups.

Figure 2: Prevalence of COPD, people aged 45 and over, by sex and age, 2017–18



[Notes]

Source: AIHW analysis of ABS 2018, 2019.
http://www.aihw.gov.au/

Comorbidity

People with chronic respiratory conditions often have other chronic and long-term conditions. This is called ‘comorbidity’, which describes any additional disease that is experienced by a person with a disease of interest.

In the 2017–18 NHS, for people aged 45 and over with:

- Asthma: 81% had at least one other chronic condition; among them, 49% had arthritis and 37% had back problems. For more information on asthma comorbidities, see Asthma, associated comorbidities and risk factors.
- COPD: 90% had at least one other chronic condition; among them, 55% had arthritis and 43% had asthma. For more information on COPD comorbidities, see Chronic obstructive pulmonary disease (COPD), associated comorbidities and risk factors.

There is an increasing recognition that asthma and COPD may occur together. Overall, about 20% of patients with obstructive airway disease have been diagnosed with both asthma and COPD (Gibson and MacDonald 2015).

Impact of natural events on chronic respiratory conditions

Natural events such as natural disasters or extreme weather changes can affect human health drastically, and those events that affect the air quality can have a direct impact on chronic respiratory conditions. The two natural events that affected chronic respiratory conditions in the recent times are thunderstorm asthma and the bushfires of 2019–20.

Thunderstorm asthma

Thunderstorm asthma can occur suddenly in spring or summer when there is a lot of pollen in the air and the weather is hot, dry, windy and stormy. People with asthma and/or hay fever need to be extra cautious to avoid flare-ups induced by thunderstorm asthma between September and January in Victoria, New South Wales and Queensland because it can be very serious (National Asthma Council Australia 2019). In 2016, a serious thunderstorm asthma epidemic was triggered in Melbourne when very high pollen counts coincided with adverse meteorological conditions, resulting in 3,365 people presenting at hospital emergency departments over 30 hours, and 10 deaths (Thien et al. 2018). Following this event, a thunderstorm asthma forecasting system has been developed to give Victorians early warning of possible epidemic thunderstorm asthma events in pollen season (Victoria State Government 2022). See Natural environment and health.

Australian bushfires of 2019–20

The bushfires that swept across Australia in 2019–20 resulted in 33 deaths, destruction of over 3,000 houses and millions of hectares (Parliament of Australia 2020). Bushfire smoke exposure was significantly associated with an increased risk of respiratory morbidity (Liu et al. 2015). Nationally, hospitalisation rates increased for asthma and COPD coinciding with increased bushfire activity during the 2019–20 bushfire season (AIHW 2021b). For asthma, the highest increase was 36% in the week beginning 12 January 2020 (2.4 per 100,000 persons) compared to the previous 5-year average (1.7 per 100,000 persons). For COPD, the highest increase was 30% in the week beginning 1 December 2019 (2.0 per 100,000 persons) compared to the previous 5-year average (1.6 per 100,000 persons).

For Emergency Department presentations, asthma saw the highest increase of 44% in the week beginning 12 January 2020 (4.7 per 100,000 persons compared to the previous bushfire season (3.3 per 100,000 persons), while COPD saw the largest increase of 31% in the week beginning 12 January 2020 (1.4 per 100,000 persons) compared to the previous bushfire season (1.1 per 100,000 persons). See Natural environment and health.

Impact

Deaths

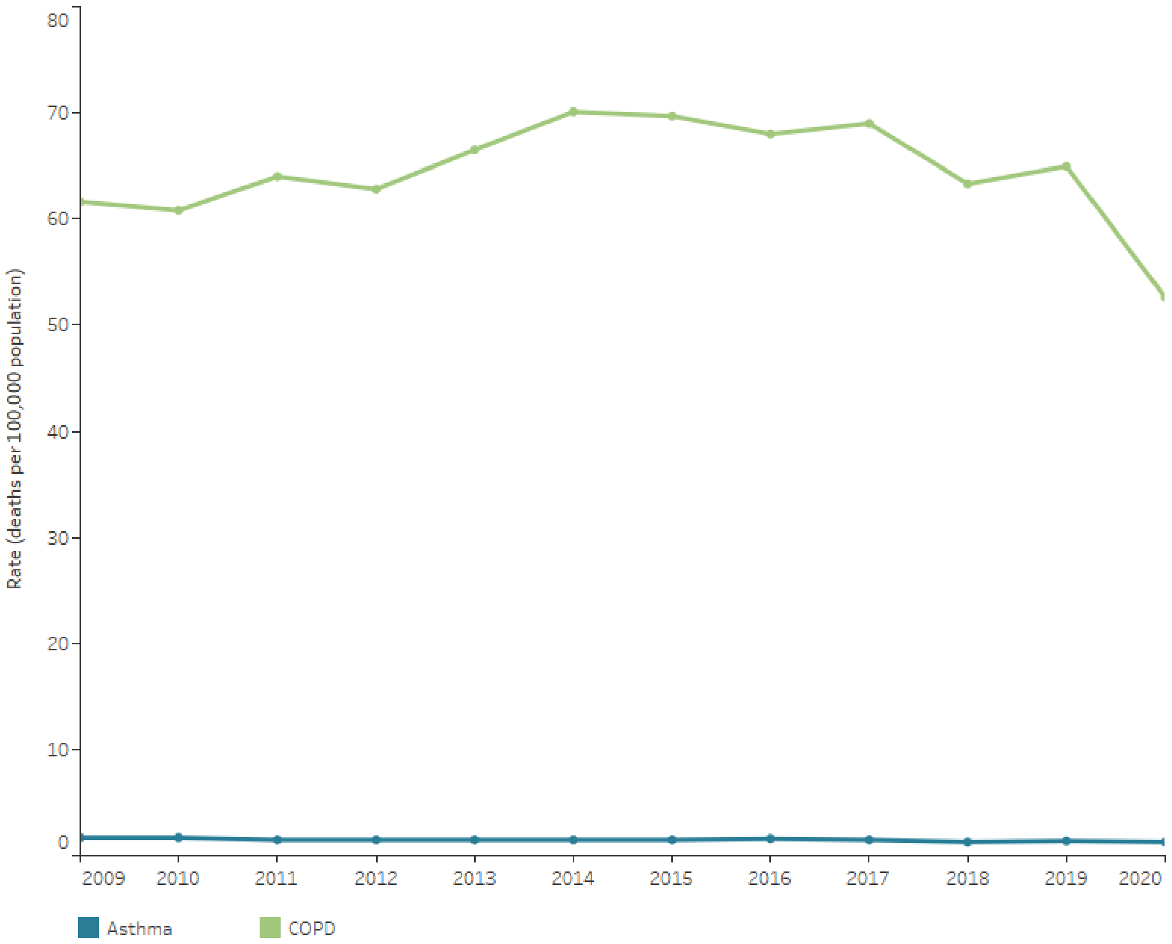
In 2020, COPD was the fifth leading underlying cause of death in Australia, with 6,311 deaths (3.9% of all deaths) (AIHW 2022a). The trend in the previous 11 years shows that the age-standardised COPD death rate for people aged 45 and over fluctuated; the year 2014 had the highest COPD death rate at 70 deaths per 100,000 population, and the year 2020 saw a sharp drop making it the lowest death rate in the past 11 years (53 deaths per 100,000 population) (Figure 3). For more information on COPD deaths see Causes of death.

COVID-19 impact

Death rates from all respiratory diseases combined showed a substantial fall in 2020, with rates particularly low for females and during the winter months compared with previous years. This is discussed in detail in 'Chapter 2 Changes in the health of Australians during the COVID-19 period' in Australia's health 2022: data insights.

During the COVID-19 pandemic (as at 31 March 2022), 17.4% of COVID-19 related deaths due to pre-existing conditions was contributed to by chronic respiratory conditions, the fourth highest of all chronic conditions. In addition, higher than expected deaths were observed for chronic lower respiratory conditions in 2021. For more information see 'Chapter 1 The impact of a new disease: COVID-19 from 2020, 2021 and into 2022' in Australia's health 2022: data insights.

Figure 3: Age-standardised deaths rate due to asthma and COPD, 2009 to 2020



[Notes]

Source: AIHW National Mortality Database.
http://www.aihw.gov.au

Burden of disease

Burden of disease refers to the quantified impact of living with and dying prematurely from a disease or injury.

Chronic respiratory diseases contribute substantially to the disease burden in the Australian population. In recognition of this burden, the National Asthma Strategy was launched in January 2018 (Department of Health 2018), and the National Strategic Action Plan for Lung Conditions was launched in February 2019 (Department of Health 2019).

The Australian Burden of Disease Study 2018 found that respiratory diseases contributed 7.3% of the total burden of disease and injury in Australia in 2018 (AIHW 2021a):

- Respiratory diseases were ranked as the seventh leading disease group contributing to total burden, after cancer, musculoskeletal conditions, cardiovascular diseases, mental health conditions and substance use disorders, injuries, and neurological conditions.

- COPD contributed 48% of the respiratory diseases burden, and asthma contributed 36%.
- At the individual disease level: COPD was the fourth leading cause of total burden of disease; asthma was ranked as the ninth leading cause of total burden overall but was the leading cause of total burden among children aged 1–14.

See Burden of Disease.

Expenditure

The Australian Disease Expenditure Study showed that in 2018–19, an estimated 3.3% ($4.5 billion) of total disease expenditure in the Australian health system was attributed to respiratory conditions (AIHW 2021c):

- COPD cost the Australian health system an estimated $934.9 million, representing 21% of disease expenditure on respiratory conditions and 0.7% of total disease expenditure.
- Asthma cost the Australian health system an estimated $798.5 million, representing 17.9% of disease expenditure for respiratory conditions and 0.6% of total disease expenditure.

In addition, the AIHW report *Health system spending per case of disease and for certain risk factors* (AIHW 2022b) showed that for respiratory diseases, health system spending per case of disease was estimated at $514 on average in 2018–19. The analysis also showed that 37% of health system spending on respiratory diseases could be attributed to potentially preventable risk factors in 2018–19. Within the respiratory diseases group, around two-thirds of estimated health system spending on COPD in 2018–19 could be attributed to tobacco use alone (AIHW 2022b).

See Disease expenditure.

Treatment and management

Primary care

General practitioners (GPs) play an important role in managing chronic respiratory conditions in the community, but there is currently no nationally consistent primary health care data collection to monitor provision of care by GPs.

One of the key steps in managing asthma is for patients to follow a personal asthma action plan developed with their GP. An asthma action plan is a written self-management plan which is prepared by a health care professional and can help people with asthma to manage their condition and reduce the severity of acute asthma flare-ups (AIHW 2020). The plan outlines what to do if symptoms flare up and what to do in an asthma emergency (National Asthma Council Australia 2021). According to the 2020–21 NHS, an estimated 35% of people with self-reported asthma across all ages had a written asthma action plan. Two-thirds (66%) of children under 18 years of age had a written action plan, while just over one quarter (27%) of people aged 18 and over had a written action plan (ABS 2022). See General practice, allied health and other primary care services.

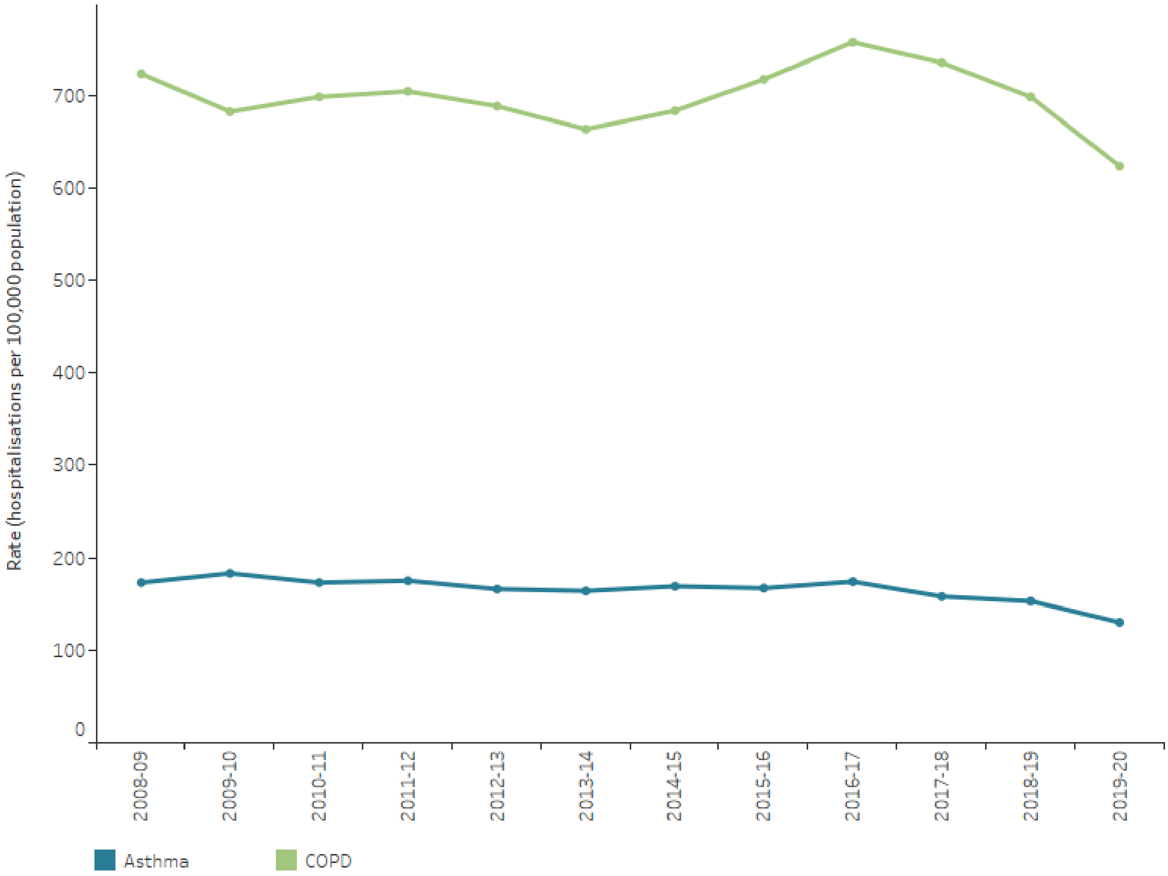
Hospitalisations

People with chronic respiratory conditions require admission to hospital when they cannot be managed at home or by a GP, or their symptoms exacerbate acutely. In 2019–20, asthma was the principal diagnosis in 32,822 hospitalisations for people of all ages and COPD was the principal diagnosis in 70,951 hospitalisations for people aged 45 and over. Trends over time show that:

- The hospitalisation rate for asthma fluctuated during the last 11 years, with the highest rate at 183 per 100,000 population in 2009–10 and the lowest at 130 per 100,000 population in 2019-20.
- The hospitalisation rate for COPD also fluctuated, with the highest at 757 per 100,000 population in 2016–17 and the lowest at 623 per 100,000 population in 2019–20 (Figure 4).

Hospitalisations due to asthma and COPD are classified as potentially preventable. Potentially preventable hospitalisations are defined as admissions to hospital where the hospitalisation could have potentially been prevented through the provision of appropriate individualised preventative health interventions and early disease management usually delivered in primary care and community-based care settings (AIHW 2019).

Figure 4: Age-standardised hospitalisations rates due to asthma and COPD, 2008–09 to 2019–20



[Notes]

Source: AIHW National Hospitals Morbidity Database.
http://www.aihw.gov.au

COVID-19 impact

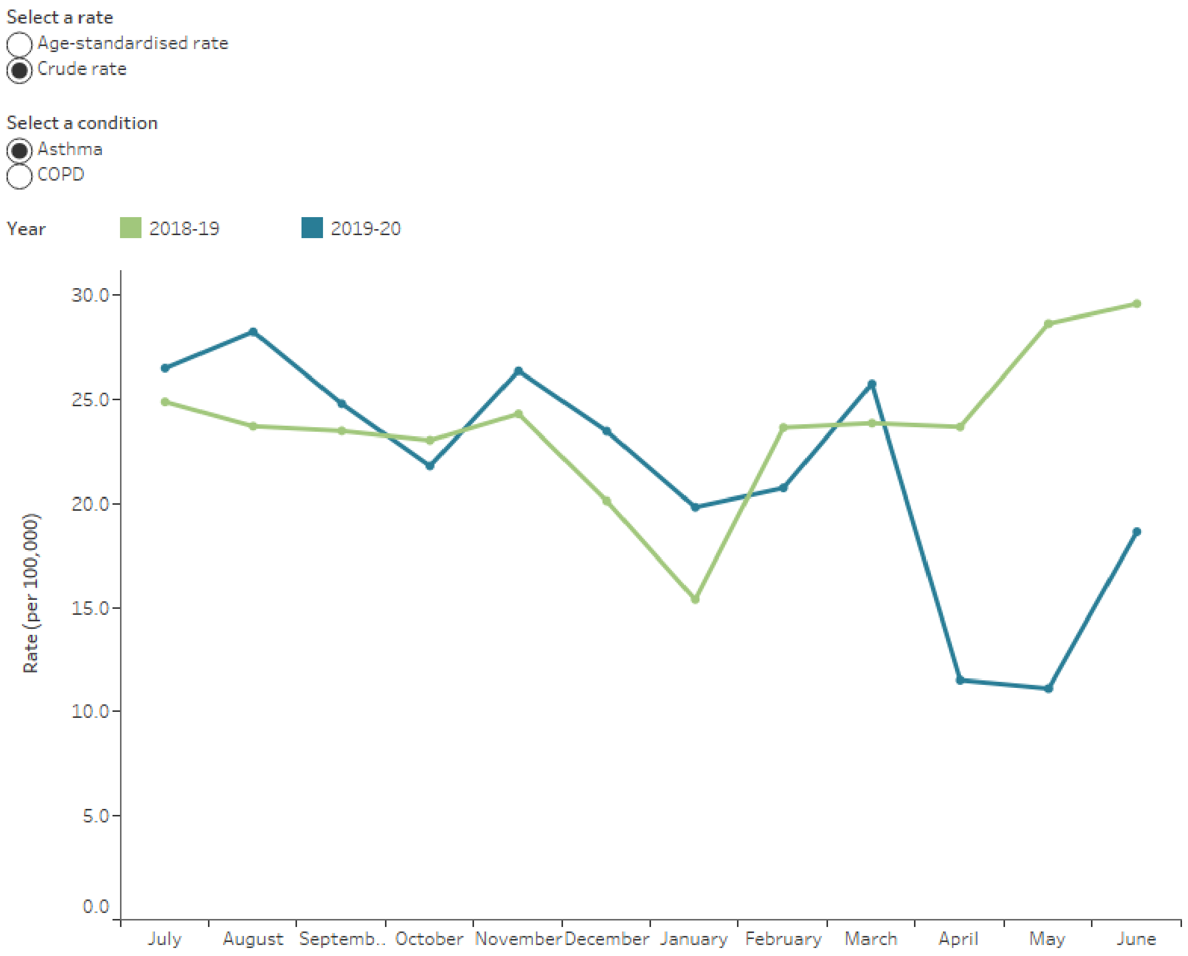
The overall rate of hospitalisations and emergency department presentations decreased since the beginning of the COVID-19 pandemic. See Hospitals. The hospitalisation rates for asthma and COPD in 2019–20 were the lowest in the last 11 years, potentially attributable to an indirect impact of the COVID-19 pandemic and the health protection measures put in place which supported physical distancing, promotion of hand-hygiene and mask wearing. Furthermore, the health protection measures encouraged a reduction in travel and traffic contributing to improved air quality for a period of time (Abrams et al. 2020; Thompson 2021). These measures not only reduced the transmission of the COVID-19 virus during the 2019–20 period, but also potentially the spread of colds and flu which are common triggers for asthma and COPD exacerbations that can lead to hospitalisation (National Asthma Council Australia 2022). See 'Chapter 2 Changes in the health of Australians during the COVID-19 period' in Australia's health 2022: data insights.

During the national lockdown beginning on 23 March 2020 following the pandemic outbreak, emergency department presentations for asthma and COPD decreased:

- For asthma, the rate of presentations fell from 26 per 100,000 population in March 2020 to 12 per 100,000 population in April 2020. This continued in May 2020 (11 per 100,000 population) until June 2020 when restrictions began to ease across the country and presentations rose to 19 per 100,000 population (Figure 5). When compared with April and May in 2019, the rates of asthma presentations observed in 2020 were halved.
- For COPD, the rate of presentations for COPD fell from 39 per 100,000 population in March 2020 to 28 per 100,000 population in April 2020. This rate increased slightly in May 2020 to 30 per 100,000 population and June 2020 at 33 per 100,000 population, during which the restrictions began to ease across the country. When compared with April and May in 2019, the rates of COPD presentations observed in 2020 fell by 29% and 34, respectively (Figure 5).

While the long-term impact of COVID-19 on the respiratory system is being researched, evidence shows that COVID-19 does not directly impact the risk of increasing asthma severity and vice versa (Lee et al. 2020; Lieberman-Cribbin et al. 2020; Mather et al. 2021). However, there is increasing evidence showing that COPD patients with COVID-19 have greater risk of mortality, severity of infection and higher likelihood of requiring Intensive Care Unit (ICU) support than those without COPD (Cazzola et al. 2021; Clark et al. 2021; Rawand et al. 2021; Wells 2021). See ‘Chapter 1 The impact of a new disease: COVID-19 from 2020, 2021 and into 2022’ in Australia’s health 2022: data insights.

Figure 5: Crude rate of emergency department presentations due to asthma, people of all ages in 2018–19 and 2019–20



Select a rate
○ Age-standardised rate
● Crude rate

Select a condition
● Asthma
○ COPD

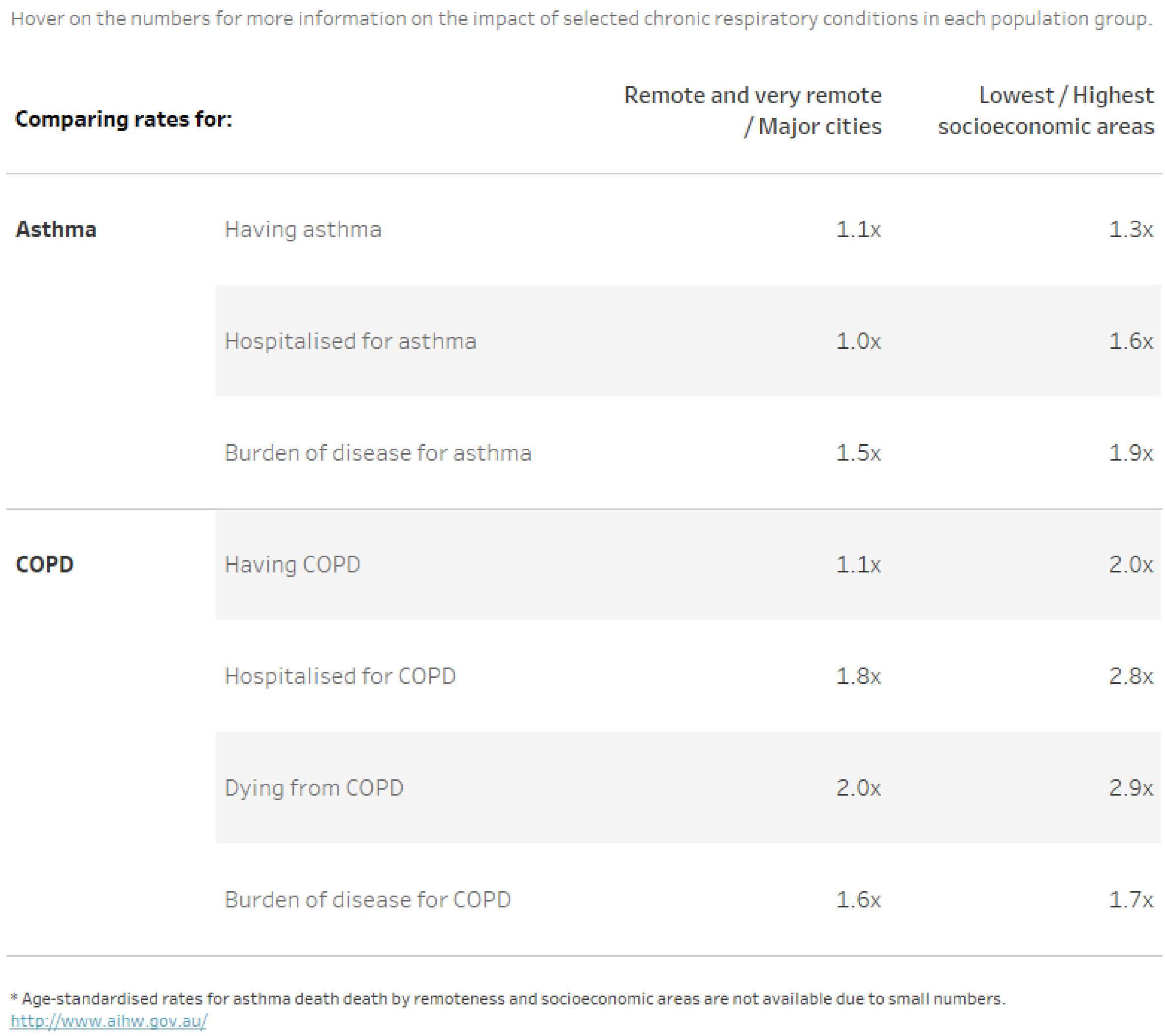
[Notes]

Source: AIHW National Non-admitted Patient Emergency Department Care database

Variation between population groups

The impact of asthma and COPD varies between population groups, with rates of prevalence, hospitalisation, death and disease burden being up to 2.0 times as high in *Remote and very remote* areas as in *Major cities*. Meanwhile, the impact of asthma and COPD increases with decreasing socioeconomic position. Rates were 1.3–3.2 times as high in the lowest socioeconomic areas compared with the highest (Figure 6).

Figure 6: Impact of selected chronic respiratory conditions, by selected population groups



Hover on the numbers for more information on the impact of selected chronic respiratory conditions in each population group.

Comparing rates for:		Remote and very remote / Major cities	Lowest / Highest socioeconomic areas
Asthma	Having asthma	1.1x	1.3x
	Hospitalised for asthma	1.0x	1.6x
	Burden of disease for asthma	1.5x	1.9x
COPD	Having COPD	1.1x	2.0x
	Hospitalised for COPD	1.8x	2.8x
	Dying from COPD	2.0x	2.9x
	Burden of disease for COPD	1.6x	1.7x

* Age-standardised rates for asthma death death by remoteness and socioeconomic areas are not available due to small numbers.
http://www.aihw.gov.au/

Where do I go for more information?

For more information on chronic respiratory conditions, see:

- Asthma
- Chronic obstructive pulmonary disease (COPD)
- Asthma, associated comorbidities and risk factors
- Chronic obstructive pulmonary disease (COPD), associated comorbidities and risk factors
- National asthma indicators—an interactive overview
- Australian Bureau of Statistics National Health Survey: First Results, 2017–18
- Australian Bureau of Statistics Health Conditions Prevalence

Visit Chronic respiratory conditions for more on this topic.

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Coronary heart disease

This topic summary is part of the Heart, stroke and vascular disease – Australian Facts report.

Coronary heart disease (CHD) occurs when there is a narrowing or blockage in the blood vessels that supply blood to the heart muscle. There are 2 major clinical forms – heart attack (also known as acute myocardial infarction) and angina (see Glossary).

CHD is largely preventable, as many of its risk factors are modifiable. These include tobacco smoking, biomedical risk factors such as high blood pressure and high blood cholesterol, insufficient physical activity, poor diet and nutrition, and overweight and obesity.

CHD is the leading single cause of disease burden and death in Australia. As a result of the substantial impact of CHD on the Australian population, a National Strategic Action Plan for Heart Disease and Stroke has been developed. The action plan aims to reflect priorities and identify implementable actions to reduce the impact of CHD in the community.

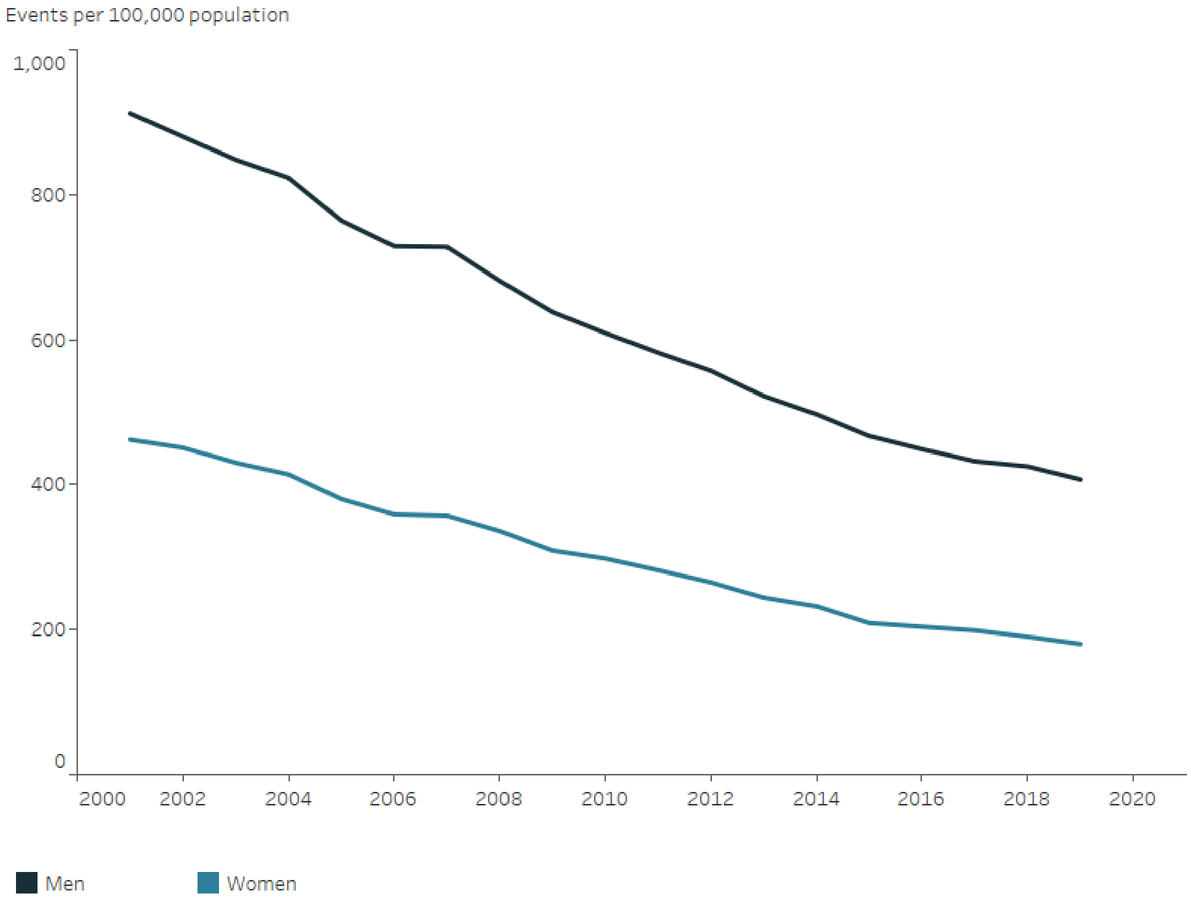
How common is coronary heart disease?

In 2020–21, an estimated 571,000 Australians aged 18 and over (2.9% of the adult population) had CHD, based on self-reported data from the Australian Bureau of Statistics 2020–21 National Health Survey (ABS 2022b). The prevalence of CHD increases rapidly with age, affecting around 1 in 9 (11%) adults aged 75 and over.

In 2019, an estimated 57,700 people aged 25 and over had an acute coronary event in the form of a heart attack or unstable angina – around 158 events every day. Of these, 7,400 (13%) were fatal.

The age-standardised rate of acute coronary events fell by more than half (57%) between 2001 and 2019 (from 675 to 290 per 100,000 population). The decline was slightly higher for women (61%, from 460 to 180 per 100,000 population) than men (55%, from 910 to 410 per 100,000 population) (Figure 1).

Figure 1: Acute coronary events among persons aged 25 and over, by sex, 2001 to 2019



Notes
1. Age-standardised to the 2001 Australian Standard Population.
2. Acute coronary events include heart attack (acute myocardial infarction) and unstable angina.
Sources: AIHW 2022b,2022c.
http://www.aihw.gov.au

Impact

Deaths

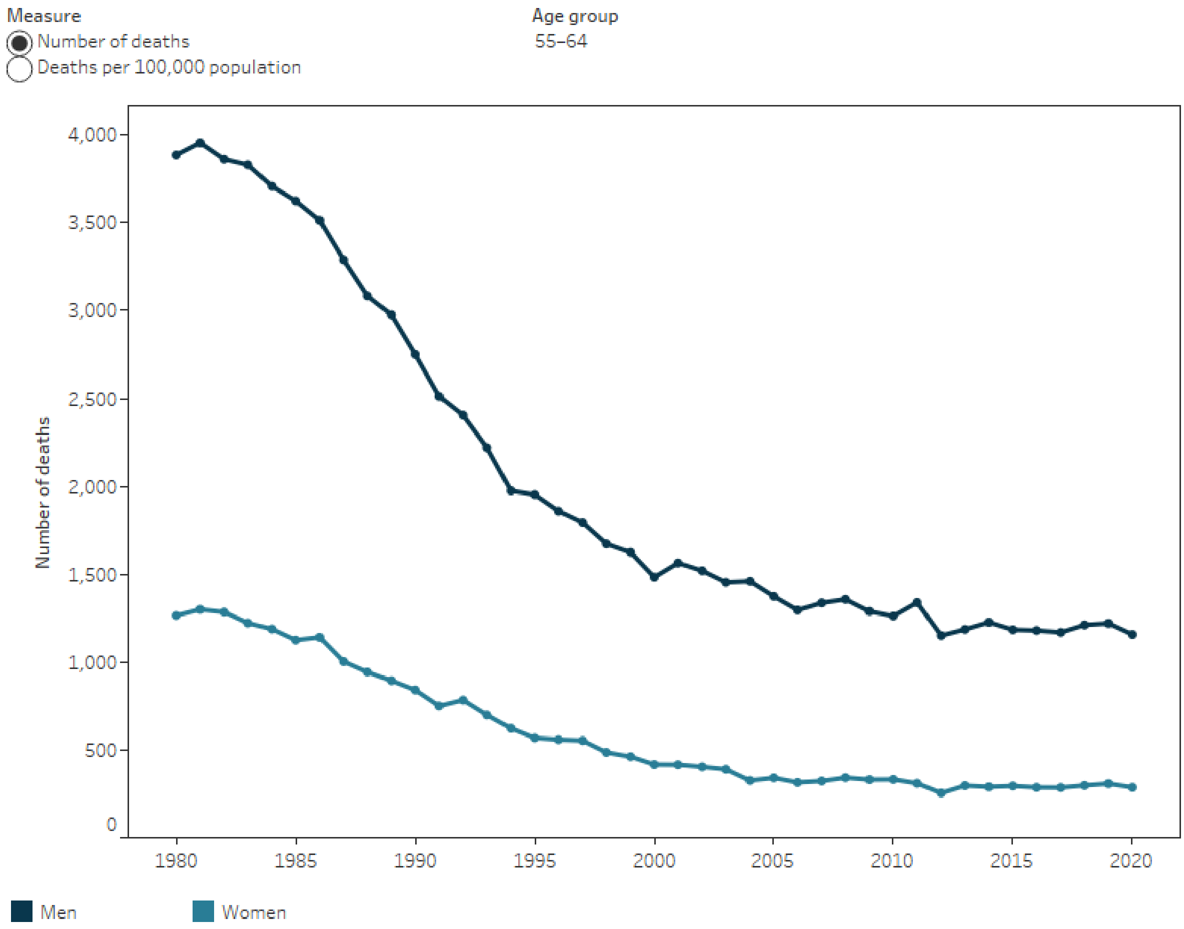
In 2020, CHD was the leading single cause of death in Australia, accounting for 16,600 deaths (AIHW 2022c). This represents 10% of all deaths, and 41% of cardiovascular disease deaths. Thirty-nine per cent (6,500) of CHD deaths resulted from a heart attack.

Overall, the CHD death rate has fallen by more than 80% since 1980 – from 414 to 68 deaths per 100,000 population for males, and 209 to 32 per 100,000 population for females. CHD death rates fell substantially in each age group, although the decline has slowed among younger age groups in recent decades (Figure 2).

The decline in CHD death rates has been attributed to a combination of factors, including reductions in some risk factor levels, better treatment and care, and improved secondary prevention (ABS 2018; AIHW 2021c).

See 'Chapter 4 Changing patterns of mortality in Australia since 1900' in *Australia's health 2022: data insights*.

Figure 2: CHD deaths among people aged 55-64, 65-74, 75-84 and 85 and over, by sex, 1980 to 2020



Measure
● Number of deaths
○ Deaths per 100,000 population

Age group
55–64

Notes
1. A comparability factor of 1.01 has been applied to deaths before 1996 to make them comparable with data from 1997 onwards, following the introducion of automated coding and ICD-10 codes (see Glossary).
2. Rates are calculated using the sum of estimated resident populations at 30 June for each year. Rates are expressed as deaths per 100,000 men/women.
Source: AIHW 2022c.
http://www.aihw.gov.au/

Burden of disease

Burden of disease refers to the quantified impact of living with and dying prematurely from a disease or injury and is measured using disability-adjusted life years (DALY). One DALY is equivalent to one year of healthy life lost.

In 2018, CHD accounted for 6.3% of the total burden of disease in Australia (AIHW 2021a). It comprised 10% of the fatal burden and 2.6% of the non-fatal burden.

The total burden due to CHD was twice as high in males, at 208,000 DALY, as in females (104,000 DALY). It increased rapidly from age 45 onwards – from 8.6 DALY per 1,000 among people aged 45−49, to 210 per 1,000 among people aged 95−99.

Between 2003 and 2018, there was a 26% fall in CHD burden (-112,000 DALY), and the CHD DALY rate reduced by 50%, from 21 to 10 DALY per 100,000 population. The rate of fatal burden of CHD fell by 53%, and the non-fatal burden by 40%. The fall has been attributed to a number of factors, including population growth (+22%), population ageing (+15%) and change in the amount of disease (-63%). See Burden of cardiovascular disease.

Expenditure

In 2018–19, the estimated expenditure on CHD was $2.4 billion. The greatest cost was due to private hospital services and public hospital admitted patient services ($892.2 million and $823.4 million respectively). The estimated Pharmaceutical Benefits Scheme (PBS) expenditure related to CHD was $156.3 million (AIHW 2021b).

See Health expenditure.

Treatment and management

Primary care

Primary health care professionals, including general practitioners (GPs), practice nurses, nurse practitioners and Aboriginal and Torres Strait Islander health workers, are often the first point-of-care for people who have non-acute cardiovascular disease.

Common actions by primary health care professionals when managing cardiovascular problems include undertaking checks, prescribing medicines, ordering pathology or imaging tests, and referral to specialists.

- In a 2019–20 survey of GP practices, high blood pressure was the single most common chronic condition newly recorded for patients (5.9% of patients) (NPS MedicineWise 2021). Abnormal blood lipids were newly recorded for 3.1% of patients, and cardiovascular disease conditions (including coronary heart disease) for 1.2% of patients.
- In 2019–20, over 93,000 Heart Health Checks (males 46,000, females 47,000) were processed by Medicare. Checks were most commonly conducted among people aged 55–64 (34,000) and 65–74 (28,000) (Services Australia 2022).

See Primary health care.

Medicines

Almost 112 million PBS prescriptions for cardiovascular system medicines were supplied to the Australian community in 2020–21. These comprised more than one-third (36%) of total PBS prescriptions (Department of Health 2021).

More than three-quarters (79%) of the estimated 1.2 million Australian adults aged 18 and over who had heart, stroke or vascular disease in 2017–18 used a cardiovascular system medicine in the 2 weeks prior to survey (AIHW analysis of ABS 2019b).

See Medicines for cardiovascular disease.

Emergency Departments

There were 75,900 presentations to Australian public hospital Emergency Departments (EDs) with a principal diagnosis of CHD in 2020–21 – a rate of 295 presentations per 100,000 population (AIHW 2022d).

Of these, 58,200 (77%) were admitted to the hospital to which they presented, 9,600 (13%) departed without being admitted or referred, and 7,300 (10%) were referred to another hospital for admission.

Hospitalisations

In 2019–20, CHD was the principal diagnosis in about 155,600 hospitalisations (1.4% of all hospitalisations) (AIHW 2022b). Of these, 36% were for heart attack (56,100) and 22% for angina (34,100).

Between 2000–01 and 2019–20, the age-standardised rate of hospitalisations where CHD was the principal diagnosis declined by 39%, from 830 to 510 hospitalisations per 100,000 population. The decline in hospitalisations over this period was greater among females than among males (46% and 36% respectively).

CHD was the leading cause of hospitalisation for cardiovascular disease in 2019–20 (26% of all hospitalisations with a principal diagnosis of cardiovascular disease).

Of all CHD hospitalisations (principal and/or additional diagnoses), 57% had a coronary angiography (a diagnostic procedure) and 31% underwent revascularisation (surgical procedures to restore blood supply to the heart).

See Hospital care and procedures.

Variation between population groups

The impact of CHD varies between population groups. To account for differences in the age structures of these groups, the data presented below is based on age-standardised rates.

Age-standardised rates of CHD hospitalisation in 2019–20 were 1.5 times as high in *Remote and very remote* areas as in *Major cities* (727 and 475 per 100,000 population), and 1.3 times as high in the lowest socioeconomic areas as in the highest (576 and 443 per 100,000 population) (Figure 3).

The age-standardised rate of hospitalisations, deaths and total burden due to CHD were more than twice as high among Aboriginal and Torres Strait Islander people as among non-Indigenous Australians.

Figure 3: Impact of Coronary heart disease—Variation among selected population groups

Hover on the numbers for more information on the impact of CHD in each population group.

Comparing rates for:	Indigenous / non-Indigenous	Remote and Very remote / Major cities	Lowest / highest socioeconomic areas
Having CHD	2.8x	0.9x	1.6x
Hospitalised for CHD	2.3x	1.5x	1.3x
Dying from CHD	2.5x	1.5x	1.7x
Burden of disease	2.8x	2.2x	2.0x

Note: This figure uses age-standardised rates to remove the impact of differences in age structures between these groups.
Sources: ABS 2019a, 2019b; AIHW 2021a, 2022a, 2022b, 2022c.
http://www.aihw.gov.au/

COVID-19 and coronary heart disease

People with pre-existing chronic conditions such as CHD are at higher risk of contracting COVID-19 and experiencing complications or more severe illnesses as a result.

In 2020–21, there were over 4,700 hospitalisations in Australia that involved a COVID-19 diagnosis. The most common comorbid conditions associated with COVID-19 hospitalisations over this period were cardiovascular disease (which includes coronary heart disease and a range of other heart, stroke and vascular diseases) (20%) and Type 2 diabetes (20%) (AIHW 2022e).

Of those COVID-19 hospitalisations with comorbid diagnosis of cardiovascular disease in 2020–21, 18% involved time spent in an Intensive Care Unit, 12% involved continuous ventilatory support and 20% had a separation mode indicating the patient died in hospital.

Among COVID-19 deaths that occurred by 30 April 2022, chronic cardiac conditions including coronary atherosclerosis, cardiomyopathies and atrial fibrillation were the most certified comorbidities, present in 37% of deaths (ABS 2022a).

Counts of CHD deaths during 2021 were below the 2015–19 average but were higher than the number certified in 2020 (ABS 2022c).

Where do I go for more information?

For more information on coronary heart disease, see:

- Heart, stroke and vascular disease – Australian facts

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Dementia

This topic summary is part of the Dementia in Australia report.

Dementia is a term used to describe a group of conditions characterised by gradual impairment of brain function, which may impact memory, speech, cognition (thought), personality, behaviour, and mobility.

There are many forms of dementia, the most common being Alzheimer's disease – a degenerative brain disease caused by nerve cell death resulting in shrinkage of the brain. It is also common for an individual to have multiple types of dementia, known as 'mixed dementia'. While the likelihood of developing dementia increases with age, dementia is not an inevitable or normal part of the ageing process. Dementia can also develop in people under 65, referred to as younger onset dementia, and in children, which is known as childhood dementia.

Dementia is a significant and growing health and aged care issue in Australia that has a substantial impact on the health and quality of life of people with the condition, as well as their family and friends. As the condition progresses, the functional ability of an individual with dementia declines, eventually resulting in the reliance on care providers in all aspects of daily living. There is currently no cure for dementia but there are strategies that can assist in maintaining independence and quality of life for as long as possible.

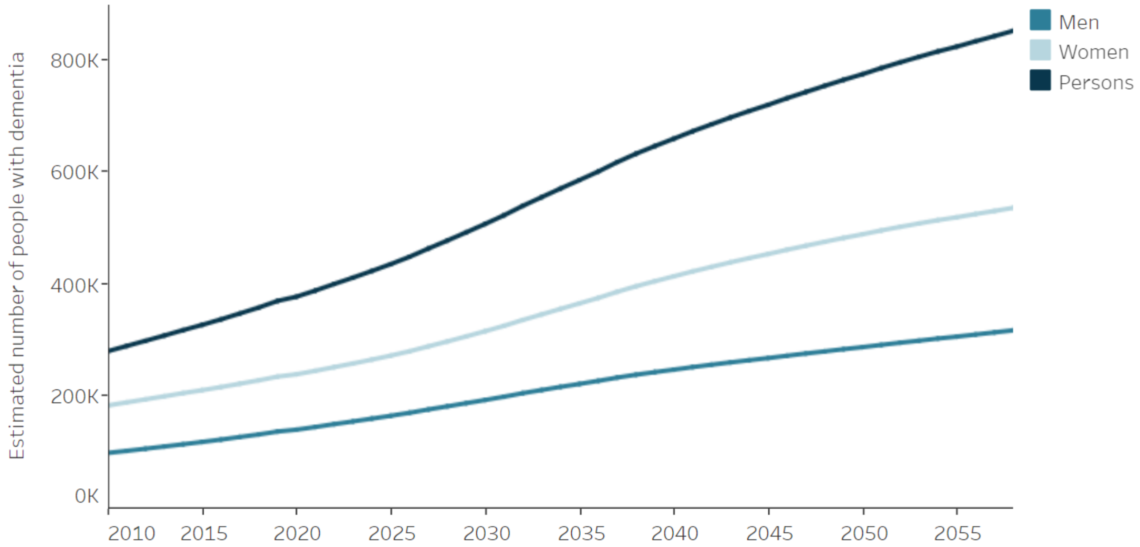
Data on this page are taken from the Dementia in Australia report, which provides detailed, up-to-date statistics and information on dementia.

How common is dementia?

In 2021, it was estimated that there were between 386,200 (AIHW estimate) and 472,000 Australians living with dementia (Dementia Australia 2020a). Based on AIHW estimates, this is equivalent to 15 people with dementia per 1,000 Australians, which increases to 83 people with dementia per 1,000 Australians aged 65 and over. Nearly two-thirds of Australians with dementia are women.

With an ageing and growing population, it is predicted that the number of Australians with dementia will more than double by 2058 – from 386,200 in 2021 to 849,300 in 2058 (533,800 women and 315,500 men) (Figure 1).

Figure 1: Australians living with dementia between 2010 and 2058: estimated number by sex and year



Source: The AIHW estimates were derived using prevalence rates from the 2015 World Alzheimer report and Withall et al. 2014, and the ABS Series B population projections.
https://www.aihw.gov.au

Measuring dementia prevalence

The exact number of people with dementia in Australia (the 'prevalence') is currently not known. Estimates vary because there is no single authoritative data source for deriving dementia prevalence in Australia and different approaches are used to generate estimates. For more information, see What is being done to improve dementia prevalence estimates in Australia?

In 2019, the Organisation for Economic Co-operation and Development (OECD) estimated that the prevalence of dementia in Australia was 14.6 cases per 1,000 population, close to the OECD average of 15.3 per 1,000 population and ranking 17th lowest out of 36 countries (OECD 2019).

See Prevalence for data by age, sex, geographic and socioeconomic area.

Risk factors

A range of factors are known to contribute to the risk of developing dementia and may affect the progression of symptoms. Some risk factors can't be changed, such as age, genetics and family history. However, several are modifiable, and can be altered to prevent or delay dementia.

High levels of education, physical activity and social engagement are all protective against developing dementia, while obesity, smoking, high blood pressure, hearing loss, depression and diabetes are all linked to an increased risk of developing dementia (Livingston et al. 2017).

Impact

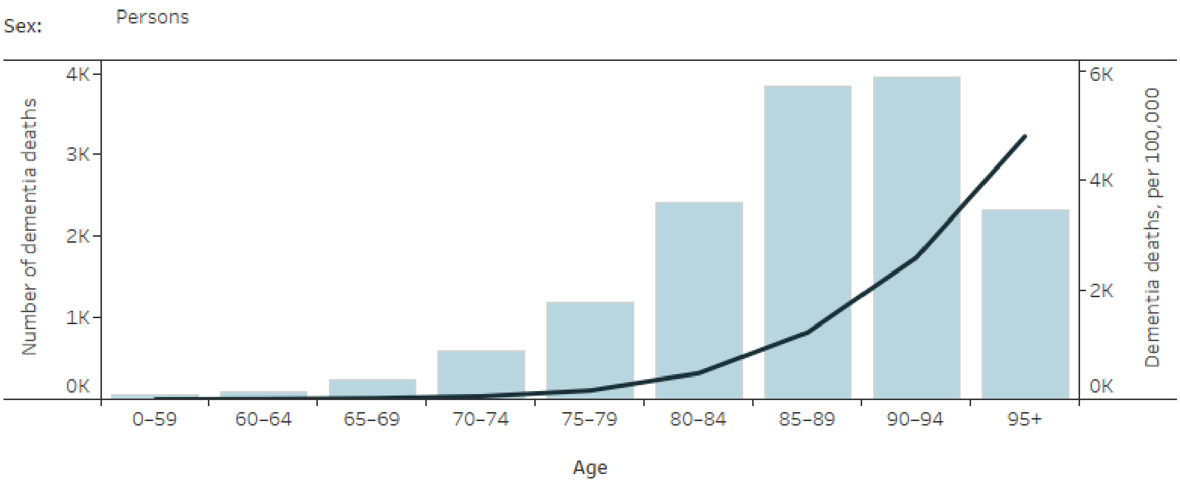
Dementia is the second leading cause of death in Australia

In 2019, dementia was the second leading cause of death in Australia, accounting for 14,700 deaths (or 9.5% of all deaths). Dementia was the leading cause of death in females and the second leading cause for males, after coronary heart disease.

The number of deaths due to dementia increased from 9,200 deaths in 2010 to 14,700 deaths in 2019. The age-standardised rate, which accounts for differences in the age and sex structure of a population, rose between 2010 and 2019, from 35 to 40 deaths per 100,000 Australians (Figure 2).

For more information, see Deaths due to dementia.

Figure 2: Deaths due to dementia: number and age-specific rates, by age and sex, 2019



Notes:
1. Age-specific rates are expressed per 100,000 population.
2. This analysis is only based on the underlying cause of death and not on associated causes of death.

Source: AIHW analysis of the National Mortality Database.
https://www.aihw.gov.au

Impact of COVID-19 on people with dementia

People with pre-existing chronic conditions, such as dementia, have a greater risk of developing severe illness from COVID-19. Fatal COVID-19 outbreaks have involved many people with dementia. Pre-existing chronic conditions were reported on death certificates for 3,938 deaths due to COVID-19, registered by 30 April 2022 in Australia. Of these deaths, 31.1% had dementia (including Alzheimer’s disease) recorded (ABS 2022). COVID-19 was an associated cause of death for a further 105 deaths due to Dementia including Alzheimer’s disease.

The indirect effects of COVID-19 on people with dementia – including reduced uptake of preventative healthcare services leading to delayed diagnoses, as well as spikes in mental illness, such as loneliness and depression – are not well understood but are thought to be substantial.

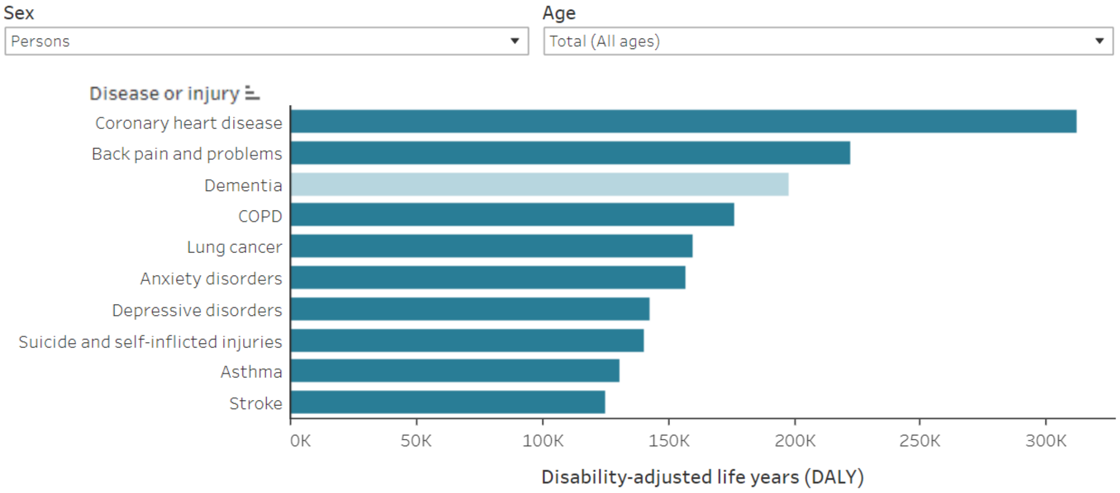
See Dementia deaths during the COVID-19 pandemic in Australia for an assessment of the impact of the first 10 months of the COVID-19 pandemic on dementia mortality rates.

Dementia is a leading cause of burden of disease

Burden of disease refers to the quantified impact of living with and dying prematurely from a disease or injury and is measured using disability-adjusted life years (DALY). One DALY is equivalent to one year of healthy life lost.

Dementia was the third leading cause of burden of disease in Australia in 2018, behind coronary heart disease and back pain. However, it was the leading cause of burden for women as well as for Australians aged 75 and over. The total burden of dementia was just under 198,000 DALY, with 56% of burden attributable to dying prematurely and 44% from the impacts of living with dementia (Figure 3).

Figure 3: Leading 10 causes of disease burden (DALY) in Australia: by sex and age, 2018



Notes
1. COPD refers to chronic obstructive pulmonary disease.
2. Conditions that were grouped into residual categories in the Australian Burden of Disease Study 2018 (such as 'Other musculoskeletal conditions') are not included in the rankings.
3. Lower respiratory infections includes influenza and pneumonia.
Source: AIHW Australian Burden of Disease Database.
https://www.aihw.gov.au

Around 43% of the overall dementia burden in 2018 could have been avoided if exposure to 6 lifestyle risk factors (overweight and obesity, physical inactivity, tobacco smoking, high blood pressure in midlife, high blood plasma glucose levels, and impaired kidney function) were reduced.

See Burden of disease due to dementia for detailed information on burden attributable to specific risk factors.

Treatment, management & support

GP and specialist services

Services provided by general practitioners (GPs) and other medical specialists are crucial in diagnosing and managing dementia. If a GP suspects dementia, they typically refer the patient to a qualified specialist, such as a geriatrician, or to a memory clinic for a comprehensive assessment (Dementia Australia 2020b).

How is dementia diagnosed?

There is no single conclusive test available to diagnose dementia, and obtaining a diagnosis often involves a combination of comprehensive cognitive and medical assessments.

Identifying the type of dementia at the time of diagnosis is important to ensure access to appropriate treatment and services. However, there are many forms of dementia with symptoms in common, often making diagnosis a lengthy and complex process involving multiple health professionals (see How is dementia diagnosed?).

Data on GP and specialist services across Australia are a major enduring gap for dementia monitoring. However, recent advancements in data linkage have enabled the examination of these services – see GP and specialist services overview.

In 2016–17, about half (49%) of all services claimed under the Medicare Benefits Schedule (MBS) by people with dementia were for GP consultations, with an average of 20 GP consultations per year, per person with dementia.

Consultations with medical specialists, other than GPs, accounted for 12% of all MBS services used by people with dementia. On average, a person with dementia had 5 specialist services in 2016–17.

The types of specialist services used varied by age, with psychiatrists and neurologists most frequent among people with younger onset dementia (aged under 65), and specialists treating age-related conditions, such as geriatricians and ophthalmologists, increasing in frequency with age.

Dementia-specific medications

Although there is no cure for dementia, there are 4 medicines, subsidised through the Pharmaceutical Benefits Scheme and Repatriation Pharmaceutical Benefits Scheme, that may alleviate some of the symptoms of Alzheimer’s disease.

In 2019–20, there were over 623,000 prescriptions dispensed for dementia-specific medications to just under 64,600 Australians with dementia aged 30 and over. There was a 43% increase in scripts dispensed for dementia-specific medications between 2012–13 and 2019–20.

People with dementia may experience changed behaviours, such as aggression, agitation and delusions, commonly known as behavioural and psychological symptoms of dementia. Non-pharmacological interventions are recommended to manage these symptoms, but antipsychotic medicines may be prescribed as a last resort.

In 2019–20, antipsychotic medications were dispensed to about one-fifth (21%) of the 64,600 people who had scripts dispensed for dementia-specific medication.

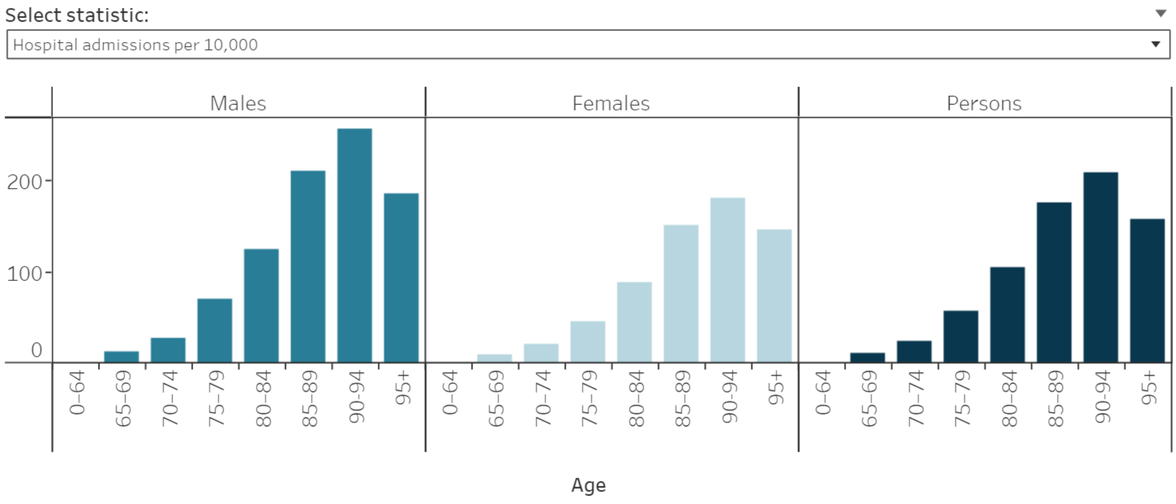
For information on medicine types, see Prescriptions for dementia-specific medications.

Hospitalisations

In 2018–19, there were more than 11.5 million hospitalisations in Australia (AIHW 2019). Of these, dementia was the main reason for admission for about 23,200 hospitalisations, which is equivalent to 2 out of every 1,000 hospitalisations.

For people with dementia, the average length of stay was almost 5 times as long as the average hospitalisation (13 days and 2.7 days, respectively). Of the hospitalisations due to dementia, 63% of patients were aged 75–89 (Figure 4).

Figure 4: Hospitalisations due to dementia, by age and sex, 2018-19



Source: AIHW analysis of National Hospital Morbidity Database.
http://www.aihw.gov.au

Data presented in this section refer to hospitalisations due to dementia, that is, when dementia was recorded as the principal diagnosis. However, understanding hospitalisations with dementia, that is, all hospitalisations with a record of dementia, whether as the principal and/or additional diagnosis, also provides important insights into the wide-ranging conditions that can lead people living with dementia to use hospital services.

See Hospital care for information on hospitalisations with dementia, as well as data by state, and by dementia type.

Aged care services

Aged care services are an important resource for both people with dementia and their carers. Services include those provided in the community for people living at home (home support and home care), and residential aged care services for those requiring permanent care or short-term respite stays.

Among people with dementia in Australia, 1 in 3 people live in cared accommodation. In 2019–20, there were over 244,000 people living in permanent residential aged care, and more than half (54% or about 132,000) of these people had dementia.

See Aged care and support services used by people with dementia for detailed information on the services and initiatives available.

How do people with dementia access aged care services?

The My Aged Care system coordinates access to a range of government-subsidised services for older Australians who require care and assistance. After an initial screening, an aged care assessment is completed to establish an individual's needs and types of services that may help.

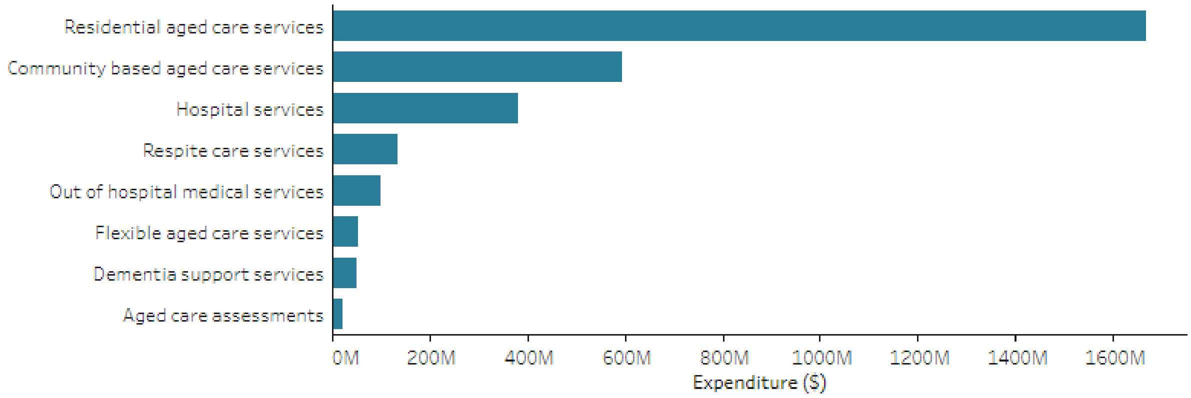
People with dementia accounted for 9.7% of all aged care assessments in 2019–20, with over 41,000 people with dementia completing an assessment. Among these 41,000 assessments, 3 in 4 were a comprehensive assessment, which are for people with complex and multiple care needs.

Health and aged care expenditure on dementia

Australia's response to dementia requires economic investment across health, aged care and welfare sectors. It is estimated that almost $3.0 billion of health and aged care spending in 2018–19 was directly attributable to the diagnosis, treatment and care of people with dementia.

Residential aged care services accounted for the largest share of expenditure (56% or $1.7 billion), followed by community-based aged care services (20% or $596 million) and hospital services (13% or $383 million) (Figure 5).

Figure 5: Health and aged care spending directly attributable to dementia by broad service area, 2018–19



Notes:
1. 'Respite care services' include residential respite care and community-based respite care.
2. 'Out of hospital medical services' include general practice, diagnostic imaging, specialist, allied health and pathology services as well as pharmaceuticals.
3. 'Flexible aged care services' include the Transition Care Program and the National Aboriginal and Torres Strait Islander Flexible Aged Care program.
4. 'Dementia support services' include the Severe Behaviour Response Teams, the Dementia Behaviour Management Advisory Service, the National Dementia Support Program, the Specialist Dementia Care Program and the Dementia Training Program.

Source: See technical notes for data sources and methods used to derive estimates for each of the service areas/programs.
https://www.aihw.gov.au

For detailed information of spending on aged care, health, hospital and support services, see Health and aged care expenditure on dementia.

Carers

The level of care required for people with dementia depends upon individual circumstances, but likely increases as dementia progresses. Carers are often family members or friends of people with dementia who provide ongoing, informal assistance with daily activities.

The AIHW estimates that in 2021 there were between 134,900 and 337,200 informal primary carers of people with dementia. Among primary carers of people with dementia, 3 in 4 were female and 1 in 2 were caring for their partner with dementia.

Caring can be a rewarding role with 38% of primary carers of people with dementia reporting feeling closer to the care recipient.

Caring can also be physically, mentally, emotionally, and economically demanding. According to the Australian Bureau of Statistics (ABS) Survey of Disability, Ageing and Carers (SDAC) 2018, among carers of people with dementia:

- 1 in 2 provided an average of 60 or more hours of care per week.
- 3 in 4 reported 1 or more physical or emotional impacts of the role.
- 1 in 4 reported that they needed more respite care to support them.
- 1 in 2 experienced financial impacts since taking on the role.

Further findings from this survey can be found in Carers and care needs of people with dementia.

Dementia data gaps

Australia's dementia statistics are derived from a variety of sources including administrative data, survey data and epidemiological studies. As each data source has incomplete coverage of people with dementia, it is difficult to accurately report how many Australians are living with dementia. This limits the ability to examine impacts of dementia on individuals with the condition, their carers and support networks, as well as the community and national health and aged care systems more broadly (see Dementia data gaps and opportunities).

Diagnosing dementia

Estimating the incidence (new dementia cases in a given period) and prevalence (total cases) of dementia in Australia is vital to evaluating the current and future impacts of the condition, as well as for policy and service planning. There are several factors in the diagnostic process that affect our ability to estimate the number of Australians living with dementia, including:

- an often lengthy diagnosis process for reasons such as not recognising symptoms, a delay in seeking help, limited access to specialists or complexity of diagnostic processes
- no single conclusive diagnostic assessment for dementia
- lack of national GP or specialist data collections with dementia-specific diagnostic information.

There are ongoing efforts to improve the accuracy of these estimates, such as through the utilisation of data linkage, electronic health records and the development of a national dementia clinical quality registry. See 'Chapter 8 Dementia data in Australia – understanding gaps and opportunities' in Australia's health 2020: data insights for more information.

Childhood dementias

Around 1% of all dementia diagnoses in Australia are childhood dementias caused by over 70 rare genetic disorders (Childhood Dementia Initiative 2020). Most cases of childhood dementia are fatal before adulthood (Dementia Support Australia 2021).

There are limited data available on childhood dementia both within Australia and internationally. Increased awareness and research of childhood dementia is needed to improve the quality of life for children with dementia.

Impact on health, aged care and social systems

Dementia statistics within Australia are largely sourced from hospital, aged care and cause of death data, likely providing a skewed view towards moderate and severe dementia. There are considerable gaps in primary health care data and use of services by people with dementia living in the community. Further, there is a lack of timely data on dementia disease expenditure. Without this information, it is difficult to determine the demand for dementia services and plan for economic costs to health and social systems.

Understanding patient experiences of people with dementia and their carers is important to assess the quality of care within the health and aged care systems. There is a lack of information on these experiences, and improvements are needed to understand these qualitative aspects to improve quality of care and outcomes for those living with dementia.

See Dementia data gaps and opportunities for more information.

Carers

There are considerable gaps in national data on carers of people with dementia in Australia. The ABS SDAC 2018 provides the most up-to-date national information on carers. However, this survey is limited to collecting self-reported information from co-resident carers only for people with dementia and, further, likely under-identifies the number of people with dementia (particularly people with mild dementia living in the community). As a result, it is challenging to comprehensively understand how many Australians provide care to people with dementia and what their unmet needs may be.

Dementia in population groups of interest

Australians living with dementia come from diverse backgrounds and have unique and variable needs for services and support. National data on people with dementia in specific population groups are limited and further research is needed.

Aboriginal and Torres Strait Islander people

Among Aboriginal and Torres Strait Islander people, the rate of dementia is estimated to be 3–5 times as high as rates for Australia overall. However, improvements are needed in the representation of Indigenous Australians in key datasets to support better dementia prevalence estimates.

There are also limited data on Indigenous-specific health and aged care services. Improving data in these areas will help to identify how dementia is understood and managed by Indigenous Australians and improve the development of culturally appropriate and effective policies and services.

Due to sampling issues, data on Indigenous carers of people with dementia and/or carers of Indigenous Australians with dementia are not available as part of the ABS SDAC.

People from culturally and linguistically diverse backgrounds

For people from culturally and linguistically diverse (CALD) backgrounds, attitudes towards, as well as access to, aged care and support services need to be considered.

Based on the ABS SDAC 2018, 1 in 2 people with dementia who were born in non-English–speaking countries and were living in the community relied upon informal assistance only (compared to 1 in 3 people who were born in English speaking countries). This may reflect a preference for informal care or may be due to challenges in accessing suitable services. Gaps in data limit the understanding of how individual CALD communities may differ in their experiences of disease, attitudes surrounding dementia and carers, and access to and utilisation of services.

As part of the Dementia in Australia report, Dementia in vulnerable groups focuses on numerous population groups of interest that may benefit from a more specific focus within dementia care.

Where do I go for more information?

For more information on dementia, see:

- Dementia in Australia
- Australian Bureau of Statistics Disability, Ageing and Carers, Australia: summary of findings, 2018

Visit Dementia for more AIHW reports on this topic.

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Diabetes

Find the most recent version of this information at:
https://www.aihw.gov.au/reports/australias-health/diabetes

Diabetes is a chronic condition marked by high levels of glucose (sugar) in the blood. It is caused by the inability to produce insulin (a hormone made by the pancreas to control blood glucose levels) or to use insulin effectively, or both.

The main types of diabetes are:

- type 1 diabetes – a lifelong autoimmune disease that can be diagnosed at any age. The exact cause is unknown, but it is believed to be the result of an interaction of genetic and environmental factors.
- type 2 diabetes – a condition in which the body becomes resistant to the normal effects of insulin and gradually loses the capacity to produce enough insulin in the pancreas. The condition has strong genetic and family-related (non-modifiable) risk factors and is also often associated with modifiable risk factors. It is the most common form of diabetes.
- gestational diabetes – when higher than optimal blood glucose is present during pregnancy.
- other diabetes – a name for less common forms of diabetes resulting from a range of different health conditions or circumstances. This includes conditions affecting the pancreas and endocrine system, viral infections, genetic syndromes and in some cases, diabetes triggered from medications needed to manage or treat another health condition. Other diabetes may now also refer to new onset diabetes associated with COVID-19 infection and treatment for the virus (Sathish et al. 2021).

Treatment aims to maintain healthy blood glucose levels to prevent both short- and long-term complications, such as cardiovascular disease, kidney disease, blindness and lower limb amputation. Insulin replacement therapy is required by all people with type 1 diabetes, as well as by a proportion of people with other forms of diabetes if their condition worsens over time.

How common is diabetes?

In 2020, an estimated 1 in 20 (almost 1.3 million) Australians were living with diabetes (prevalence) and were registered with the National Diabetes Services Scheme (NDSS) and Australasian Paediatric Endocrine Group (APEG) state-based registers. This includes people with type 1 diabetes, type 2 diabetes and other diabetes, but excludes gestational diabetes.

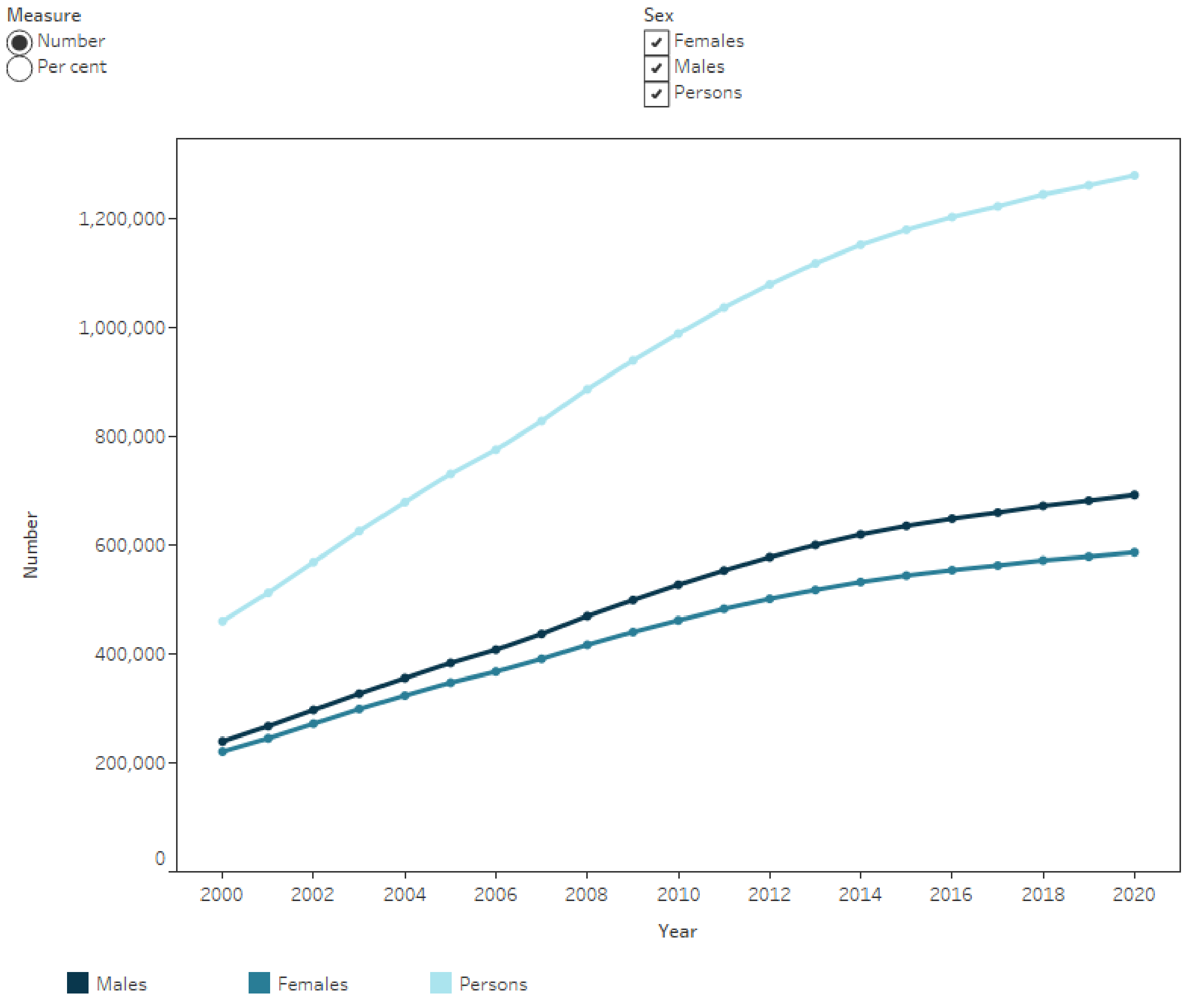
In 2020, the prevalence of people with diabetes on the linked NDSS and APEG data increased with age. Almost 1 in 5 Australians aged 80–84 were living with diabetes in 2020 – this was almost 30 times as high as for those aged under 40 (0.7%). Diabetes was more common in males (4.8%) than females (3.8%), after controlling for age.

After accounting for differences in the age structure of the population, the age-standardised prevalence rate of diabetes on the linked NDSS and APEG data increased from 2.4% in 2000 to 4.3% in 2020. The diabetes rate peaked in 2016 and remained stable between 2016 and 2020 (Figure 1).

The prevalence rates presented above are likely to underestimate the true prevalence of diabetes in the Australian population. This is because they are based on people who have received a formal medical diagnosis of diabetes. However, Australian studies have shown that many people are living with undiagnosed type 2 diabetes. For example, in the 1999–2000 AusDiab Study, half of all diabetes was undiagnosed (Dunstan et al. 2001). In the 2011–12 Australian Bureau of Statistics (ABS) Australian Health Survey, which collected blood glucose data, 20% of participating adults aged 18 and over had undiagnosed diabetes prior to the survey (ABS 2013). In addition, registration with the NDSS is voluntary and people with type 2 diabetes are more likely to register if they access diabetes consumables to monitor their diabetes at home or require insulin. Despite these limitations, these data sources provide the best picture into the number of people living with diabetes in Australia to monitor changes in populations at risk and trends over time.

Further research is required to examine whether the proportion of people with undiagnosed type 2 diabetes in Australia has changed over time and the impact of this on the prevalence of disease in Australia.

Figure 1: Prevalence of diabetes, by sex, 2000 to 2020



Measure
● Number
○ Per cent

Sex
☑ Females
☑ Males
☑ Persons

Note: Per cent age-standardised to the Australian population as at 30 June 2001.
Source: AIHW analysis of linked National Diabetes Services Scheme (NDSS) and Australasian Paediatric Endocrine Group (APEG) state-based registers.
http://www.aihw.gov.au/

Type 1 diabetes

Around 55,400 people were newly diagnosed (incidence) with type 1 diabetes between 2000 and 2020 according to the National (insulin–treated) Diabetes Register (NDR).

In 2020, there were 3,100 people newly diagnosed with type 1 diabetes in Australia, equating to 12 diagnoses per 100,000 population.

The incidence of type 1 diabetes remained relatively stable across the last 2 decades, fluctuating between 11 and 13 new cases per 100,000 population.

Type 2 diabetes

Around 1.3 million people were newly diagnosed with type 2 diabetes between 2000 and 2020, according to linked NDSS and APEG data. This was around 60,000 people each year – an average of 166 new diagnoses a day.

There were 48,300 people newly diagnosed with type 2 diabetes registered on the linked NDSS and APEG data in Australia in 2020, equating to 188 diagnoses a day per 100,000 population.

According to the linked NDSS and APEG data, age-standardised incidence rates for type 2 diabetes have varied over time. Incidence rates peaked in 2008 at 336 per 100,000 population and have almost halved from 2008 to 2020 (172 per 100,000 population).

Gestational diabetes

In 2019–20, around 1 in every 7 (48,800) females aged 15–49 who gave birth in hospital were diagnosed with gestational diabetes, according to the National Hospital Morbidity Database.

Between 2000–01 and 2019–20, the age-standardised incidence of gestational diabetes in Australia more than tripled from 5.2% to 16.7% (Figure 2). However, caution should be taken when comparing rates over time. Several factors, including new diagnostic guidelines introduced across all states and territories between 2011 and 2013, are likely to have had an impact on the number of females diagnosed with gestational diabetes in recent years. Refer to Incidence of gestational diabetes in Australia—Changing trends for further information.

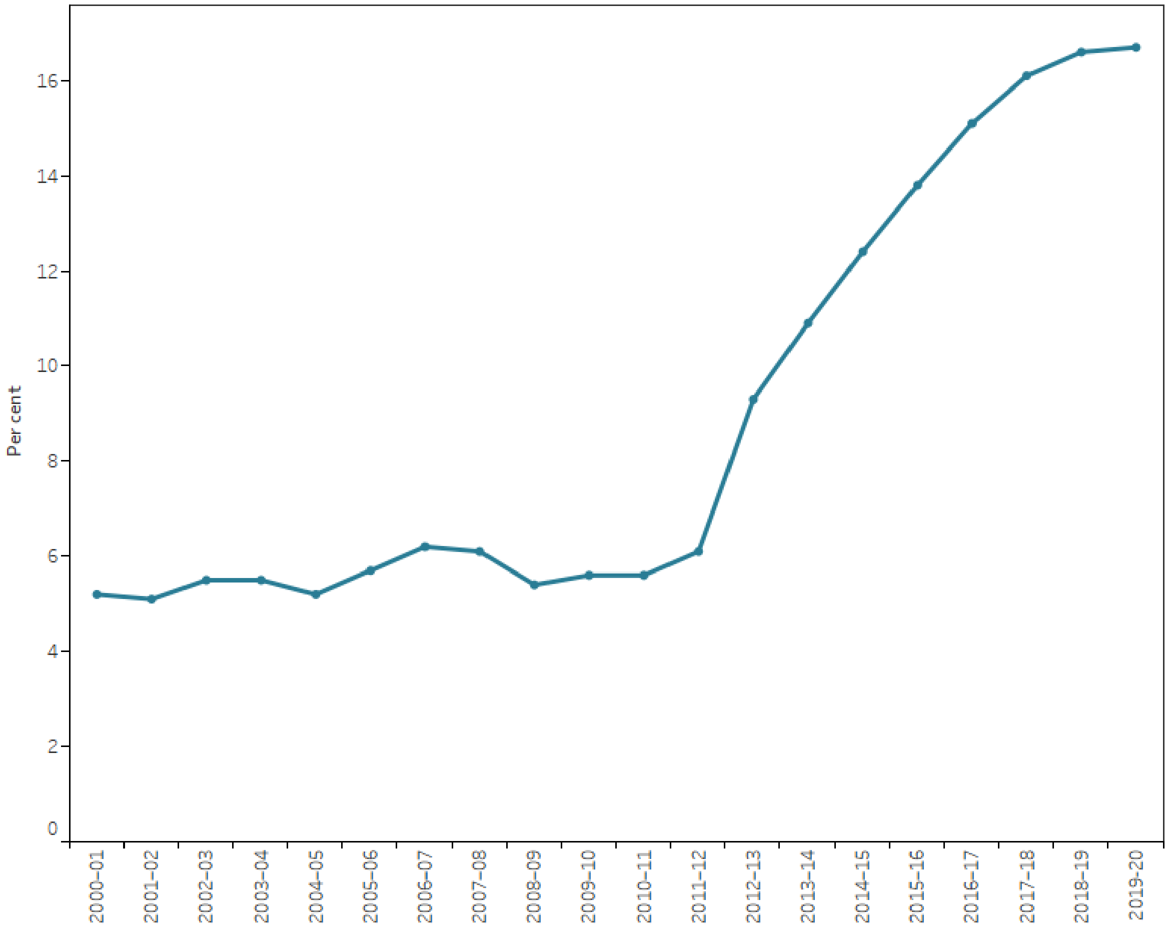


Figure 2: Incidence of gestational diabetes, 2000–01 to 2019–20

[Notes]

Caution should be taken when comparing rates over time. See the trends discussion in the gestational diabetes web report for more information.
https://www.aihw.gov.au/reports/diabetes/incidence-of-gestational-diabetes-in-australia/contents/changing-trends
Source: AIHW 2021e.
http://www.aihw.gov.au/

Impact of diabetes

Burden of disease

Burden of disease refers to the quantified impact of living with and dying prematurely from a disease or injury and is measured using disability-adjusted life years (DALY). One DALY is equivalent to one year of healthy life lost.

In 2018, type 2 diabetes was responsible for 112,500 DALY in Australia – equating to 4.5 per 1,000 population. Type 2 diabetes was the 12th leading contributor to total burden. After accounting for differences in the age structure of a population, the overall burden from type 2 diabetes decreased slightly from 3.9 per 1,000 population in 2003 to 3.8 per 1,000 population in 2018. Type 1 diabetes was responsible for 17,000 DALY, equating to

0.3 per 1,000 population – this was similar to the contribution in 2003 (0.4 per 1,000 population) (AIHW 2021a).

In 2018, 4.3% of the total burden of disease could have been prevented by reducing exposure to the modifiable risk factor ‘high blood plasma glucose levels’ (including diabetes) (AIHW 2021b).

See Burden of disease.

Expenditure

In 2018–19, an estimated $3.0 billion of expenditure in the Australian health system was attributed to diabetes, representing 2.3% of total disease expenditure. Of the $3.0 billion in expenditure:

- type 2 diabetes represented 61%
- type 1 diabetes 11%
- gestational diabetes 2.0%
- other diabetes 26% (AIHW 2021c).

See Health expenditure.

Adverse effects in pregnancy

Based on data from the National Hospital Morbidity Database for 2019–20, mothers with pre-existing diabetes (and to a lesser extent, gestational diabetes) had higher rates of caesarean section, induced labour, pre-existing and gestational hypertension, and pre-eclampsia compared with mothers with no diabetes in pregnancy.

Babies of mothers living with diabetes in pregnancy are also at an increased risk of childhood metabolic syndrome, obesity, impaired glucose tolerance, and type 2 diabetes in later life (Clausen et al. 2007; Kim et al. 2012; Zhao et al. 2016).

See Health of mothers and babies.

Deaths

According to the AIHW National Mortality Database, in 2020, diabetes was the underlying cause of around 5,100 deaths. However, it contributed to around 17,500 deaths (10.8% of all deaths) when associated causes are included (AIHW 2021f).

See Causes of death.

Treatment and management of diabetes

What is HbA1c?

Glycated haemoglobin, haemoglobin A1c or HbA1c, is the main biomarker used to assess long-term glucose control in people living with diabetes. Haemoglobin is a protein in red blood cells which can bind with sugar to form HbA1c. It is directly related to blood glucose levels and strongly related with the development of long-term diabetes complications. Because red blood cells can live for up to 120 days, HbA1c gives an indication of blood glucose over a few months.

HbA1c was endorsed for the diagnosis of diabetes in 2010 by the Australian Medical Association. Diagnosis is confirmed using HbA1c levels ≥48 mmol/L or ≥6.5%. HbA1c targets for people living with diabetes depend on the type of diabetes, life expectancy, risk of hypoglycaemia and other comorbidities.

HbA1c testing

According to the National Prescribing Service (NPS) MedicineInsight general practice insights report (NPS MedicineWise 2021), in 2019–20, 67% of general practice patients with a diagnosis of diabetes (20 years and older) had at least one test result for HbA1c levels. Amongst MedicineInsight patients without a diagnosis of diabetes, only 11% had received at least one test for HbA1c levels.

According to the Australian National Diabetes Audit−Australian Quality Clinical Audit (ANDA–AQCA) 2021, amongst all adult patients with recorded diabetes (n=4,262), the median HbA1c level was 63.0 mmol/mol. Median HbA1c was slightly higher among patients with type 1 diabetes (66.0 mmol/mol) and slightly lower in patients with type 2 diabetes (62.0 mmol/mol). Patients with gestational diabetes had significantly lower median HbA1c levels (34.0 mmol/mol) (ANDA, 2021).

See Biomedical risk factors.

Medicines

In 2020–21, there were over 16.5 million prescriptions dispensed for diabetes medicines through Section 85 of the Pharmaceutical Benefits Scheme and Repatriation Pharmaceutical Benefits Scheme, representing 5.3% of total prescriptions. Metformin, a glucose-lowering medication for patients with type 2 diabetes, was the seventh most dispensed medicine in 2020–21 (Department of Health 2021b).

According to the NDR, 30,800 people began using insulin to treat their diabetes in 2020. Of the people with diabetes who began using insulin, 52% had type 2 diabetes, 35% had gestational diabetes, 10% were newly diagnosed with type 1 diabetes and 2% had other forms of diabetes (AIHW 2022b).

See also Medicines in the health system.

Hospitalisations and procedures

Almost 1.2 million hospitalisations were associated with diabetes in 2019–20, with 5% recording diabetes as the principal diagnosis and 95% recording diabetes as an additional diagnosis, according to the AIHW National Hospital Morbidity Database. This represents 11% of all hospitalisations in Australia (AIHW 2021d).

Of the almost 1.2 million hospitalisations, just over 1 million recorded type 2 diabetes as the principal and/or additional diagnosis and 62,600 hospitalisations recorded type 1 diabetes as the principal and/or additional diagnosis.

People with diabetes may require procedures to manage their diabetes or treat the complications of diabetes. According to the National Hospital Morbidity Database, there were 3,500 weight loss procedures and 5,200 lower limb amputations undertaken for people with type 2 diabetes in 2019–20 (14 and 20 per 100,000 population, respectively).

See Hospitals.

Variation between population groups

The impact of diabetes varies between population groups. To account for differences in the age structures of these groups, the data presented below is based on age-standardised rates.

In recent years, the impact of diabetes has been higher among Aboriginal and Torres Strait Islander people, those living in lower socioeconomic areas and in remote areas (Figure 3). The diabetes prevalence rate was 2.9 times as high among Indigenous Australians as non–Indigenous Australians based on age–standardised self–reported data from the 2018−19 National Aboriginal and Torres Strait Islander Health Survey (ABS 2019b).

Generally, the impact of diabetes increases with increasing remoteness and socioeconomic disadvantage. Deaths related to diabetes were 1.9 times as high in *Remote and very remote* areas compared with *Major cities*, and 2.4 times as high in the lowest compared with the highest socioeconomic areas (Figure 3).

Figure 3: Impact of diabetes—Variation between selected population groups

Hover on the numbers for more information on the impact of diabetes in each population group.

Comparing rates for:	Indigenous /non-Indigenous	Remote and very remote / Major cities	Lowest / highest socioeconomic area
Having diabetes	2.9x	1.3x	1.9x
Hospitalised for diabetes	4.3x	2.7x	1.7x
Dying from diabetes	4.9x	1.9x	2.4x
Burden of disease	4.1x	1.8x	2.2x

Note: This figure uses age-standardised rates to remove the impact of differences in age structures between these groups.
Sources: ABS 2019a,2019b; AIHW 2021a, 2021d, 2021e, 2022a.
http://www.aihw.gov.au/

Impact of COVID–19

The onset of the COVID–19 pandemic has significantly impacted the Australian health system, including mortality, hospitalisations, health services, disease management and surveillance. Diabetes is one of many conditions correlated with greater health consequences throughout the COVID-19 pandemic including increased risk of complication and mortality (Peric and Stulnig 2020).

Diabetes incidence

Some studies have proposed a link between COVID-19, hyperglycaemia and new onset diabetes (Sathish et al. 2021). In the 12 months between March 2020–2021 and March 2021–2022, the NDSS had 118,800 and over 119,000 new registrants, respectively. Both periods were higher than any previous 12 months recorded (Diabetes Australia 2022).

However, these new registrations may be due, at least in part, to people who were previously diagnosed with diabetes only registering with the NDSS during the pandemic. The increase in registrations may also be influenced by changes to the NDSS to simplify the usual processes to register (Andrikopoulos and Johnson 2020). Further monitoring is required to assess the influence on diabetes diagnoses during the COVID–19 pandemic.

Mortality

According to ABS COVID-19 Mortality data from January 2020 to March 2022, pre-existing chronic conditions such as diabetes were reported on death certificates for 3,600 (73%) of the 4,900 deaths due to COVID-19 (ABS 2022). Diabetes was a pre-existing condition in 20% of the 3,600 deaths.

COVID-19 hospitalisations

In 2020–21, there were over 4,700 hospitalisations in Australia that involved a COVID-19 diagnosis. Around 42% of hospitalisations with a diagnosis of COVID-19 had one or more diagnosed comorbid conditions, such as type 2 diabetes or cardiovascular disease, an increase from 25% in 2019–20. Of the 4,700 hospitalisations involving a COVID-19 diagnosis, the most common comorbid conditions associated with COVID-19 hospitalisations over this period were type 2 diabetes (20%) and cardiovascular disease (which includes coronary heart disease and a range of other heart, stroke and vascular diseases) (20%) (AIHW 2022c).

Of those with a recorded comorbid diagnosis of type 2 diabetes:

- 12% of hospitalisations involved time spent in an intensive care unit, compared with 7.0% of all COVID-19 hospitalisations.
- 7.1% involved continuous ventilatory support, compared with 3.8% of all COVID-19 hospitalisations.
- 19% had a separation mode indicating the patient died in hospital, compared with 10.3% of all COVID-19 hospitalisations.

Monitoring

According to NPS MedicineWise analysis of MedicineInsight, the rate of HbA1c testing over the 6-months from 1 March 2020 to 31 August 2020 fell significantly among regularly attending patients with a record of type 2 diabetes compared to all regularly attending patients. The rate of type 2 diabetes encounters remained similar in both time periods. In the pre-COVID period, the average monthly rate of HbA1c testing among patients with a record of type 2 diabetes was 126.1 per 1000 clinical encounters, which fell to 109.0 tests per 1,000 clinical encounters in the COVID period (NPS MedicineWise 2020).

In April 2020, there was a significant decline in the rate of HbA1c tests performed. The rate of testing for patients with a record of type 2 diabetes fell from 120 tests per 1,000 clinical encounters in April 2019 to 77 tests per 1,000 clinical encounters in April 2020 (NPS MedicineWise 2020).

With the COVID–19 pandemic continuing, it is still too early to predict the long-term impacts on diabetes and other chronic conditions.

See 'Chapter 2 Changes in the health of Australians during the COVID-19 period' in Australia's health 2022: data insights.

Where do I go for more information?

For more information on diabetes, see:

- Diabetes
- Incidence of insulin–treated diabetes in Australia
- Indicators for the Australian National Diabetes Strategy 2016–2020: data update
- Incidence of gestational diabetes in Australia

Visit Diabetes for more on this topic.

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Health of people experiencing homelessness

Find the most recent version of this information at:
https://www.aihw.gov.au/reports/australias-health/health-of-people-experiencing-homelessness

People experiencing homelessness and those at risk of homelessness are among Australia's most socially and economically disadvantaged (see Glossary). Homelessness can result from many factors, such as whether a person is working, experience of family and domestic violence, ill health (including mental health) and disability, trauma, and substance misuse (Fitzpatrick et al. 2013).

Homelessness can expose people to violence and victimisation, result in long-term unemployment and lead to the development of chronic ill health. Some health problems can cause a person to become homeless. For example, poor physical or mental health can reduce a person's ability to find employment or earn an adequate income. Alternatively, some health problems are a consequence of homelessness, including depression, poor nutrition, poor dental health, substance abuse and mental health problems. Recent studies have also found that people experiencing homelessness also experience significantly higher rates of death, disability and chronic illness than the general population (Australian Human Rights Commission 2008).

Profile of people experiencing homelessness

On Census night in 2016, more than 116,000 people enumerated in the Census were homeless, up from 102,000 in 2011. Of these, 58% were male, 58% were aged under 35, and 20% identified as Aboriginal and Torres Strait Islander Australians (ABS 2018). Almost half (44%, or 51,100) were living in severely crowded dwellings, more than 21,200 (18%) were living in supported accommodation for the homeless, and 8,200 (7.0%) were sleeping rough. The rate of homelessness has fluctuated over time—from 51 per 10,000 population in 2001 to a low of 45 in 2006, increasing to 48 in 2011 and 50 in 2016 (ABS 2018).

The General Social Survey provides additional information on people experiencing homelessness in Australia. In 2014, an estimated 2.5 million people aged 15 and over had experienced homelessness at some point in their lives; 1.4 million of these had experienced at least 1 episode of homelessness in the previous 10 years, and 351,000 had experienced homelessness in the previous 12 months (ABS 2015).

Of those who had experienced homelessness in the previous 10 years:

- 1 in 7 (14% or an estimated 198,000 people) reported the tight housing market/rental market as the reason for their most recent experience of homelessness
- 13% (an estimated 190,000 people) reported financial problems as their reason for experiencing homelessness.

Information is also available from government-funded specialist homelessness services (SHS) across Australia that provide services supporting people who are experiencing homelessness or who are at imminent risk of homelessness. In 2020–21, around 278,300 clients received assistance from SHS, with around 111,100 clients homeless when they first began support (AIHW 2021).

For further information about the profile of people experiencing homelessness and the support provided by specialist homelessness services, see Homelessness and homelessness services.

Health impact of homelessness

While the causes of homelessness vary, there is a growing amount of research on the impact of insecure housing on health, and the associated costs to the health system (Davies & Wood 2018; Zaretzky & Flatau 2013). There are various forms of homelessness, including rough sleeping (the most visible form of homelessness), couch surfing, short-term or temporary accommodation, and severe overcrowding.

Meeting basic physical needs such as food, water and a place to sleep can be the most important day-to-day priority for people experiencing homelessness, especially those rough sleeping, and subsequently health needs are often not considered until an emergency arises (Wise & Phillips 2013). While rough sleeping is the least common form of homelessness in Australia (ABS 2018), the longer-term impacts of rough sleeping on health are typically more profound due to issues such as poor nutrition, living in harsh environments and high rates of injury (Fazel et al. 2014).

Severe overcrowding is a less obvious, but most common, form of homelessness in Australia, and is associated with different health impacts. For example, severe overcrowding places stress on the infrastructure of the dwelling, such as food preparation areas, bathrooms, laundry facilities and sewerage systems. It may lead to more rapid transmission of infectious disease and induce psychological stress (AIHW 2014).

Regardless of the form of homelessness, international research on the gap in life expectancy consistently reveals large differences among those who are experiencing homelessness compared to those who aren't—more than 30 years in the United Kingdom and the United States (Maness & Khan 2014; Perry & Craig 2015), and more than 10 years for people in marginal housing in Canada (Hwang et al. 2009).

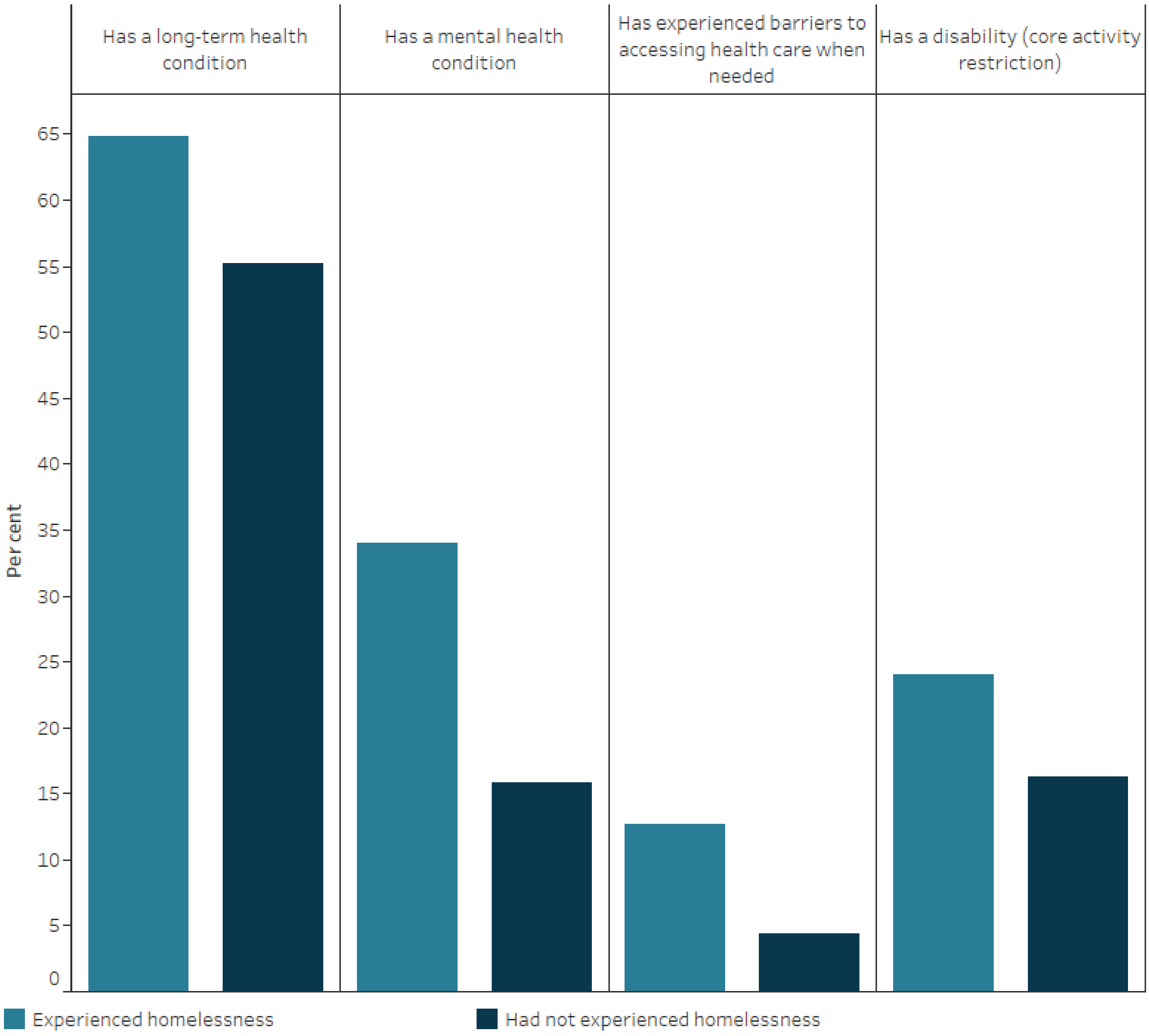
More recent research has shown that much of this gap is due to conditions which could be effectively treated with appropriate health care (Aldridge et al. 2019). A study from Scotland found that interactions with health services increased in the years prior to becoming homeless, with a peak in interactions around the time of the first assessment as homeless—particularly for services related to mental health or drug and alcohol misuse (Waugh et al. 2018). The authors submit that the pattern of health service use suggests that health services could play a role in preventing homelessness by identifying risk factors, and early intervention.

Self-assessed health

In 2014, around 1 in 4 (26%) people in Australia who had ever experienced homelessness assessed their health as fair or poor, compared with 14% of those who had not experienced homelessness (ABS 2015). (Note that the data source is limited to people who had experienced homelessness but who were living in private dwellings at the time of the survey.)

In general, a higher proportion of people who reported at least 1 experience of homelessness had a health condition or disability compared with those who had never had an experience of homelessness (Figure 1). People who had experienced homelessness were more likely to report having a mental health condition or a long-term health condition, with depression, back pain or back problems, anxiety and asthma the most commonly reported long-term conditions.

Figure 1: Self-assessed health status, by experience of homelessness, 2014



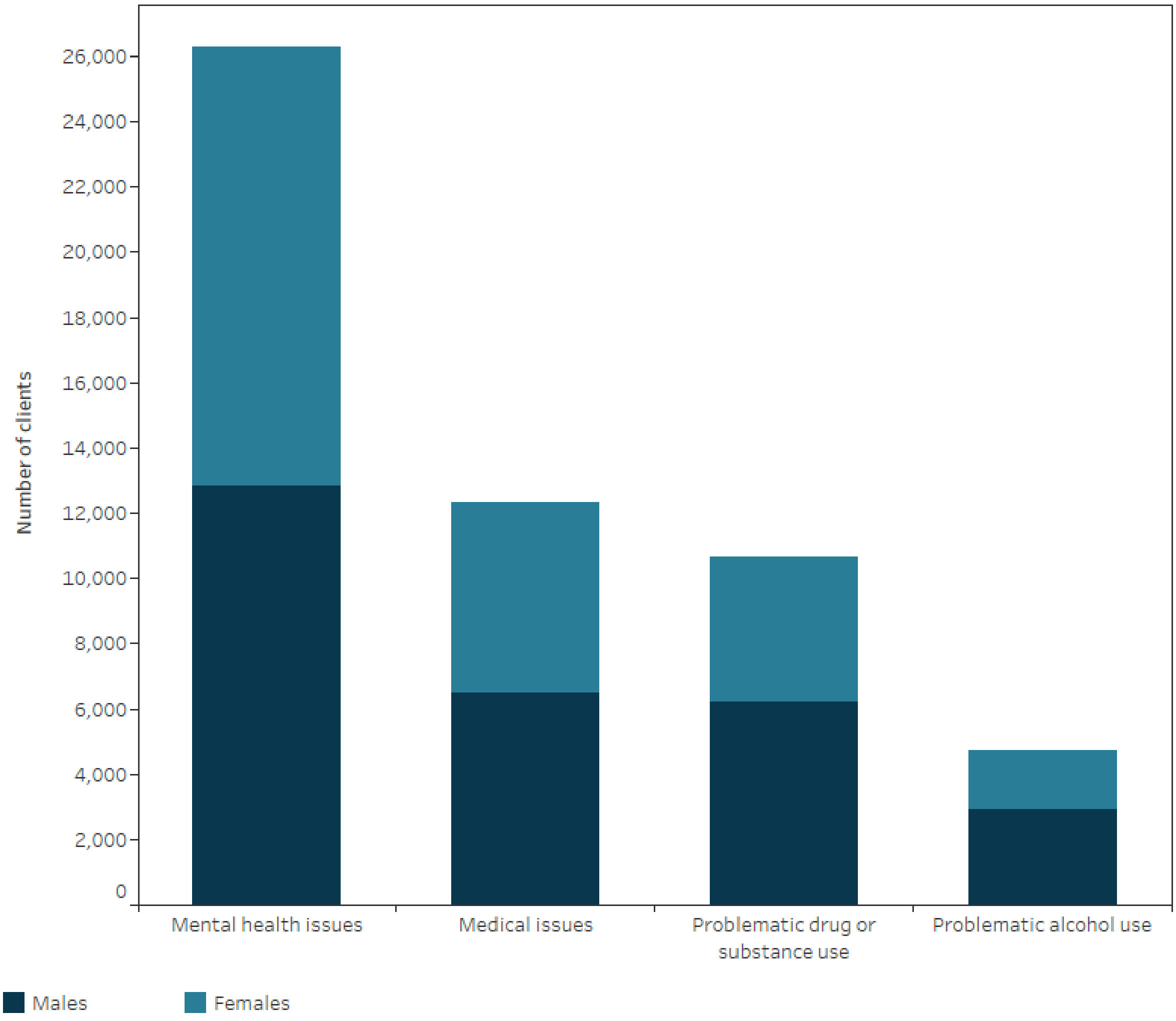
Source: AIHW analysis of ABS General Social Survey, June 2014, TableBuilder.
http://www.aihw.gov.au

Specialist Homelessness Services clients – health services

In 2020–21, almost one-third (32% or 34,300) of SHS clients who were homeless when they first presented to a SHS agency for assistance identified health-related reasons for seeking support. Around 1 in 10 (11%) clients presenting as homeless identified medical issues as a reason for seeking assistance. Some people had more than 1 health-related reason for seeking support (Figure 2):

- 26,300 clients identified mental health issues
- 12,300 clients identified medical issues
- 10,700 clients identified problematic drug or substance use
- 4,700 clients identified problematic alcohol use.

Figure 2: Number of SHS clients who were homeless at first presentation, by sex and health-related reasons for seeking assistance, 2020–21



Source: Specialist Homelessness Services Collection 2020–21, unpublished
http://www.aihw.gov.au

SHS agencies provide various services to clients, from accommodation to more specialised services such as health or medical services. When an SHS agency is unable to provide specialised services, clients can be referred to another agency, with health-related services among the most commonly referred service types.

In 2020–21, SHS clients who were homeless at first presentation needed a range of health-related services—around 14,300 clients needed health/medical services and over 5,800 needed drug/alcohol counselling (Table 1). Note that individual clients may have more than 1 need and SHS data does not cover whether referred clients eventually received the health care needed.

Table 1: Number of clients who were homeless at first presentation, by health-related service need, 2020–21

	Number of clients	Provided as percentage of need identified	Referred only as percentage of need identified	Not provided or referred as percentage of need identified[(a)]
Health/medical services	14,320	56.2	22.2	21.6
Mental health services	14,285	43.8	21.7	34.5
Drug/alcohol counselling	5,812	39.8	22.1	38.2

(a) Includes clients who refuse a service.

Source: Specialist Homelessness Services Collection 2020–21, unpublished.

Barriers to health care

While the impact of homelessness on health is known to be substantial, an unstable housing situation also presents challenges for the delivery of effective medical care, including barriers to referrals and follow-up care (Davies & Wood 2018).

In 2014, people who had experienced homelessness at least once in the previous 10 years were more likely to report experiencing a barrier to accessing health care when needed (13% of those who had experienced homelessness compared with 4.4% of those who had not experienced homelessness) (ABS 2015). Among those who were unable to obtain health care when needed, 2 in 5 (40%) identified cost of service as the main barrier to access, followed by long waiting times or a lack of available appointments (ABS 2015).

Illness and poor health can itself be a barrier to receiving health care. For example, mental illness can influence both attending appointments and the effectiveness of health care provided (Davies & Wood 2018). Feeling stereotyped or judged can also have an impact.

Physical barriers pose further challenges. For example, being able to afford public transport to attend appointments, having no mailing address or phone to receive appointment reminders, and being able to keep medications secure are difficulties faced by people in transient housing such as rough sleeping, couch surfing or short-term accommodation.

Where do I go for more information?

For more information on the health of people experiencing homelessness, see:

- Specialist homelessness services annual report
- Housing data dashboard
- Australian Bureau of Statistics (ABS) Census of Population and Housing: estimating homelessness, 2016
- ABS Information Paper—a statistical definition of homelessness, 2012

See Homelessness services for more on this topic.

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Infectious and communicable diseases

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https://www.aihw.gov.au/reports/australias-health/infectious-and-communicable-diseases

Infectious diseases are caused by infectious agents (bacteria, viruses, parasites and fungi and their toxic products). Many infectious diseases are also communicable diseases, meaning they can be passed from one person or animal to another. Transmission can occur directly (through contact with blood and bodily fluids) or indirectly (through contaminated food, water or surfaces) or by means of vectors (such as mosquitoes). Examples of these communicable diseases include measles (direct or indirect transmission), malaria (transmitted by mosquitoes), and chlamydia (direct transmission through sexual contact).

Throughout the 1900s, improved sanitation and new prevention and treatment options drastically reduced the burden of infectious diseases. Immunisation and vaccination is a key preventive measure against infectious and communicable diseases and has been highly successful at reducing infections from significant diseases. Australia's high vaccination coverage, along with well-developed disease surveillance and response systems, led to Australia being declared polio-free in 2000, and achieving measles elimination in 2014.

Although the burden of infectious diseases in Australia is relatively small (1.7% of total burden in 2018) (AIHW 2021), most people will experience an infectious disease during their lifetime – for example, a common cold or a stomach bug. Many infectious diseases have the potential to cause significant illness and outbreaks, as well as deaths. Some have developed resistance to antimicrobial agents, increasing the risk of more lengthy and complex treatment and poor outcomes (ACSQHC 2017).

COVID-19 pandemic (novel coronavirus – SARS-CoV-2)

SARS-CoV-2 is a coronavirus which was first observed in late 2019 and causes the disease known as COVID-19. The World Health Organization (WHO) declared COVID-19 a pandemic (that is, the worldwide spread of a new infectious disease) on 11 March 2020. By 1 May 2022, there had been over 511 million confirmed cases worldwide and more than 6.2 million confirmed deaths (WHO 2022b), although the true numbers are likely to be considerably higher due to under-detection and gaps in vital registration coverage (Phipps et al. 2020; WHO 2022a).

Early symptoms of COVID-19 include fever, fatigue and respiratory symptoms including coughing, sore throat and shortness of breath. The disease ranges from mild illness to serious illness possibly causing death. SARS-CoV-2 is related to other coronaviruses, such as those causing severe acute respiratory syndrome (SARS) and middle east respiratory syndrome (MERS), which have previously caused serious outbreaks.

The Commonwealth Department of Health’s website provides updated information about COVID-19 in Australia (see Department of Health COVID–19 current situation).

'Chapter 1 The impact of a new disease: COVID-19 from 2020, 2021 and into 2022’, 'Chapter 2 Changes in the health of Australians during the COVID-19 period’ and 'Chapter 3 Changes in Aboriginal and Torres Strait Islander people's use of health services in the early part of the COVID-19 pandemic’ in Australia’s health 2022: data insights look at how the pandemic has affected the health and health-related behaviour of Australians in general and Aboriginal and Torres Strait Islander people in particular.

In some cases, the illness caused by an infectious disease is mild and short-lived and medical care is not required or sought – for example, a cold. As a result, the prevalence of many infectious diseases is difficult to measure. To assist in understanding their impact, certain infectious diseases are notifiable conditions. When a diagnosis is made of one of these diseases, a report is made to health authorities. Notification means that trends in the number and characteristics of cases can be monitored over time from a consistent and comparable data set. Outbreaks can be detected in a timely way so that interventions can be implemented to prevent or reduce transmission. Monitoring, analysis and reporting on notifiable diseases occurs nationally via the National Notifiable Diseases Surveillance System (NNDSS).

Notifiable diseases

Notifiable diseases are a subset of infectious diseases. Legislation requires that each detected case is reported to state and territory health departments. Notifiable diseases include bloodborne diseases, gastrointestinal diseases, sexually transmissible infections, vaccine-preventable diseases, vector borne diseases, zoonoses, listed human diseases (including COVID-19), and other bacterial diseases (see National notifiable disease list).

This page highlights the impact of infectious diseases in Australia, both notifiable and non-notifiable.

How common are infectious diseases?

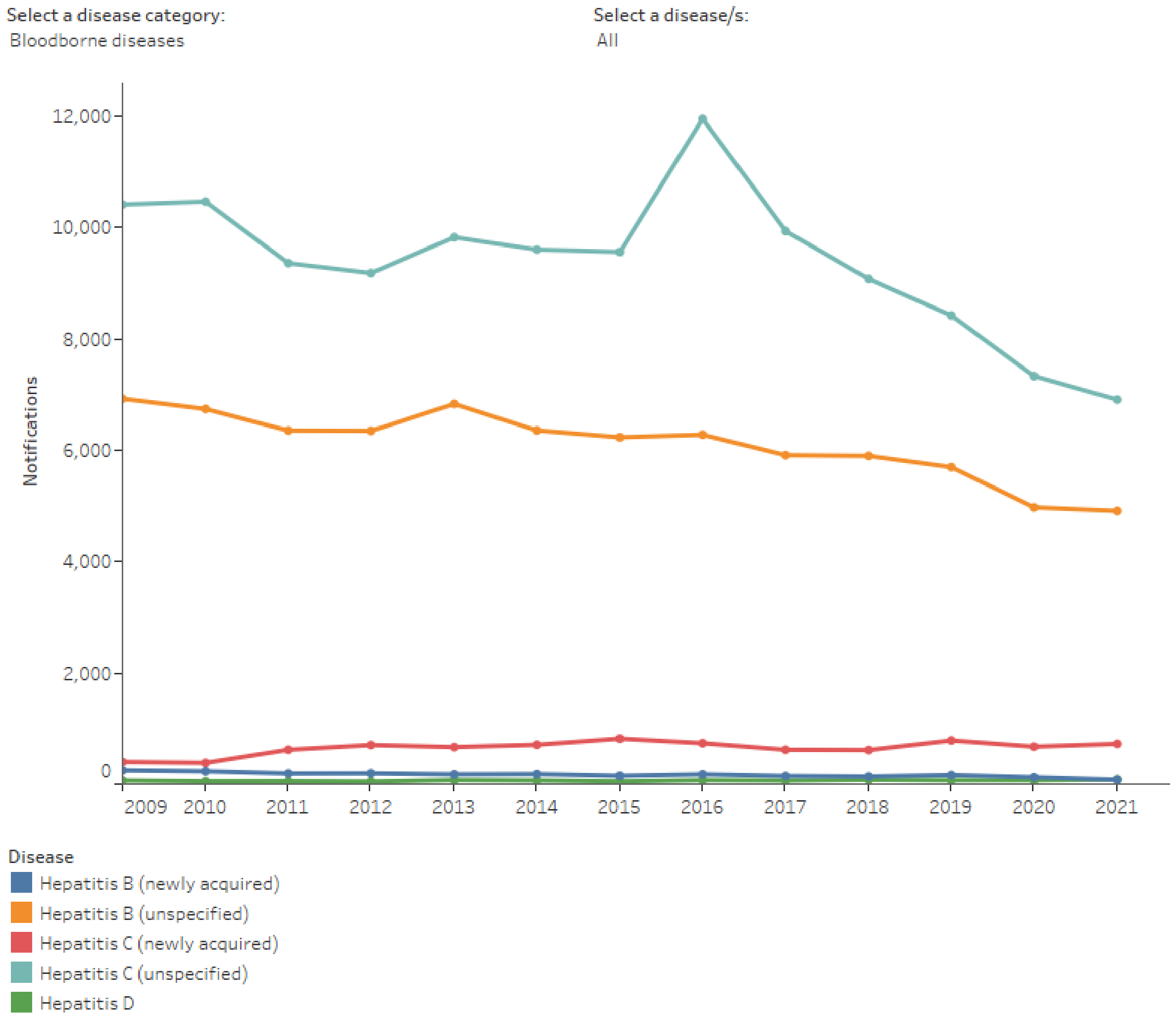
Notifiable diseases

Almost 702,000 cases of notifiable diseases were reported to the NNDSS in 2021. Four diseases accounted for 89% of notifications to Australian health authorities in 2021:

- COVID-19 – almost 471,000 notifications
- chlamydia (a sexually transmissible infection) – almost 86,000 notifications
- campylobacter (a gastrointestinal infection) – more than 37,000 notifications

- varicella zoster (which causes chickenpox and shingles) – more than 33,000 notifications combined (Figure 1).

Figure 1: Cases of notifiable infectious diseases, Australia, 2009–2021



Source: NNDSS data extracted 17 March 2022.
http://www.aihw.gov.au/

The impact of the pandemic on other infectious diseases

During the COVID-19 pandemic in 2020 and 2021, notifications of several other diseases were reduced (Bright et al. 2020).

- Notifications of diseases usually acquired overseas or offshore, such as dengue, Chikungunya virus and malaria, fell considerably.
- The number of cases of measles dropped from an average of around 155 cases per year between 2009 and 2019 to 25 in 2020 and 0 in 2021. Measles is highly infectious but is considered eliminated in Australia, meaning that local outbreaks can generally be linked to a case brought in from overseas.

- Influenza, usually responsible for the most notifications in Australia each year, fell from a 5-year average of 163,000 notifications per year over 2015–2019 to 21,363 in 2020 and 731 in 2021. The majority of influenza notifications in 2020 occurred in the first 3 months of the year, before the first lockdowns began.
- Notifications of chlamydia and gonorrhoea, which had been steadily increasing, were 16% and 22% lower, respectively, in 2021 compared with 2019.
- Notifications of shigellosis (a bacterial gastrointestinal infection) were 85% lower in 2021 compared with 2019.

Public health measures put in place to control the pandemic, such as physical distancing, international and local travel restrictions, lockdowns, mask-wearing and handwashing, would have also affected the spread of other infectious diseases, particularly respiratory viruses (Sullivan et al. 2020). In addition, people may have been less likely than usual to seek medical care for relatively minor illnesses, leading to under-diagnosis and under-reporting for some diseases. It is difficult to determine the relative contribution of these various factors to the declines.

Vaccine-preventable diseases

One key group among notifiable diseases is vaccine-preventable diseases. Many of these, including rubella (3 notifications in 2021), diphtheria (6 notifications in 2021) and tetanus (3 notifications in 2021) are rare in Australia, because of Australia's high immunisation rates (see Immunisation and vaccination). For some diseases, such as pertussis (whooping cough) and measles, the number of notifications can increase during outbreak periods because people with low or no immunity can be infected.

Up until 2019, influenza, usually preventable by vaccination, accounted for the most notifications in Australia each year. Notifications had generally increased over time but annual totals fluctuated from year to year depending on the particular type of influenza circulating in the population, and on factors such as the amount of laboratory testing of unwell people, or the types of tests used. As noted above, however, the number of influenza notifications decreased substantially during the COVID-19 pandemic.

Sexually transmissible infections

The number of notified sexually transmissible infections (STI) has generally increased over the last decade, though dropping during the COVID-19 pandemic, with chlamydia being the most commonly notified STI (almost 86,000 notifications in 2021). Varying prevention and control measures are used by public health authorities depending on the type of infection. Monitoring of the priority populations most commonly affected by STI allows targeted prevention programs to be designed.

An ongoing outbreak of infectious syphilis among young Indigenous Australian adults in Queensland, the Northern Territory, Western Australia and South Australia has contributed to increasing numbers of notifications over the last decade. Since January 2011 the outbreak has resulted in almost 4,500 notifications in these jurisdictions (Department of Health 2022). In general, new syphilis cases in Australia are diagnosed mainly in men who have sex with men in urban areas, or young Indigenous Australians in *Remote* or *Very remote* regions, although more recently increased numbers of cases have occurred among non-Indigenous women of reproductive age (15–44 years) in urban areas (Department of Health 2022).

STI notifications among Indigenous Australians are disproprotionately higher than in non-Indigenous Australians. Lack of access to culturally appropriate health services for testing and treatment, combined with the effect of social determinants, increase the risk of STI for Indigenous Australians (Kirby Institute 2018; Wand et al. 2016; Ward et al. 2020). Collection of information about testing for STI among Indigenous Australians aged 15–34 is being piloted in 2022 as part of the national Key Performance Indicators (nKPIs) for Indigenous-specific primary health care organisations (see AIHW 2022 for more information about the nKPI collection).

The ongoing response to the rise in STI in Australia is being coordinated by the Department of Health through the National Blood Borne Viruses and Sexually Transmissible Infections Strategies. The next iteration of the Strategies for 2023–2030 is in development, with the overarching goal of eliminating blood borne viruses and STI as public health threats by 2030.

Non-notifiable diseases

Non-notifiable infectious diseases are not routinely monitored, though their impact can be tracked through assessing presentations to hospital, or through mortality data. These data sources capture the small proportion of people who have severe illness, causing hospitalisation or resulting in death. Information on hospitalisations and deaths from non-notifiable infectious diseases is presented in the following sections.

Classifying non-notifiable infectious diseases

Non-notifiable infectious diseases are broadly categorised based on the International Statistical Classification of Diseases and Related Health Problems, 10th Revision, Australian Modification (ICD-10-AM) codes for hospitalisations and International Statistical Classification of Diseases and Related Health Problems, 10th Revision (ICD-10) for deaths. The categories used here include gastrointestinal infections (other than those which are notifiable), upper respiratory tract infections, lower respiratory tract infections (excluding influenza), other meningitis and encephalitis, trachoma, abscess causing pneumonia[(a)], otitis media, unspecified viral hepatitis, and other infections.

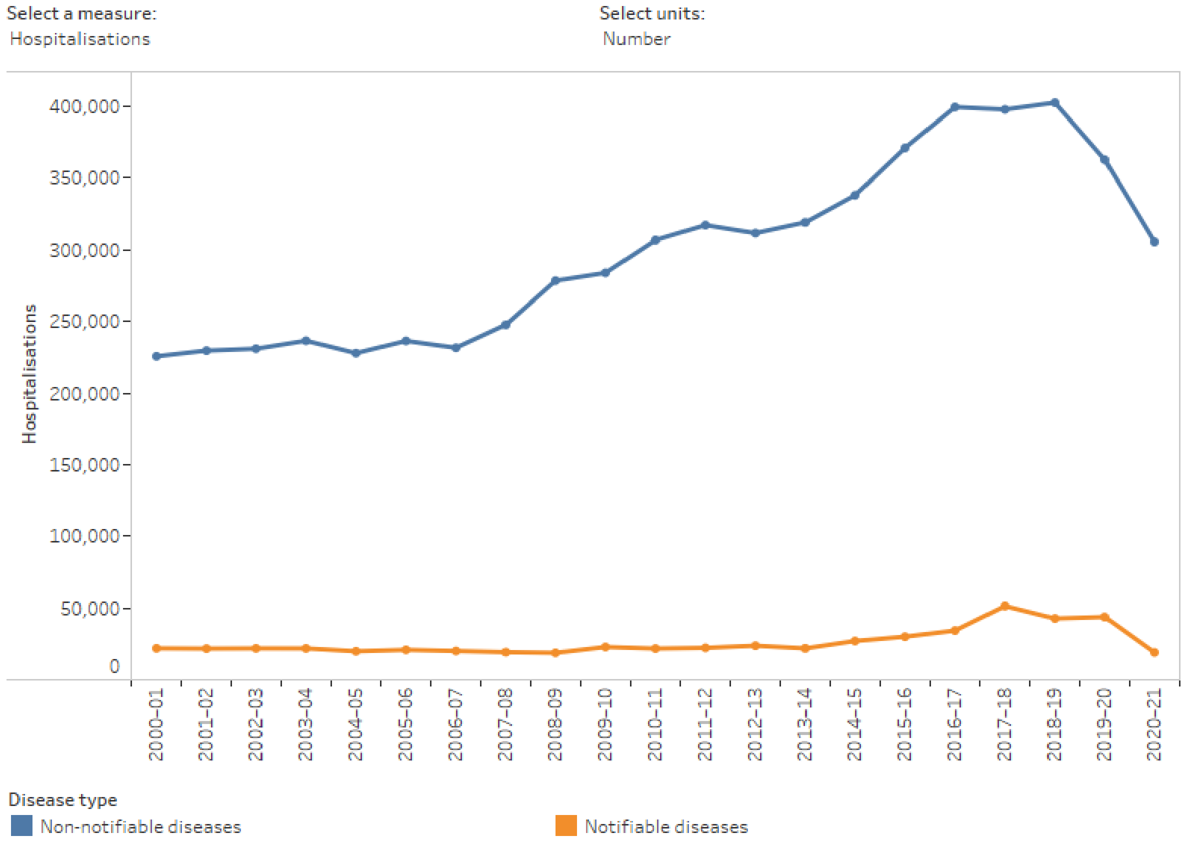
* not listed as a separate category in mortality coding

The impact of infectious diseases

Hospitalisations

In 2020–21, there were more than 324,000 hospitalisations for infectious diseases, of which 94% were for non-notifiable diseases. The hospitalisation rate for non-notifiable infectious diseases generally increased between 2006–07 and 2016–17, before stabilising at around 16 per 1,000 people (Figure 2). The rate dropped considerably during the following 2 years, falling to 14.2 per 1,000 in 2019–20 and 11.9 per 1,000 in 2020–21.

Figure 2: Deaths and hospitalisations from notifiable and non-notifiable infectious diseases, numbers and rates, Australia, 2000–01 to 2020–21



Notes
1. Hospitalisations based on principal diagnosis. Deaths based on underlying cause of death.
2. Rates are presented as crude rates per 1,000 people for hospitalisations and crude rates per 100,000 people for deaths.
3. These data have been adjusted for Victorian additional death registrations in 2019. For more detail please refer to 'Technical note: Victorian additional registrations and time series adjustments' in Causes of death, Australia methodology, 2019.
Sources: AIHW National Hospital Morbidity Database, AIHW National Mortality Database.
http://www.aihw.gov.au/

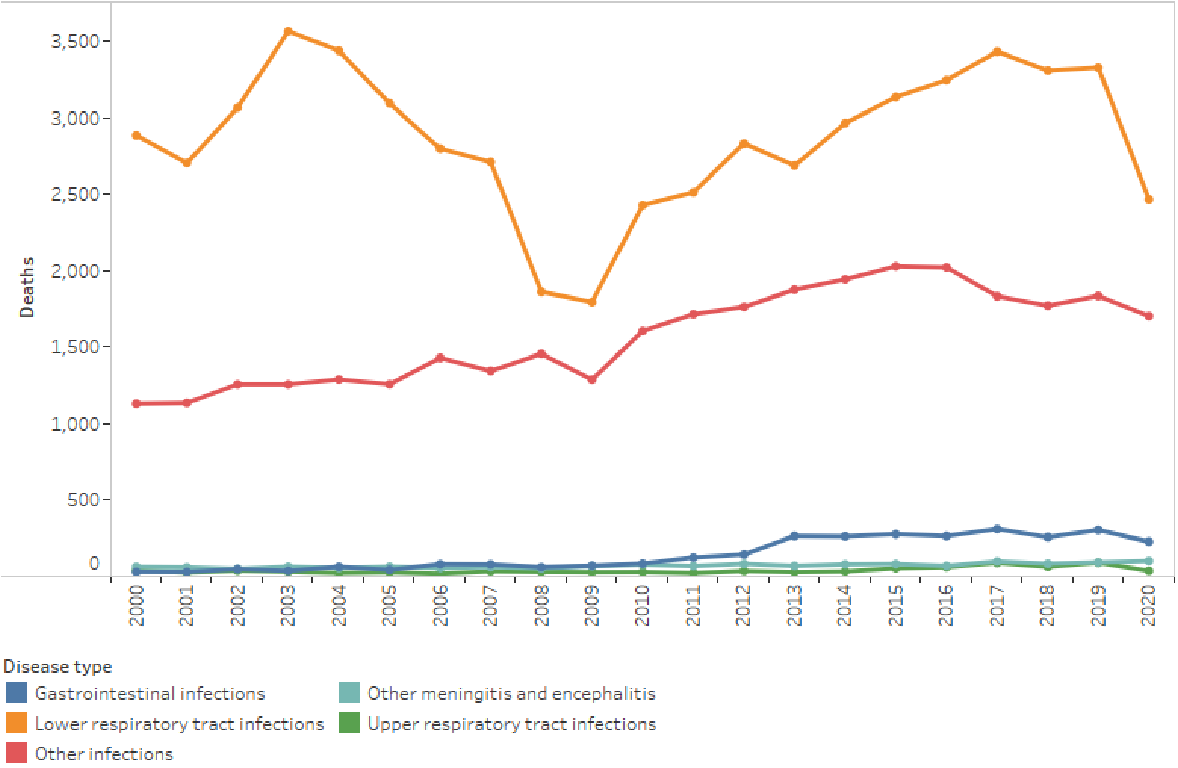
The most common causes of infectious disease hospitalisation across all years were lower respiratory tract infections (including pneumonia and bronchitis, but excluding laboratory-diagnosed influenza, which is notifiable). Lower respiratory infections had been generally increasing between 2000–01 (464 hospitalisations per 1,000 people) and 2018–19 (588 per 1,000), but this fell to 515 per 1,000 in 2019–20 and then to 390 per 1,000 in 2020–21 (Figure 3). If the trend observed between 2000–01 and 2018–19 had continued, rates of around 600 per 1,000 would have been expected in the following 2 years.

Figure 3: Deaths and hospitalisations from non-notifiable infectious diseases, by disease type, numbers and rates, Australia, 2000–01 to 2020–2021

Select a measure: Deaths

Select units: Number

Select a disease type: All



Notes

1. Hospitalisations based on principal diagnosis. Deaths based on underlying cause of death.
2. Rates are presented as crude rates per 100,000 people for both hospitalisations and deaths.
3. These data have been adjusted for Victorian additional death registrations in 2019. For more detail please refer to 'Technical note: Victorian additional registrations and time series adjustments' in Causes of death, Australia methodology, 2019.

Sources: AIHW National Hospital Morbidity Database, AIHW National Mortality Database.
http://www.aihw.gov.au/

The hospitalisation rate for notifiable infectious diseases ranged between 0.9 and 2.1 per 1,000 people over the period 2000–01 to 2019–20 but dropped to 0.7 per 1,000 in 2020–21 (Figure 2). Influenza was the most common cause of notifiable disease hospitalisations in most years over the past decade, though highly variable from year to year, ranging from 2,185 to 30,808 hospitalisations (from 10 to 125 to hospitalisations per 1,000 people). In 2020–21, however, there were only 368 hospitalisations for influenza, a rate of 1.4 per 100,000 people. This is consistent with the fall in the number of notified cases described above.

In 2020–21 there were more than 4,700 hospitalisations where COVID-19 infection was recorded. As per Australian coding rules (IHPA 2021), in almost all cases COVID-19 was not specified as the principal diagnosis. Instead, the most common principal diagnoses recorded along with COVID-19 were viral pneumonia (24% of cases), 'coronavirus infection' (19%), and symptoms such as cough (9.9%), fever (6.6%) and breathing abnormalities (4.8%).

See Hospitals for more information on hospitalisation in Australia.

Deaths

In 2020, more than 5,800 deaths in Australia were attributed to infectious diseases, a rate of 23 per 100,000 people. Just over three-quarters (78%) of these deaths were attributed to non-notifiable diseases, the most common of which were lower respiratory infections (almost 2,500 deaths, 9.6 per 100,000) (Figure 2, Figure 3).

In 2020, there were 905 deaths with COVID-19 as the underlying cause (3.5 per 100,000 people). COVID-19 was the most common notifiable disease causing deaths in 2020. Influenza, which was the most common cause of notifiable disease deaths between 2014 and 2019, was recorded as the underlying cause of 54 deaths in 2020. A further 1,306 deaths with COVID-19 as the underlying cause were registered in 2021 (ABS 2022). More information on deaths from COVID-19 is provided in 'Chapter 1 The impact of a new disease: COVID-19 from 2020, 2021 and into 2022' in Australia's health 2022: data insights. See Causes of death for more information on deaths in Australia.

Where do I go for more information?

For more information on infectious diseases, see:

- Vaccine-preventable diseases
- The burden of vaccine preventable diseases in Australia
- The burden of vaccine preventable diseases in Australia—summary
- Department of Health COVID-19 pandemic
- Department of Health Communicable diseases
- Department of Health Syphilis and Infectious syphilis outbreak
- Department of Health Australian Influenza Surveillance Report and Activity Updates

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Injury

This topic summary is part of the Injury in Australia report.

Injuries are a major health care issue in Australia. In the latest years for which data was available, injuries accounted for:

- over 527,000 hospitalisations
- over 13,400 deaths – injury is the leading cause of death for people aged 1–44
- 8.4% of the burden of disease in Australia
- 7.6% ($8.9 billion) of health expenditure in Australia.

In 2019–20, there were around:

527,000 injury hospitalisations

2,100 per 100,000 population

13,400 injury deaths

53 per 100,000 population

Defining injury hospitalisations and deaths

This report aims to count and describe injury incidents that result in hospital admission/s and/or death.

Our counting method is different to some other AIHW reporting, where each use of a service may be counted (e.g. MyHospitals), rather than each causal incident. A single incident can lead to more than one use of a service. Our exclusion method minimises double-counting where possible.

If a person dies from an injury after being admitted to hospital, both the hospitalisation and the death were counted for this report.

Injury hospitalisations

The terms 'injury hospitalisation', 'hospitalised injury' and 'hospitalised case' in this report refer to incidents where a person was admitted to hospital with injury as the main reason. If a single incident led to an admission in more than one hospital, the incident has only been counted once. Details are in the Technical notes.

Hospitalisation exclusions

To avoid double-counting hospitalised injuries, we have excluded admissions that are transfers from another hospital and admissions with rehabilitation procedures (except for acute hospital admissions).

Emergency department (ED) care is a form of non-admitted hospital care and not counted here. See the AIHW MyHospitals topic for information on ED presentations due to injury.

Injuries caused by complications of surgery or other medical care, or injuries that are a subsequent condition caused by a previous injury, are not included in this report.

Month of admission analysis

Month of admission data was produced to illustrate seasonal trends and the impact of COVID-19 restrictions after March of 2020. The sum of the monthly counts are slightly different than the annual totals used everywhere else for two reasons. Firstly, the monthly totals were adjusted to suit comparison between months of different length. Secondly, the annual totals used everywhere else are based on separations rather than admissions.

Injury deaths

While death records have many of the same fields as hospital records, there are subtle differences in the way they are structured.

It’s not always possible to determine the main cause of death when multiple causes are involved. For this reason, a different selection criteria must be applied to reasonably identify where injuries played a role. As a result, each death where injury played a role has been counted once in the total for this report, but in some cases counted in more than one external cause category.

For details about methodology, see the Technical notes.

International health data comparisons

Find the most recent version of this information at:
https://www.aihw.gov.au/reports/international-comparisons/international-health-data-comparisons

Comparing health data between countries supports policy planning and decision-making and enables international health-related research and analysis.

The interactive visualisation on this page allows you to compare data from 38 Organisation for Economic Co-Operation and Development (OECD) member countries across a range of health and health care indicators, with a focus on Australia's international performance.

This page aims to provide a high-level comparison of international health data (see Figure 1 below for a visual overview). For a detailed focus of health indicators at a national level, see Australia's Health Performance Framework indicators.

All data reported on this page are derived from OECD Health Statistics 2021 unless otherwise noted. The latest year of data available for some countries on these indicators at the time of this report was 2020 (or latest available year). In circumstances where none of the 38 member countries had available data for 2020, the latest reporting period for any of the member countries was used as the reference year (for example, 2012 for cancer incidence).

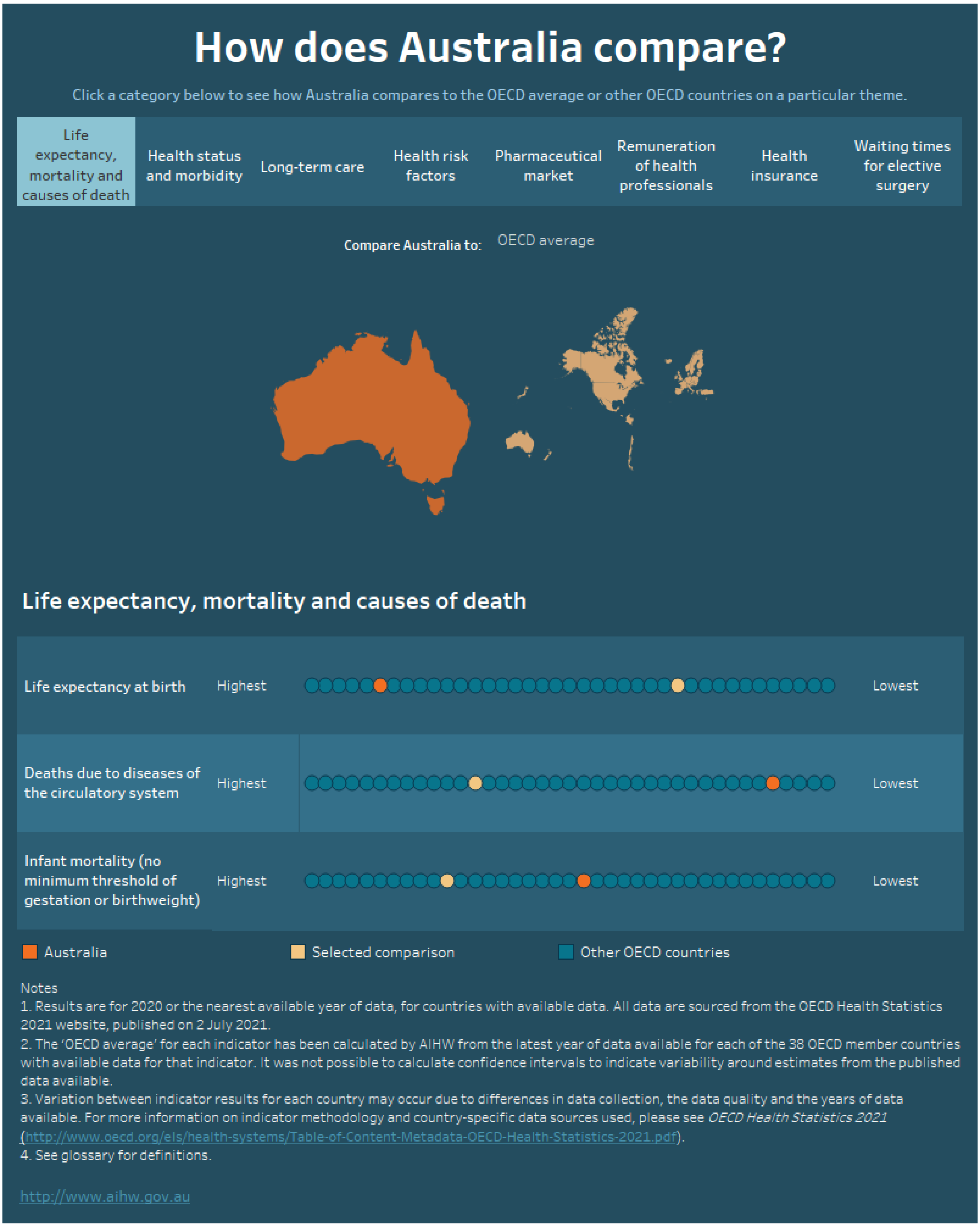
Some of the data presented in this report precedes the COVID-19 pandemic. For a brief overview of available data, please go to the Health data and COVID-19 section of this report.

For further detail on definitions, sources, notes, indicators, and data availability, please refer to the OECD website.

How does Australia's health compare with other OECD countries?

Click through the categories at the top of the visualisation to change the set of indicators.

Figure 1: How does Australia compare?



How does Australia compare?

Click a category below to see how Australia compares to the OECD average or other OECD countries on a particular theme.

Life expectancy, mortality and causes of death

Notes
1. Results are for 2020 or the nearest available year of data, for countries with available data. All data are sourced from the OECD Health Statistics 2021 website, published on 2 July 2021.
2. The 'OECD average' for each indicator has been calculated by AIHW from the latest year of data available for each of the 38 OECD member countries with available data for that indicator. It was not possible to calculate confidence intervals to indicate variability around estimates from the published data available.
3. Variation between indicator results for each country may occur due to differences in data collection, the data quality and the years of data available. For more information on indicator methodology and country-specific data sources used, please see *OECD Health Statistics 2021* (http://www.oecd.org/els/health-systems/Table-of-Content-Metadata-OECD-Health-Statistics-2021.pdf).
4. See glossary for definitions.

http://www.aihw.gov.au

Life expectancy, mortality and causes of death

In 2020 (or based on the latest year of data):

- Australia’s life expectancy at birth was 83.0 years – above the OECD average of 80.6 years, and the sixth highest among OECD countries. The highest life expectancy was in Japan, where people could expect to live 84.4 years at birth.
- Australia’s infant mortality rate (with no minimum threshold of gestation period or birthweight) was 3.3 deaths per 1,000 live births – below the OECD average of 4.2 deaths per 1,000 live births. Iceland experienced the lowest rate of infant mortality (1.1 deaths per 1,000 live births).

In 2019 (or based on the latest year of data):

- The most common disease group for causes of death among Australians was neoplasms, with malignant neoplasms (cancer) at 180.2 deaths per 100,000 population (age-standardised to the 2010 OECD population). This was followed by diseases of the circulatory system at 159.4 deaths per 100,000 population (age-standardised to the 2010 OECD population). These were also the most common causes of death across OECD countries.

Health status and morbidity

In 2020 (or based on the latest year of data):

- Among those aged 15 and over, Canadians were most likely to perceive their health as ‘good/very good’ (89%), followed by those living in the United States (88%), New Zealand (87%) and Australia (85%). Those living in Korea (34%) and Japan (37%) were least likely to rate their health as ‘good/very good’.
- Among OECD countries, Colombia, Greece, and Japan had the highest proportion of low birthweight babies, at 9.4% of total live births. The proportion of low birthweight babies in Australia was 6.7%, slightly higher than the OECD average, 6.5% of total live births.

In 2012 (or based on the latest year of data):

- Australia had the second highest rate of cancer (all malignant neoplasms (C00-C97)) among OECD countries (323 cases per 100,000 population), while Denmark had the highest rate (338 per 100,000 population).
- Relatively high cancer incidence rates for Australia may be due in part to Australia’s high-quality and virtually complete cancer incidence data. Across OECD countries, the quality and completeness of cancer registry data may vary, in turn affecting the cancer incidence rates provided to the OECD and presented here.

Long-term care

In 2020 (or based on the latest year of data):

- The number of beds in Australia’s residential long-term care facilities per 1,000 population aged 65 and over (51.9 per 1,000) ranked equal eighth highest, out of the 33 countries with available data. This was higher than the OECD average of 42.2 per 1,000.

- Australia had the fourth highest proportion (5.9%) of long-term care recipients in institutions (other than hospitals) for the population aged 65 and over, out of the 30 countries with available data. This was higher than the OECD average of 4.0%.
- Australia had the 10th highest proportion (6.2%) of formal long-term care workers for the population aged 65 and over, out of the 22 countries with available data. This was higher than the OECD average of 5.8%.

It should be noted that definitions of long-term care varies between countries and this may impact the ranking of Australia compared to other OECD countries.

Health risk factors

In 2020 (or based on the latest year of data):

- Australia had the eighth lowest proportion of daily smokers among people aged 15 and over (11.2%), with Turkey ranking highest at 28%.
- Australia was above the OECD average for litres per capita of pure alcohol consumed by people aged 15 and over, at 9.5 litres compared with 8.7 litres per capita. The highest amount of alcohol consumed was in Latvia (12.9 litres per capita), while the lowest was in Turkey (1.3 litres per capita).
- Australia had the eighth highest proportion of people aged 15 and over who are overweight and obese (65%), out of the 22 countries that reported measured height and weight data. This was higher than the OECD average of 59%.

Pharmaceutical market

In 2020 (or based on the latest year of data):

- Total pharmaceutical sales per capita ($US purchasing power parity) were highest in Greece, at $US1,084. Australia's pharmaceutical sales were equivalent to $US416 per capita, lower than the OECD average ($US561 per capita).

Remuneration of health professionals

In 2020 (or based on the latest year of data):

- Self-employed general practitioners in Australia had the fourth lowest annual income among 15 OECD countries, at around $US94,511 (adjusted for purchasing power parity).
- For self-employed specialists, the annual income in Australia was fifth lowest among 12 OECD countries, at around $US197,505 per year (adjusted for purchasing power parity).
- Salaried hospital nurses in Australia earned the sixth highest annual income among 35 OECD countries, at around $US67,949 (adjusted for purchasing power parity).

It should be noted that average salaries for healthcare professionals are converted to USD Purchasing Power Parities (PPPs) for private consumption to bring them in line with average earnings calculations across the OECD. Average salaries derived from the OECD Health Statistics 2021 (as is presented above) cannot be compared with data from previous versions.

Health insurance

In 2020 (or based on the latest year of data):

- Australia was among 23 OECD countries in which 100% of the population were covered by public or primary private health insurance. Mexico ranked lowest for this indicator, with 72% of its population covered by public or private health insurance.
- The proportion of the total population covered by government or social health insurance for health care across countries ranged from 100% (in Australia and others) to 37% in the United States – well below the OECD average of 96%.
- Across 30 OECD countries with available data, the proportion of the total population covered by private health insurance (all types) was highest in Belgium, at 98%. The proportion of the population covered by private health insurance (all types) in Australia was above the OECD average, at 53% (OECD average 35%).

Waiting times for elective surgery

In 2020 (or based on the latest year of data), there were procedures where the median waiting time in Australia from specialist assessment to treatment was different than the OECD average. These included:

- coronary bypass (18 days), below the OECD average of 26 days
- hysterectomy (63 days), above the OECD average of 58 days.

The median waiting time in Australia from specialist assessment to treatment for hip replacement was similar to the OECD average (120 and 119 days, respectively).

Health data and COVID-19

The COVID-19 pandemic has led to substantial disruption worldwide. Throughout various stages of the virus, many countries around the world introduced restrictions (such as travel bans and strong physical distancing policies) to contain the spread of COVID-19.

Some of the data presented in this report precedes the COVID-19 pandemic. However, data since the start of the pandemic suggests that Australia performed well across OECD countries on the direct impacts of COVID-19 on health in the early stages of the pandemic.

For example, from January 2020 to early October 2021, Australia had reported:

- the second lowest prevalence of COVID-19 infections per 100,000 population
- the third lowest number of confirmed or suspected COVID-19 deaths per million population, among OECD member countries (OECD 2021).

Additionally, Australia was one of 5 OECD member countries that reported very low excess mortality between January 2020 and June 2021 (OECD 2021).

However, the number of COVID-19 cases in Australia increased in early 2022, following the introduction of the omicron variant in December 2021. By 30 April 2022, the cumulative incidence of COVID-19 was 231,000 cases per million people (Ritchie et al. 2022).

It should be noted that the circumstances surrounding COVID-19 are still unfolding internationally, and there is limited data currently available to compare how Australia performed against other OECD countries in terms of the indirect effects of COVID-19 (such as health service performance) and the longer-term impacts on health.

For an Australian-specific overview of direct and indirect impacts of COVID-19, see, 'Chapter 1 The impact of a new disease: COVID-19 from 2020, 2021 and into 2022' and 'Chapter 2 Changes in the health of Australians during the COVID-19 period' in Australia's health 2022: data insights.

Where do I go for more information?

For more information on international comparisons of health data, see:

- International comparisons of welfare data
- A working guide to international comparisons of health
- Organisation for Economic Co-operation and Development (OECD) OECD.Stat
- OECD Data website.

Visit International comparisons for more on this topic.

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Mental health

This topic summary is part of the Mental health services in Australia report.

Mental health is a key component of overall health and wellbeing (WHO 2013). The National Survey of Mental Health and Wellbeing conducted in 2007 found that an estimated 1 in 5 (20%) Australians aged 16–85 experienced a mental disorder in the previous 12 months (ABS 2008). A mental illness can be defined as 'a clinically diagnosable disorder that significantly interferes with a person's cognitive, emotional or social abilities' (COAG Health Council 2017). The term itself covers a range of illnesses including anxiety disorders, affective disorders, psychotic disorders and substance use disorders.

However, a person does not need to meet the criteria for a mental illness or mental disorder to be negatively affected by their mental health (COAG Health Council 2017; Slade et al. 2009). Mental health impacts and is impacted by multiple socioeconomic factors, including a person's access to services, living conditions and employment status. Mental health affects not only the individual but also their families and carers (Slade et al. 2009; WHO 2013).

How common is mental illness?

Measuring mental health

The National Survey of Mental Health and Wellbeing was a program of 3 targeted mental health epidemiological surveys that based their classification of mental disorders on existing diagnostic criteria to estimate prevalence (ABS 2008). The 3 surveys included the National Survey of Mental Health and Wellbeing, the National Survey of People Living with Psychotic Illness, and the Australian Child and Adolescent Survey of Mental Health and Wellbeing (AIHW 2020). The data obtained from these surveys are due to be updated in 2020–21 as part of the Intergenerational Health and Mental Health Study, which will consist of 4 surveys over 3 years (ABS 2019; AHHA 2019). The National Study of Mental Health and Wellbeing will update data on the prevalence of mental disorders from 2007. Another source of information about the mental health of Australians is the Australian Bureau of Statistics (ABS) National Health Survey 2017–18, which provides data on a range of health conditions including mental and behavioural disorders. The National Health Survey estimates are based on self-reported data and record a participant as having a mental or behavioural condition during the collection period only if it was also reported as long-term (had lasted, or was expected to last, a minimum of 6 months) (ABS 2018).

Together, these surveys provide an overview of the prevalence of mental disorders in Australia.

The 2007 National Survey of Mental Health and Wellbeing estimated that:

- Nearly 1 in 2 (46%) Australians aged 16–85 had experienced a mental disorder during their lifetime.
- 1 in 5 (20%) people who had experienced a mental disorder in their lifetime had symptoms in the 12 months before the survey interview. For these people, anxiety disorders were the most prevalent type of disorder (14%), followed by affective disorders (6.2%) and substance use disorders (5.1%).
- A higher proportion of males than females (48% compared with 43%) had experienced a mental disorder in their lifetime, however, a higher proportion of females than males (22% compared with 18%) had experienced symptoms in the 12 months before the survey.
- 16–24-year-olds (26%) were most likely to have experienced symptoms of a mental disorder in the previous 12 months while those aged 75–85 years were the least likely (5.9%).
- Over 2 in 5 (43%) people with a disability status of profound or severe core-activity limitation experienced symptoms of a mental disorder in the 12 months before the survey, compared with 17% of people with no disability or limitations (ABS 2008). See Health of people with disability.

The National Survey of People Living with a Psychotic Illness 2010 estimated that:

- 64,000 (or 4.5 cases per 1,000 population) people with a psychotic illness, who were aged 18–64, were in contact with public specialised mental health services in a 12-month period.
- The prevalence of psychotic illness was higher for males than for females (5.4 and 3.5 cases per 1,000 population, respectively). The age groups with the highest prevalence were 25–34 and 35–44 (5.6 cases per 1,000 population for both age groups) (Morgan et al. 2011).

The Australian Child and Adolescent Survey of Mental Health and Wellbeing 2013–14 (Young Minds Matter) estimated that, in the 12 months before the survey:

- 560,000 children and adolescents aged 4–17 (14%) experienced a mental disorder.
- Males had a higher prevalence of mental disorders (16%) than females (12%).
- Of the mental disorders experienced by participants, the following were most prevalent: attention deficit hyperactivity disorder (ADHD) (7.4%); anxiety disorders (6.9%); major depressive disorder (2.8%); and conduct disorder (2.1%) (Lawrence et al. 2015). See Health of young people.

The National Health Survey 2017–18 estimated that:

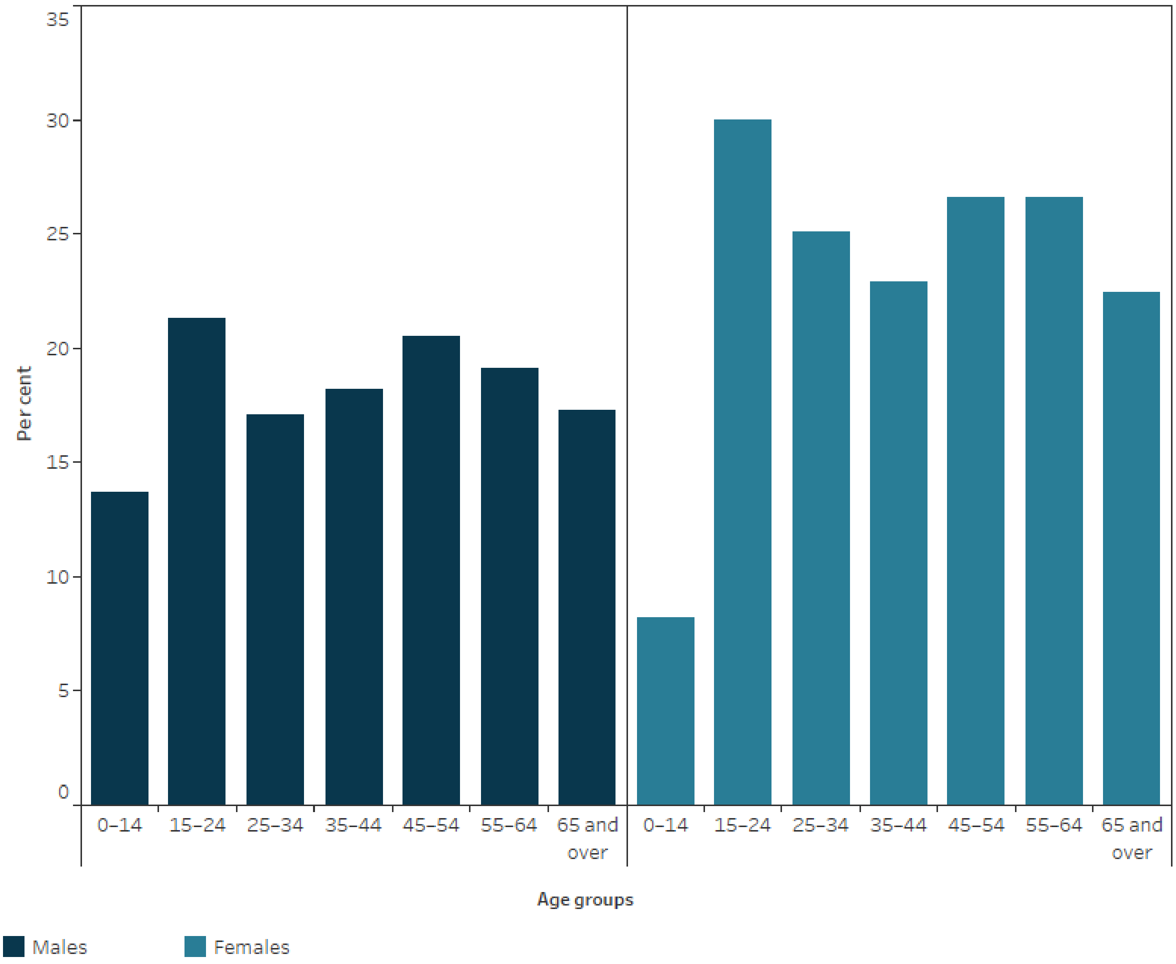
- 1 in 5 (20% or 4.8 million) Australians reported that they had a mental or behavioural condition during the collection period (July 2017 to June 2018).
- Females reported a higher proportion of mental or behavioural conditions (22%) than males (18%).

- Overall, those aged 15–24 years had the highest proportion of mental or behavioural conditions (26%) while those aged 0–14 years had the lowest (11%) (Figure 1).

Why is the most recent data from 2017–18

The National Health Survey 2020–21 was collected online during the COVID-19 pandemic and is a break in time series. Data should be used as point-in-time analysis only and can’t be compared to previous years,

Figure 1: Proportion of Australians with current long-term mental or behavioural conditions, by age group and sex, 2017–18



Note: Refers to individuals who reported having a current medical condition (at the time of interview) which has lasted, or is expected to last, for 6 months or more, unless otherwise stated.
Source: ABS 2018.
https://www.aihw.gov.au

The impact of COVID-19

The potential for COVID-19 to impact mental health and wellbeing was recognised early in the pandemic (WHO 2020). In addition to concerns around contracting the virus itself, some of the measures necessary to contain its spread were also likely to negatively impact mental health (NHMC 2020). Widespread movement restrictions, social distancing measures and physical isolation, or ‘lockdowns’ were implemented from March 2020. The sudden loss of employment and social interaction, the added stress of moving to remote work or schooling and impacts of sudden ‘localised’ lockdowns to prevent further outbreaks have impacted the mental health of many Australians. Stress, confusion and anger are commonplace as a result of the pandemic (Brooks et al. 2020) and, while many people may not experience any long-term concerns, the pandemic has the potential to contribute to or exacerbate long-term mental illness.

Throughout 2020 and 2021, research has gathered evidence revealing heightened psychological distress during the pandemic (Aknin et al. 2021). There was a rise in the use of mental health services, which continues, and an increase in psychological distress during 2020. COVID-19 has not been associated with a rise in suspected deaths by suicide. See COVID-19 Impact on mental health for more information.

Impact

Burden of disease

Mental illness affects not just the individual but the wider community as well. The total burden of disease on a population is defined as the combined loss of years of healthy life due to premature death (known as fatal burden) and living with ill health (known as non-fatal burden).

Mental and substance use disorders contributed 13% of Australia’s total burden of disease in 2018, making it the fourth highest disease group. Of the total burden caused by mental and substance use disorders, 98% was due to living with the effects of these disorders (AIHW 2019). Mental and substance use disorders were the second highest disease group contributing to non-fatal burden (24%) after the first-ranked musculoskeletal conditions (24%). See Burden of disease.

Aboriginal and Torres Strait Islander people

There is a substantial difference in the disease burden of mental health on Aboriginal and Torres Strait Islander people compared with non-Indigenous Australians. In 2011, the years of healthy life lost per 1,000 people due to mental and substance use disorders among Indigenous Australians was 2.4 times the rate for non-Indigenous Australians (57.8 compared with 23.6) (AIHW 2016). See Indigenous health and wellbeing.

Suicidality

For individuals who have a mental illness, suicidality – a term that encompasses suicide plans, attempts and ideation – is more prevalent than for those who have no mental illness. According to the 2007 National Survey of Mental Health and Wellbeing, almost 1 in 12 (8.6%) people who reported a mental illness in the preceding 12 months reported being suicidal in this period; 0.8% of people who did not report a mental illness reported suicidality in that same period (ABS 2008). Overall, 72% of people who exhibited suicidality reported a mental illness in the preceding 12 months (ABS 2008). See Suicide and intentional self-harm.

Comorbidity

A person may also have more than one type of condition at a time. The 2007 National Survey of Mental Health and Wellbeing estimated that 3.2% of Australians aged 16–85 had experienced more than one mental disorder in the previous 12 months, and 11.7% had experienced a mental disorder and a physical condition in the previous 12 months (ABS 2008). See Physical health of people with mental illness for more information.

Treatment and management

Information on mental health treatment and management in Australia can be found in Mental health services in Australia.

Where do I go for more information?

More information on mental health can be found at:

- Mental health services in Australia
- Australian Burden of Disease Study: impact and causes of illness and death in Australia 2018
- Council of Australian Governments Health Council Fifth National Mental Health and Suicide Prevention Plan

Visit Mental health services for more information on this topic.

If you or someone you know needs help, please call:

- Lifeline 13 11 14
- Suicide Call Back Service 1300 659 467
- Kids Helpline 1800 55 1800
- MensLine Australia 1300 78 99 78
- Beyond Blue 1300 22 4636.

Crisis support services can be reached 24 hours a day.

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Oral health and dental care

This topic summary is part of the Oral health and dental care in Australia report.

Good oral health is fundamental to overall health and wellbeing (COAG 2015). Without it, a person's general quality of life and the ability to eat, speak and socialise is compromised resulting in pain, discomfort and embarrassment.

Data on Australians' oral health status and their use of dental services are limited as no comprehensive national data sources are available. The most complete information about Australians' oral health status and their use of dental services is available via national population surveys.

Oral health status

Oral health refers to the condition of a person's teeth and gums, as well as the health of the muscles and bones in their mouth. Poor oral health – mainly tooth decay, gum disease and tooth loss – affects many Australian children and adults.

A key indicator of the oral health status of a population is the dental caries experience, that is, having a dmft (for the primary dentition) or DMFT (for the permanent dentition) score greater than zero. The dmft or DMFT score counts the number of teeth that are decayed, missing or filled because of caries. Refer to Key terms in Healthy teeth.

Untreated tooth decay reflects both the prevalence of dental decay in the population and access to dental care for treatment.

Table 1: Oral health status of Australian children and adults

	Average number of decayed, missing or filled teeth	**Proportion with untreated decay**
Children aged 5–10 years(a)	1.5	27%
Children aged 6–14 years(b)	0.5	11%
Adults aged 15 years and over(c)	11.2	32%

(a) Data are for 2012–14 and reports caries experience in the primary dentition.

(b) Data are for 2012–14 and reports caries experience in the permanent dentition.

(c) Data are for 2017–18 and reports caries experience in the permanent dentition.

Sources: Ha et. al. 2016; Do and Luzzi 2019.

For more information on the oral health status of Australians refer to chapters on Healthy teeth and Healthy mouths.

Dental services

Dental professionals provide preventive, diagnostic and restorative dental services. They can include dentists, dental prosthetists, dental hygienists, oral health therapists and dental therapists (Dental Board of Australia 2018). All dental professionals must be registered to practise in Australia. There were around 24,000 registered dental practitioners in Australia in 2019.

Dental services are funded, and can be accessed, in a number of ways – privately or through public dental clinics or the Department of Veterans Affairs (based on eligibility). For those who purchased services privately, some may have had all or part of the costs of the service subsidised. In 2020–21:

- 46.1 million dental services were subsidised by private health insurance providers (APRA 2021) – for more information refer to chapter on Private health insurance.
- 5.3 million services were subsidised under the Australian Government's Child Dental Benefits Schedule (Services Australia 2021) which supports provision of basic dental services to eligible children aged 2–17. For more information refer to the section on Child Dental Benefits Schedule.

Dental visits

A dental visit can provide an opportunity for the provision of preventive dental care to maintain existing oral health, as well as treatment services that may reverse disease or rehabilitate the teeth and gums after damage occurs.

The National Child Oral Health Study 2012–14 (Brennan et al. 2016) found that for children aged 5–14, it was estimated that:

Most (57%) had made their first dental visit before the age of 5.

The majority (87%) first visited a dental professional for a check-up (rather than for a problem).

The majority (81%) had last visited a dental professional in the 12 months prior to the survey and most (57%) had last visited a private dental service.

1 in 9 (11%) had never visited a dental provider.

The proportion of children who last visited a dental professional for a check-up (which reflects a favourable visiting pattern) varied by household income. Nearly 9 in 10 children (88%) living in households with high income last visited the dentist for a check-up, compared with 7 in 10 children (71%) from households with low income.

The Patient Experience Survey 2020–21 (ABS 2021) found that for people aged 15 and over, it is estimated that:

- Nearly half (48%) visited a dental professional in the last 12 months.
- Of those who needed to and saw a dental professional, the majority (54%) visited more than once in the last 12 months.
- Around 1 in 9 (11%) people who saw a dental professional received public dental care.
- Around 3 in 10 (32%) who needed to see a dental professional delayed seeing or did not see one at least once in the previous 12 months—and around 1 in 7 (15%) reported that cost was a reason for delaying or not seeing a dental professional.

For more information about dental visits refer to chapter on Dental care.

As well as visits to dental professionals, there were close to 67,000 hospitalisations for dental conditions that could have been prevented with earlier treatment in 2019–20. The rate of potentially preventable hospitalisations for dental conditions was highest in those aged 5–9 years (8.6 per 1,000 population). For more information refer to chapter on Hospitalisations.

Spending

In 2019–20, around $9.5 billion was spent on dental services in Australia. The majority of this cost (around $5.5 billion, or 58%) was paid by patients directly, with individuals spending on average $216 on dental services over the 12-month period, not including premiums paid for private health insurance (AIHW 2021). Private health insurance providers financed around $2.0 billion (20%) of total expenditure for dental services (AIHW 2021). For more information refer to chapter on Costs.

Impact of COVID-19 on dental services

The Coronavirus disease 2019 (COVID-19) pandemic has had an impact on both patients and dental professionals in terms of the number of services, type of services and the way in which services are delivered.

Early in the pandemic, the Australian Health Protection Principal Committee (AHPPC) issued advice to National Cabinet that recommended dental practices implement restrictions whereby dental professionals should only perform dental treatments that do not generate aerosols, or where treatment generating aerosols is limited and that all routine examinations and treatments should be deferred. These types of restrictions have been implemented and eased at various times over the course of the pandemic.

Events that may have impacted on service use over the period March 2020 to October 2021 across Australia, include:

- March 2020 – national lockdown introduced

- June 2020 – second wave of COVID-19 cases in Victoria
- August 2020 – Lockdown in Victoria
- October 2020 – Victorian lockdown eased
- December 2020 – outbreak of cases in Sydney's Northern Beaches
- January to March 2021 – brief snap lockdowns in some states and territories to contain COVID-19 spread
- July to October 2021 – a series of extensive lockdowns and/or extended lockdowns in New South Wales, Victoria, and Australian Capital Territory.

In 2020–21, around 1 in 8 (12%) adults aged 15 years and over delayed seeing or did not see a dental professional at least once in the last 12 months due to COVID-19. For more information, refer to chapter on Patient experience.

Where do I go for more information?

- For more information on the oral health status of Australians and their use of dental care services see:
- Oral health and dental care in Australia
- National Oral Health Plan 2015–2024: performance monitoring report
- Visit Dental & oral health for more on this topic.

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Physical health of people with mental illness

This topic summary is part of the Mental health services in Australia report.

People living with mental illness, and in particular severe (and often long-term) mental illness, such as a psychotic disorder like schizophrenia, are more likely to develop comorbid physical illness and tend to die earlier than the general population. More information about mental illness can be found on Mental health services in Australia.

A meta-analysis of studies worldwide has estimated that people with mental illnesses have a mortality rate 2.2 times that of people without, and between 1.4 and 32 years of potential lost life (Walker et al. 2015). This reduction in life expectancy is well established by numerous studies and reviews and there is also evidence that this gap is increasing (Firth et al. 2019). Research from Western Australia found that the gap in life expectancy for people with mental illness registered with West Australian mental health services – compared with the general population – increased between 1985 and 2005, from 13.5 to 15.9 years for males and 10.4 to 12.0 years for females. Notably, in line with findings from other research, only a small portion (14%) of the gap in life expectancy between the people with mental illness in this study compared to the general population was attributed to suicide, whereas almost 80% was attributed to physical health comorbidities, such as cardiovascular disease, respiratory disease and certain cancers (Lawrence et al. 2013).

The reasons why people with mental illness are more likely to experience physical comorbidity are multifactorial and complex. According to the Royal Australian and New Zealand College of Psychiatrists (RANZCP 2015) these include:

- greater exposure to the known risk factors for physical disease such as socio-economic status, smoking, poor nutrition, reduced physical activity and higher sedentary behaviour
- reduced access to and quality of healthcare due to financial barriers and stigma and discrimination among healthcare providers
- systemic issues in health-care delivery, especially the separation of mental and physical health services, and a lack of clarity about who is responsible for monitoring the physical health of people with serious mental illness
- impacts from polypharmacy, prescribing practices and adverse effects of psychotropic medication, in particular their contribution to metabolic syndrome, obesity, cardiovascular disease and type 2 diabetes
- lack of capability among both generalist and specialist healthcare staff to deal with complex comorbidities – mental health staff may lack skills, training and confidence to treat physical conditions and vice versa for physical health teams.

In addition to shorter life expectancy, the consequences of higher rates of physical comorbidity among people with severe mental illness also include higher levels of ongoing disability due to both physical and mental illness, reduced participation in the workforce and a greater likelihood of poverty and welfare dependency (RANZCP 2015).

Measuring the physical health of people with mental illness

Part of the challenge in reporting on the physical health of people experiencing mental illness is a lack of information. A number of initiatives and programs that monitor the physical heath of Australians with mental illness have the potential to provide insight into this important issue, but they are not consistent across jurisdictions and different health settings. While there is no national data set on prevalence of physical illness in mentally ill people, information is available from a number of other data sources. Together these sources provide insight into the chronic conditions and substance use in people with mental illness.

How common is physical illness among people with mental illness?

In the 2007 National Survey of Mental Health and Wellbeing, an estimated 3.2 million Australians reported having a mental health condition, and around 60% of these people also reported having a physical health condition. This represents an estimated 1.9 million people or 11.7% of adults experiencing both a mental health and a physical health condition (ABS 2008). More recently, the 2017–18 National Health Survey (ABS 2018) results indicated there was a strong overlap between physical health and mental health problems – people who reported having a mental illness were more likely to report having a chronic medical condition, and vice versa. Females with a mental and/or behavioural condition were more likely to have a physical health comorbidity than their male counterparts. The most common chronic conditions reported included back problems, arthritis, and asthma (Table 1). See Chronic conditions and multimorbidity for more information.

Table 1: Chronic conditions of persons with and without mental illness in 2017−18

Selected chronic condition	Persons with mental illness[(a)] (%)	Persons without mental illness (%)
Arthritis[(b)]	23.3	13.0
Asthma	18.2	9.5

Selected chronic condition	Persons with mental illness[(a)] (%)	Persons without mental illness (%)
Back problems[(c)]	27.7	13.5
Cancer (malignant neoplasms)	2.6	1.6
Chronic obstructive pulmonary disease[(d)]	5.2	1.8
Diabetes mellitus[(e)]	6.7	4.4
Heart, stroke and vascular disease[(f)]	7.1	4.2
Kidney disease	1.9	0.8
Osteoporosis	6.3	3.2

(a) Includes alcohol and drug problems, mood (affective) disorders, anxiety-related disorders, organic mental disorders and other mental and behavioural conditions.

(b) Includes rheumatoid arthritis, osteoarthritis, other and type unknown.

(c) Includes sciatica, disc disorders, back pain/problems not elsewhere classified and curvature of the spine.

(d) Includes bronchitis and emphysema.

(e) Includes Type 1 and Type 2 diabetes, and type unknown. Estimates also include persons who reported they had diabetes but that it was not current at the time of interview.

(f) Includes angina, heart attack, other ischaemic heart diseases, stroke, other cerebrovascular diseases, oedema, heart failure, and diseases of the arteries, arterioles and capillaries. Estimates include persons who reported they had angina, heart attack, other ischaemic heart diseases, stroke or other cerebrovascular diseases but that these conditions were not current at the time of interview.

Source: ABS 2018. National Health Survey.

A recent study of Australian general practice records comparing the prevalence of selected physical health conditions and biomedical risk factors among patients with and without record of severe mental illness (Belcher et al. 2021) has similarly shown a strong association with physical illness. The prevalence of all surveyed biomedical risk factors was higher among patients with severe mental illness than patients without. These included:

- dyslipidaemia (26.2% in patients with severe mental illness compared with 17.7% in patients without)
- hypertension (27.2% compared with 22.1%)
- obesity (29.0% compared with 18.6%).

The prevalence of all surveyed physical conditions was also higher among patients with severe mental illness than patients without. These included:

- back pain (35.1% among those with severe mental illness compared with 19.4% in patients without)
- gastro-oesophageal reflux disease (29.1% compared with 14.9%)
- arthritis (27.4% compared with 18.7%)
- cancer (19.4% compared with 14.9%).

Almost three-quarters (71.1%) of patients with severe mental illness had at least one of the selected physical health conditions, compared with about half (53.6%) of people without.

The second national survey of People Living with Psychotic Illness (Morgan et al. 2011) also provides estimates on the physical health of Australians living with psychosis. Chronic back, neck or other pain were the most common chronic physical conditions (32% compared with 28% for the general population) identified among people with psychosis in 2010. Other common conditions included asthma (30% compared with 20% for the general population) and heart or circulatory conditions (27% compared with 16%).

In 2010, one-quarter (24%) of people with psychosis were at high risk of cardiovascular disease. Almost half (45%) of people with psychotic illness were obese and almost two-fifths (38%) reported gaining weight as a medication side effect. Physical activity levels were far lower in people with psychosis, with 96% classified as either sedentary or undertaking low levels of exercise in the previous week compared with 72% for the general population (Morgan et al. 2011).

Substance use and mental illness

There is a strong association between the use of alcohol, tobacco and illicit drugs and mental illness. Use of these substances can not only trigger or worsen mental health issues, but is strongly associated with physical health conditions including cancer, cirrhosis, and cardiovascular disease (Crocq 2003).

According to the 2019 National Drug Strategy Household Survey (AIHW 2020), people who had been diagnosed or treated for a mental health condition in the previous 12 months were estimated to be about 20% more likely to report recent or lifetime drinking at risky levels than people who had not been diagnosed or treated for a mental illness (Table 2). According to Australian general practice records (Belcher et al. 2021), the prevalence of moderate to heavy drinking among patients with severe/long-term mental illness was 4.7%, more than double that for the population without (2.2%).

Table 2. Percentage of people aged 18 years and over who use alcohol, tobacco and illicit drugs by mental health status in 2019

Mental illness[(a)]	Alcohol use[(b)]		Any illicit drug use	Daily smoking
	Single occasion risk (at least monthly)	Lifetime risk		
Diagnosed or treated for a mental health condition	30.9	21.3	26.2	20.2
Not diagnosed or treated for a mental health condition	25.3	17.1	15.2	9.9

(a) Includes depression, anxiety disorder, schizophrenia, bipolar disorder, an eating disorder and other form of psychosis.

(b) Alcohol data are reported against the 2009 Australian alcohol guidelines.

Source*:* AIHW 2020.

It is important to note that, by themselves, these findings do not establish a causal link between mental illness and drug use – the mental illness may have preceded the drug use or vice versa (AIHW 2021a).

Use of Illicit drugs is also common among people with mental illness. In 2019, compared with people with no mental illness, people with a mental health condition were 1.7 times as likely to have used any illicit drug in the previous 12 months and about twice as likely to have used meth/amphetamine and pharmaceuticals for non-medical purposes (AIHW 2020). The lifetime rate of any substance use or dependence in people with psychosis, at 51%, was 6 times the population figure of 9% (Morgan et al. 2011). See Illicit drug use.

A similar pattern to that for consumers of alcohol and users of illicit drugs is apparent for daily smokers. For example, people who reported a mental health condition were twice as likely to smoke daily as those who had not been diagnosed with, or treated for, a mental health condition (20% compared with 9.9%) (Table 2) (AIHW 2020). Likewise, according to Australian general practice records, almost half of people with severe mental illness (47%) are current or past smokers, compared with 30% of the population without severe mental illness (Belcher et al. 2021). Two-thirds (66%) of people with psychosis smoke, smoking on average 21 cigarettes per day (Morgan et al. 2011).

COVID-19 and the physical health of people living with mental illness

While no specific survey or research has been conducted to understand the impacts of the COVID-19 pandemic and related restrictions on the physical health of people living with mental illness, a number of data sources have indicated impacts on both the mental and physical health of Australians during the pandemic. As for populations in other parts of the world, the pandemic and related restrictions had significant impacts on the mental health of Australians, with multiple sources of data indicating increased and more widespread psychological distress among Australians compared with pre-pandemic levels (ABS 2021; Biddle and Gray 2021; Butterworth 2020), and increased use of mental health services and mental health prescriptions (AIHW 2021a). Those aged 18–35 years, women, people with a disability, renters and people who report having a mental health condition have been more likely to report high or very high levels of psychological distress (ABS 2021).

Despite modifications and additions to health service delivery models during the pandemic (for example, telehealth consultations), various factors meant many in the community have delayed access to healthcare which has the potential to generate acute and long-term health consequences for individuals (see White et al. 2021). Such factors included restrictions on movement during lockdowns, fear of contracting COVID-19, fear of overburdening the health system, financial stress and disruptions to elective surgery and other health services. Notably, those experiencing high levels of mental distress were 6 times more likely to choose not to consult a health professional when needed than those not experiencing mental distress (Zhang et al. 2020).

For both waves of COVID-19 during 2020, despite restrictions on movement and social participation, the Ausplay physical activity survey (Sports Australia 2021) indicated a national increase in adult participation in sport or physical activity at frequencies of higher than 5 and 7 times a week – an increase which appears to be driven by women. No clear patterns have emerged on the impact of the pandemic on drug and alcohol consumption in Australia, with the majority of people reporting unchanged levels of consumption. More information can be found on drug and alcohol use during the pandemic at Impacts of COVID-19 on alcohol and other drug use.

Treatment and management

The higher burden of comorbid physical illness is a significant health challenge which underscores the need to successfully treat and manage physical illness in people living with mental illness. The physical health of people living with mental illness was named as a key priority area in the Fifth National Mental Health and Suicide Prevention Plan (Department of Health 2017) and improving physical health and reducing early mortality among people living with mental illness remains an ongoing priority.

Factors contributing to the poorer health of people experiencing mental illness, in particular severe mental illness are multiple and complex. According to the Royal Australian and New Zealand College of Psychiatrists report *Keeping Mind and Body Together* (2015), addressing the significant health disparities experienced by those with mental illness, especially severe mental illness will involve:

- population health measures
- lifestyle interventions, especially those with a focus on the importance physical exercise
- interdisciplinary, collaborative and integrated care that bridges the gap between primary and secondary care and reduces barriers between physical and mental health services
- management of psychotropic medications and specifically the implementation of metabolic monitoring for those with serious mental illness
- building the capacity of consumers to self-manage
- tacking stigma and discrimination, including among healthcare professionals.

The National Mental Health Commission (2022) has called on organisations around Australia to pledge support for the principles in the Equally Well Consensus Statement which provide guidance on bridging the gap in life expectancy between people living with mental illness and the general population. See Mental health services.

Future directions

Increased use of linked data in research has the potential to provide further insights into the relationships between mental illness and physical comorbidities among the Australian population. While separate data collections may only give a limited view on peoples' overall health, data linkage between collections could facilitate the assessment of the impact of mental illness on a range of physical health conditions across different service settings and could potentially identify areas where people with mental illness are disadvantaged in broader health settings. Data linkage also offers opportunities to identify differences in service usage for people with mental illness, important for this population group which accesses health services at a lower rate than the general population.

Where do I go for more information?

For more information on the physical health of people with mental illness, see:

- Australian Bureau of Statistics National Health Survey: first results, 2017–18
- Equally Well Improving the physical health of people living with mental illness
- National Drug Strategy Household Survey 2019

- The Royal Australian & New Zealand College of Psychiatrists Keeping body and mind together: improving the physical health and life expectancy of people with serious mental illness

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Stroke

This topic summary is part of the Heart, stroke and vascular disease – Australian Facts report.

Stroke occurs when a blood vessel supplying blood to the brain either suddenly becomes blocked (ischaemic stroke) or ruptures and begins to bleed (haemorrhagic stroke). Either may result in part of the brain dying, leading to sudden impairment that can affect a number of functions. Stroke often causes paralysis of parts of the body normally controlled by the area of the brain affected by the stroke or speech problems and other symptoms, such as difficulties with swallowing, vision and thinking.

Stroke can be prevented because many of its risk factors are modifiable. These include biomedical risk factors such as high blood pressure, insufficient physical activity, overweight and obesity, and tobacco smoking.

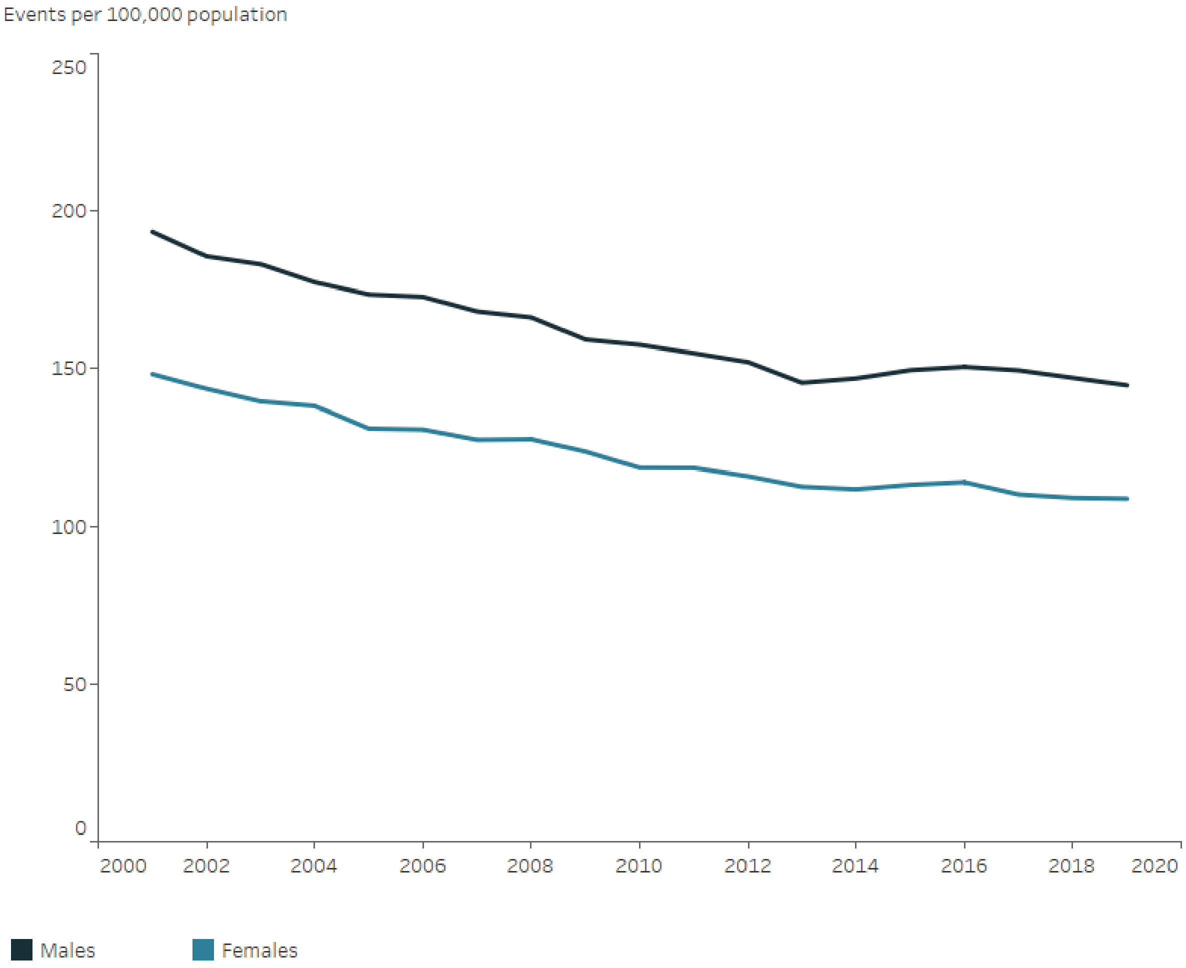
Stroke contributes to premature death, disability, and preventable hospitalisations. As a result of the substantial impact of stroke on the Australian population, a National Strategic Action Plan for Heart Disease and Stroke has been developed. The action plan aims to reflect priorities and identify implementable actions to reduce the impact of stroke in the community.

How common is stroke?

In 2018, an estimated 387,000 people aged 15 years and over – 214,000 males and 173,000 females – had had a stroke at some time in their lives, based on self-reported data from the Australian Bureau of Statistics (ABS) 2018 Survey of Disability, Ageing and Carers (ABS 2019, AIHW 2021c). The estimated prevalence of stroke was similar in 2003 (1.7%) and 2018 (1.3%) (ABS 2019; AIHW 2013).

In 2019, there were around 39,200 stroke events (20,500 among males and 18,800 among females) – more than 100 every day. The stroke event rate fell by one quarter (25%) between 2001 and 2019, from an age-standardised rate of 170 to 125 per 100,000 population (Figure 1).

Figure 1: Stroke events, by sex, 2001 to 2019



Note: Age-standardised to the 2001 Australian Standard Population.
Source: AIHW 2022b,2022c.
http://www.aihw.gov.au

Impact

Deaths

In 2020, stroke was recorded as the underlying cause of 8,200 deaths, accounting for 5.1% of all deaths in Australia.

Stroke was one of the 5 leading causes of death in Australia – on average, 22 Australians died of stroke each day in 2020.

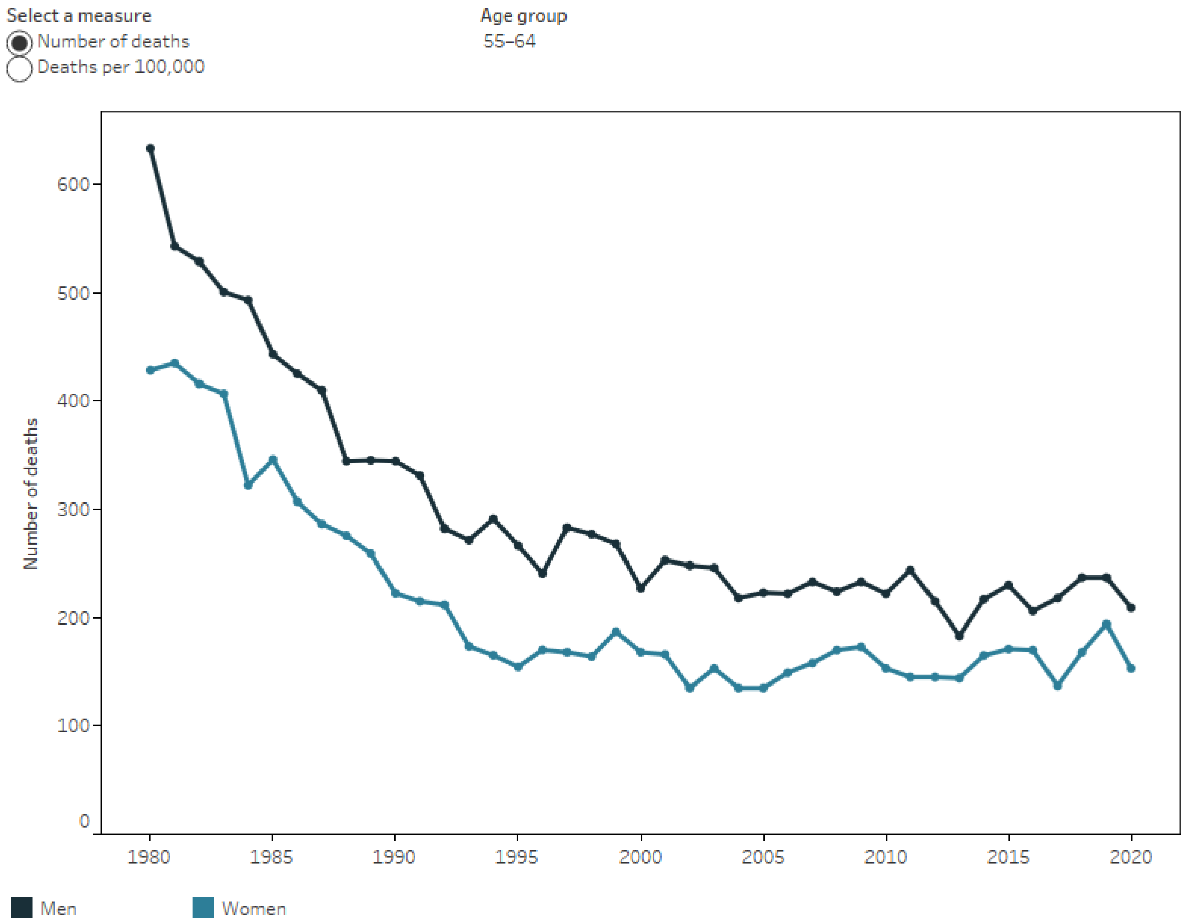
Rates of death increase with age – in 2020, rates among males and females aged 85 and over (690 and 900 per 100,000 population) were 4–5 times as high as rates among males and females aged 75–84 years (175 and 165 per 100,000 population).

Between 1980 and 2020, death rates for stroke have fallen by three-quarters – from 110 to 23 per 100,000 population for males, and from 99 to 24 per 100,000 population for females. The rate of decline has remained steady in people aged 75 and over but has slowed among younger age groups (Figure 2).

Falling stroke death rates have been driven by a number of factors, including improvements in some risk factors such as lower rates of tobacco smoking, an increased use of blood pressure–lowering drugs, treatment to prevent blood clots, access to stroke units in hospitals and other advances in medical care (AIHW 2013, 2021c).

See 'Chapter 4 Changing patterns of mortality in Australia since 1900' in *Australia's health 2022: data insights*.

Figure 2: Stroke deaths among people aged 55-64, 65-74, 75-84 and 85 and over, by sex, 1980 to 2020



Notes
1. A comparability factor of 0.83 has been applied to deaths before 1996 to make them comparable with data from 1997 onwards, following the introducion of automated coding and ICD-10 codes.
2. Rates are calculated using the sum of estimated resident populations at 30 June for each year. Rates are expressed as deaths per 100,000 men/women.
Source: AIHW 2022c.
http://www.aihw.gov.au/

Burden of disease

Burden of disease refers to the quantified impact of living with and dying prematurely from a disease or injury and is measured using disability-adjusted life years (DALY). One DALY is equivalent to one year of healthy life lost.

In 2018, stroke accounted for 2.4% of the total burden of disease in Australia and was the 11th leading specific cause of disease burden.

Stroke ranks high in disease burden among older people – for age 85 and over, it accounted for 5.5% of the burden in males and 6.6% of the burden in females.

The total burden of disease due to stroke decreased by 44% between 2003 and 2018, from 7.4 to 4.2 DALY per 1,000 population. This included a 46% decline in the fatal burden and a 19% decline in the non-fatal burden (AIHW 2021a).

See Burden of disease.

Expenditure

In 2018–19, the estimated health system expenditure on stroke was more than $660 million. The greatest cost was for public hospital admitted patient services ($364.2 million) followed by private hospital services ($115.0 million) (AIHW 2021b).

See Health expenditure.

Treatment and management

Emergency departments

There were 41,100 presentations to Australian public hospital Emergency Departments with a principal diagnosis of stroke in 2020–21. Of these, 34,000 (83%) were admitted to the hospital to which they presented, 4,400 (11%) were referred to another hospital for admission, and 2,200 (5%) departed without being admitted or referred (AIHW 2022d).

Hospitalisations

In 2019–20, there were 40,000 acute care hospitalisations with a principal diagnosis of stroke, at a rate of 129 per 100,000 population. Acute care hospitalisation rates were higher among males than females (1.4 times as high), and most hospitalisations (72%) were for people aged 65 and over.

The average length of stay for stroke patients in acute hospital care was 6.6 days in 2019–20.

See Hospitals.

Rehabilitation

Stroke rehabilitation helps stroke survivors to relearn and maintain their skills and functioning. It also seeks to protect them from developing new medical problems.

- In 2019–20, stroke patients in hospital rehabilitation care had an average length of stay of 14 days.
- Of a group of 2,800 stroke survivors assessed before hospital discharge in 2019, 64% were referred for further rehabilitation in the community (Stroke Foundation 2020).

Variation between population groups

The impact of stroke varies between population groups, with age-standardised rates higher among Aboriginal and Torres Strait Islander people than among non-Indigenous Australians for both hospitalisation (1.5 times as high) and death (1.8 times as high) (Figure 3).

Age-standardised death rates and burden of disease were 1.1 and 1.2 times as high in *Remote and very remote* areas as in *Major cities*. The rate of death for stroke was 1.4 times as high in the lowest socioeconomic areas as in the highest.

Figure 3: The impact of stroke—Variation among selected population groups

Hover on the numbers for more information on the impact of stroke in each population group.

Comparing rates for:	Indigenous / non-Indigenous	Remote and Very remote / Major cities	Lowest / highest socioeconomic areas
Having stroke	n.a.	1.2x	2.3x
Being hospitalised for stroke	1.5x	1.1x	1.1x
Dying from stroke	1.8x	1.1x	1.4x
Burden of disease	1.9x	1.2x	1.5x

Note: This figure uses age-standardised rates to remove the impact of differences in age structures between these groups.
Sources: ABS 2019; AIHW 2021a, 2022a, 2022b, 2022c.
http://www.aihw.gov.au/

COVID-19 and stroke

People who have had a stroke are at a higher risk of severe symptoms and complications from COVID-19. People with COVID-19 are also at greater risk of stroke (Nannoni et al. 2021).

The first wave of the pandemic negatively impacted access to specialised stroke units in hospitals, with fewer resources available for treatment, leading to concerns about reduced quality of care (Cadilhac et al. 2022).

There were 9,100 deaths from cerebrovascular disease (including strokes) during 2021, 6.9% below the 2015–19 average, and comparable to the 9,000 deaths in 2020 (ABS 2022).

Where do I go for more information?

For more information on stroke, see:

- Heart, stroke and vascular disease – Australian facts

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Suicide and intentional self-harm

This topic summary is part of AIHW's Suicide & self-harm monitoring website.

Suicide and intentional self-harm are complex and can have multiple contributing factors. Although suicide and intentional self-harm are complex issues, they can be prevented.

Where to find help and support

The AIHW respectfully acknowledges those who have died or have been affected by suicide or intentional self-harm. We are committed to ensuring our work continues to inform improvements in both community awareness and prevention of suicide and self-harm. This page discusses suicide and presents material that some people may find distressing. If this report raises any issues for you, support services can help. Crisis support services can be reached 24 hours a day.

- **Lifeline Call** 13 11 14
- Text (SMS) 0477 13 11 14
- Online chat

Mindframe is a national program supporting safe media coverage and communication about suicide, mental ill health and alcohol and other drugs. Resources to support reporting and professional communication are available at: mindframe.org.au

Visit Suicide & self-harm monitoring for information on suicide and self-harm data.

What are suicide and intentional self-harm?

Suicide is an action taken to deliberately end one's own life, while intentional self-harm is deliberately causing physical harm to oneself but not necessarily with the intention of dying.

About deaths data

The assembling and national reporting of deaths by suicide has up to an 18-month time lag.

The Australian Bureau of Statistics (ABS) collects demographic and cause of death information on all registered deaths in Australia from the states and territories. These deaths are then reviewed 12 and 24 months after initial processing so that any change in information regarding the deceased's intention to die can be updated (ABS 2020). Visit 2020 ABS Causes of Death for more information.

Suicide registers that exist in several jurisdictions can provide more timely data on suspected deaths by suicide. Data from these registers will not be publicly available unless the relevant jurisdiction decides to release data. Whilst they are not directly comparable with data released by the ABS, the differences are generally small (approximately 95% accurate or better). Visit Suspected deaths by suicide to learn more about suicide register data.

How common is suicide?

In 2020, there were 3,139 deaths by suicide – an average of about 9 deaths per day. The age standardised rate was 12.1 deaths per 100,000 population, which is down from 13.2 in 2017. Since 1907, the male age-standardised suicide rate has been consistently higher and more variable than the female rate (Figure 1). Variations in the overall suicide rate in Australia have been largely driven by changes in the male suicide rate.

For more information, visit Deaths by suicide in Australia

Have the rates of suicide changed during COVID-19?

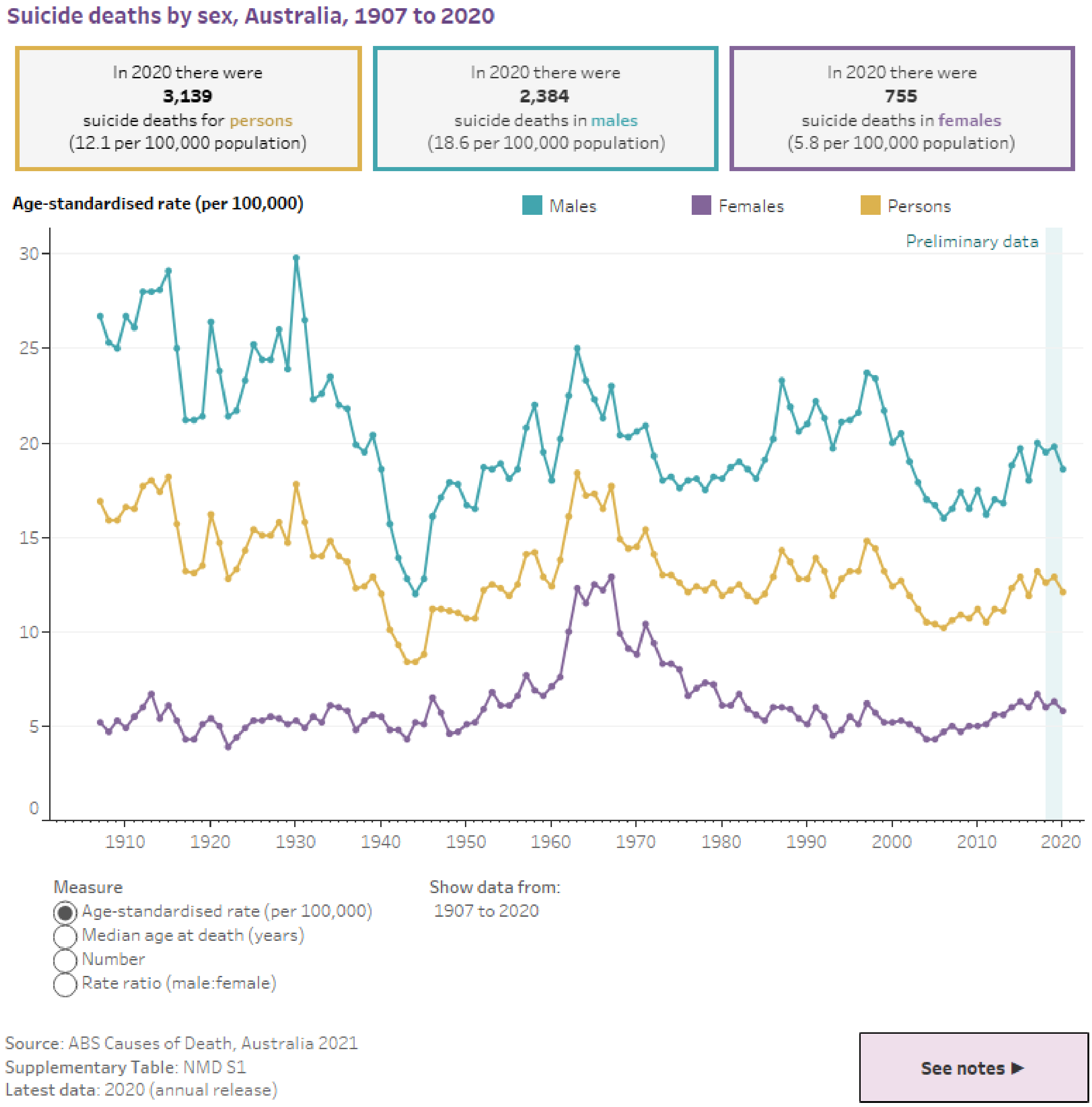
While there has been a rise in the use of mental health services and an increase in psychological distress during the COVID-19 pandemic, COVID-19 has not been associated with a rise in suspected deaths by suicide in 2020 and 2021. Preliminary national mortality data published by the ABS for 2019 and 2020 show that the rate of death by suicide in Australia was lower in 2020 (12.1 per 100,000 population) than in 2019 (12.9 per 100,000 population).

Data on suspected deaths by suicide in 2020 and 2021 have been released for Victoria and New South Wales from their respective suicide registers. The Coroners Court of Victoria Monthly Suicide Data Report for April 2022 shows that the number of deaths in Victoria suspected to be from suicide in 2021 (695) was lower than in 2020 (700), 2019 (699) and 2018 (697) (Coroners Court 2022).

The New South Wales Suicide Monitoring System, established in October 2020, reported 927 suspected deaths by suicide in NSW in 2021. This is higher than the number of deaths reported for 2020 (904) but lower than for 2019 (945) (NSW Health 2022).

See The use of mental health services, psychological distress, loneliness, suicide, ambulance attendances and COVID-19 for more information.

Figure 1: Suicide deaths by sex, Australia, 1907 to 2020



Suicide deaths by sex, Australia, 1907 to 2020

In 2020 there were
3,139
suicide deaths for persons
(12.1 per 100,000 population)

In 2020 there were
2,384
suicide deaths in males
(18.6 per 100,000 population)

In 2020 there were
755
suicide deaths in females
(5.8 per 100,000 population)

Measure
● Age-standardised rate (per 100,000)
○ Median age at death (years)
○ Number
○ Rate ratio (male:female)

Show data from:
1907 to 2020

Source: ABS Causes of Death, Australia 2021
Supplementary Table: NMD S1
Latest data: 2020 (annual release)

Trends over time

Numbers and rates of deaths by suicide change over time as social, economic and environmental factors influence suicide risk. The data visualisations below provide an overview of the characteristics of people who have died by suicide in Australia since 1907. This analysis may provide useful information on potentially preventable factors, such as restricting access to means of suicide and reducing the risks posed by social or economic factors. Over time, the accuracy and quality of the data collected have been influenced by a number of factors including changes in legislation, technology and a reduction in social stigma.

- Between 1907 to 2020, age-standardised suicide rates in Australia ranged from 8.4 deaths per 100,000 population per year (in 1943 and 1944) to 18.4 in 1963.
- Suicide rates peaked in 1913 (18.0 deaths per 100,000 population), 1915 (18.2), 1930 (17.8), 1963 (18.4) and 1967 (17.7). These peaks tended to coincide with major social and economic events or changes.
- In 2020, the rate was 12.1 deaths per 100,000 population – down from a post-2006 high of 13.2 in 2017. It is important to note that deaths registered in 2020 and 2019 are preliminary and as such, are subject to revision. For more information, visit Deaths by suicide over time.

Sex and age differences

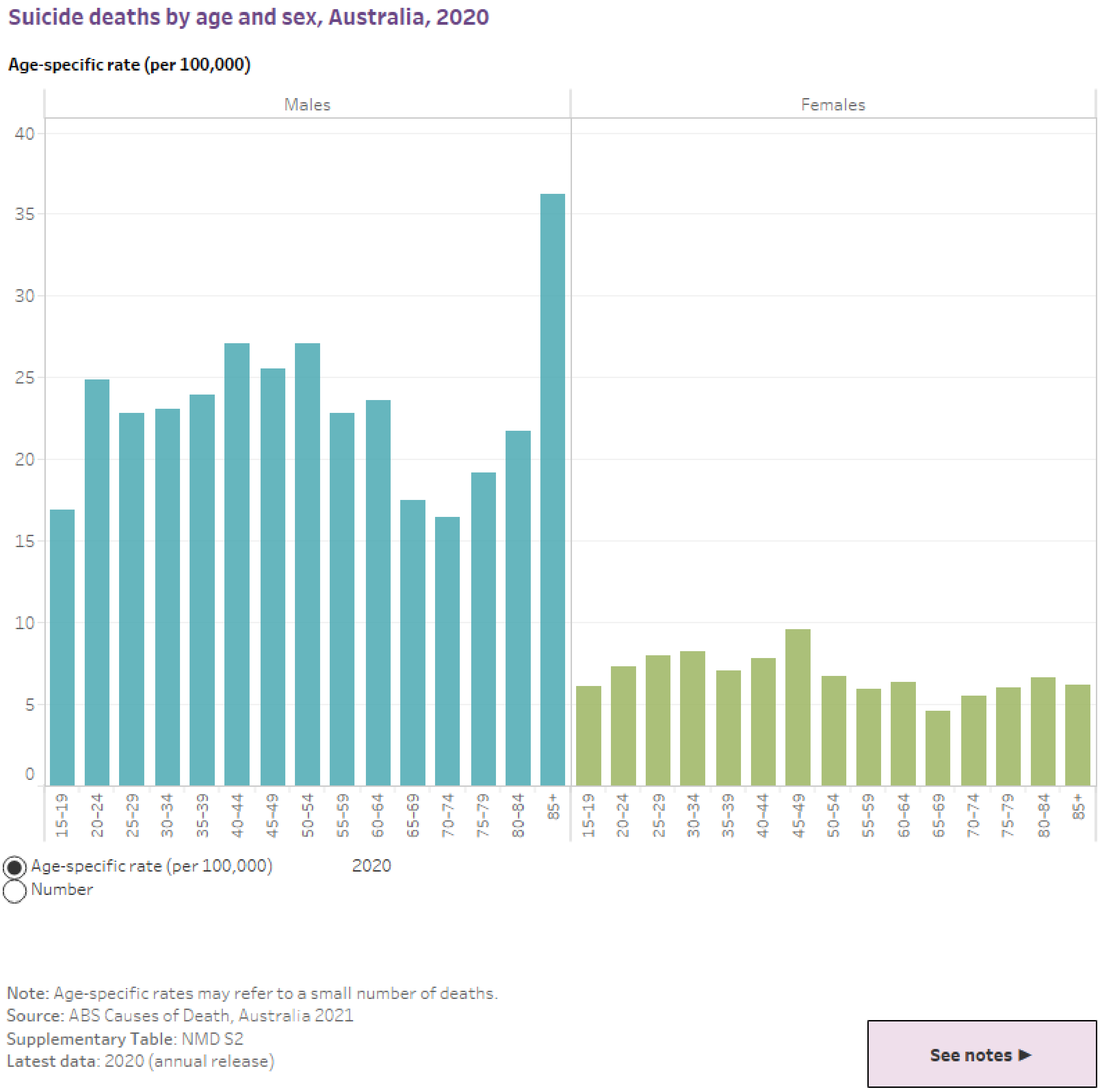
Figure 2 shows age-specific suicide rates for males are higher than those for females across all reported age groups for all years.

The age distribution of deaths by suicide is similar for males and females, and the highest proportion of deaths by suicide occur during mid-life. More than half of all deaths by suicide (52%) in 2020 occurred in people aged 30–59 (1,637 deaths) compared with 24% for those aged 15–29, and 23% for those aged 60 and over. Suicide was the leading cause of death among people aged 15–44 in 2017–2019 (AIHW 2021).

In 2020, the highest suicide rate for males occurred in those aged 85 and over (36.2 deaths per 100,000 population), high rates of suicide were also recorded in males aged 40–44 and 50–54 (both 27.1 per 100,000). Males aged between 40–54 accounted for over one-quarter (27%) of deaths by suicide for males. The highest suicide rate for females was in those aged 45–49 (9.6 deaths per 100,000 population) accounting for the highest proportion of deaths by suicide for females (10.9%).

For information, visit Deaths by suicide over time.

Figure 2: Suicide deaths by age and sex, Australia, 2020



Note: Age-specific rates may refer to a small number of deaths.
Source: ABS Causes of Death, Australia 2021
Supplementary Table: NMD S2
Latest data: 2020 (annual release)

Geographical variation

The number and rate of deaths by suicide differs between states and territories and across different regions of Australia.

Patterns of deaths by suicide between states and territories can reveal insights that may be masked by results for the whole of Australia and may help to highlight different risk factors and assist in better targeting of suicide prevention activities.

In 2020, the age-standardised suicide rate ranged from 10.1 per 100,000 population in Victoria to 20.4 per 100,000 in the Northern Territory. The highest number of deaths by suicide was in New South Wales (876), followed by Queensland (759), Victoria (694), Western Australia (381) and South Australia (234).

For more information, visit Suicide deaths by states & territories and Suicide & self-harm by geography.

Aboriginal and Torres Strait Islander people

In 2020, 197 Aboriginal and Torres Strait Islander people died by suicide. Age-standardised rates of Indigenous deaths by suicide have increased over time, from 22.7 per 100,000 persons in 2013 to 27.9 per 100,000 persons in 2020 – more than double the rate for non-Indigenous Australians in 2020 (11.8 per 100,000 persons).

Young Indigenous Australians experience suicide more than 2 times as high as young non-Indigenous Australians. In the 5 years from 2016 to 2020, suicide rates for Indigenous Australians were highest for those aged 0–24 (16.7 per 100,000) and 25–44 (45.7 per 100,000) – compared with other age groups. These rates were 3.2 and 2.8 times as high as in non–Indigenous Australians in the respective age groups (5.3 and 16.4 per 100,000 respectively.

For more information see Indigenous health and wellbeing.

How common is hospitalisation for intentional self-harm?

In Australia, there were more than 28,000 cases of intentional self-harm hospitalisations in 2019–20.

What are the sources of data on intentional self-harm?

Understanding the scale of the problem of intentional self-harm in Australia is difficult because many cases of self-harm are unreported, unless medical treatment is required.

Only those patients admitted to hospital for intentional self-harm are currently routinely reported in national data sets. Hospital admissions data are collated as an annual release with a 12-month lag. Data are also available from ambulance attendance records and national population surveys such as the Australian Child and Adolescent Survey of Mental Health and Wellbeing (Department of Health, 2015).

Visit Intentional self-harm hospitalisation and Ambulance attendances for more information.

Sex and age differences

Rates of hospitalisations for intentional self-harm are higher for females. This is the opposite of what is seen in deaths by suicide, where rates are higher for males. This may, in part, be due to differences between methods used by males and females – with males tending to use more lethal methods than females.

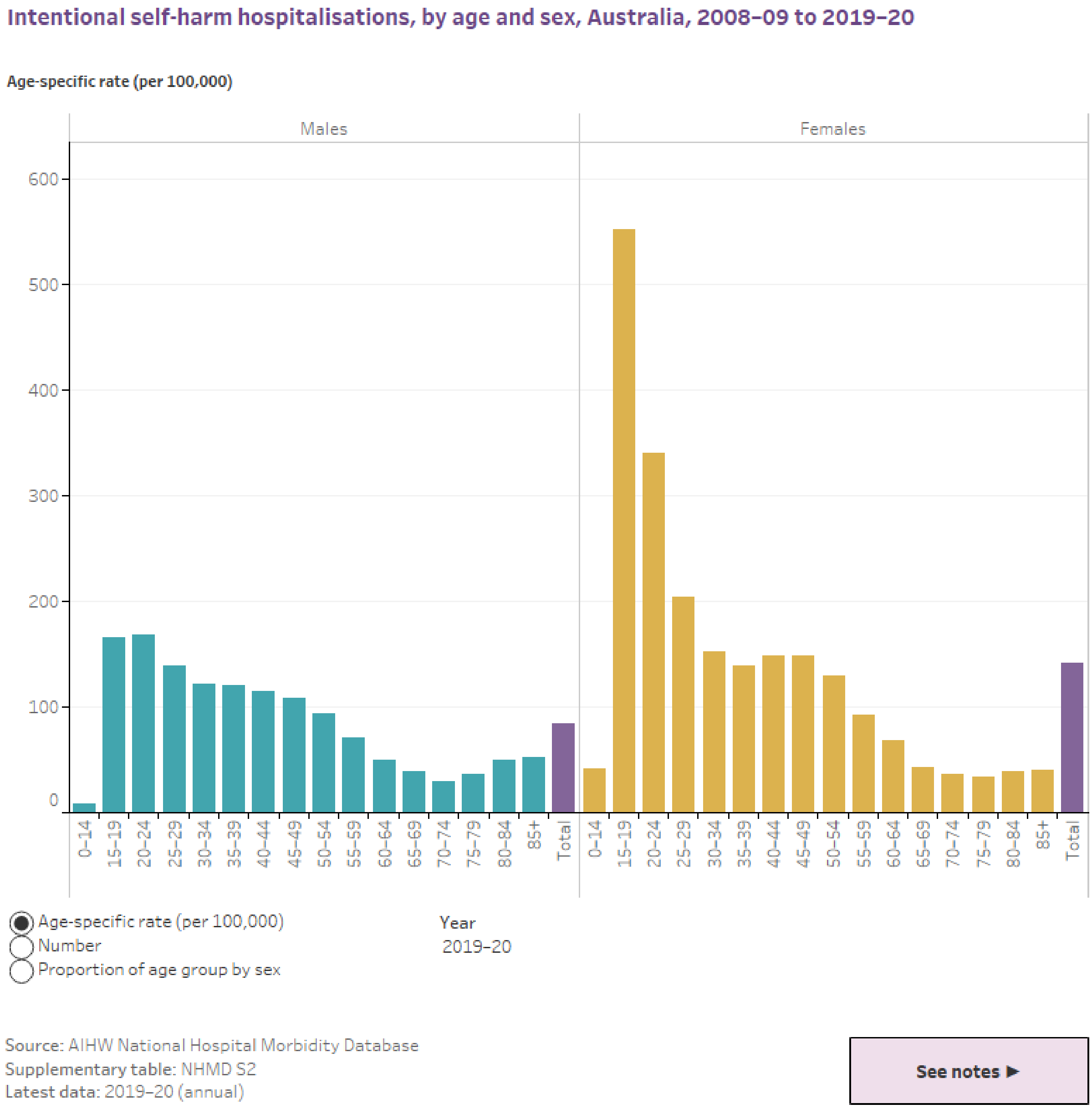
In 2019–20:

- Nearly two-thirds of people (63%) hospitalised for intentional self-harm injuries were female (over 18,000 hospitalisations).
- The rate of intentional self-harm hospitalisations was higher for females than males (141 per 100,000 population compared with 84).

Young people have the highest rates of hospitalisation for intentional self-harm

In 2019–20 the age and sex-specific rate was highest for females aged 15–19 (552 hospitalisations per 100,000 population), followed by females aged 20–24 (340 per 100,000 population). For more information see Intentional self-harm hospitalisations by age groups

Figure 3: Intentional self-harm hospitalisations, by age and sex, Australia, 2008–09 to 2019–20



Intentional self-harm hospitalisations, by age and sex, Australia, 2008–09 to 2019–20

Source: AIHW National Hospital Morbidity Database
Supplementary table: NHMD S2
Latest data: 2019–20 (annual)

How do intentional self-harm hospitalisations vary across states and territories?

The rate of intentional self-harm hospitalisations varied between states and territories in 2019–20, with the Northern Territory reporting the highest rate (240 hospitalisations per 100,000 population), which is more than double the national rate (113). The lowest rate was recorded in New South Wales (83 hospitalisations per 100,000 population). Reporting is based on a patient’s usual residence, not necessarily where they received treatment.

For more information visit Intentional self-harm hospitalisations by states & territories and Suicide & self-harm monitoring: Geography.

Are people in regional and remote areas at greater risk of intentional self-harm hospitalisations?

Understanding the geographical distribution of hospitalisations due to intentional self-harm based on patients' area of usual residence can help target suicide prevention activities to areas in need.

In 2019–20:

- Residents of *Very remote* areas recorded a rate of 198 hospitalisations per 100,000 population, almost double that of residents in *Major cities* (102) which recorded the lowest rate.
- The majority of intentional self-harm hospitalisations were residents of *Major cities* (65%).
- Young people aged 15–19 had the highest rates of intentional self-harm hospitalisations in each remoteness area except *Remote* where 20–24-year-olds had the highest rate.
- The highest rate of intentional self-harm hospitalisations overall was in the 20–24 age group in *Remote* areas (756 hospitalisations per 100,000 population), followed by those aged 15–19 in the same area (677).

A similar pattern was seen with deaths by suicide as age-standardised suicide rates tended to increase with remoteness of place of residence. For more information visit Deaths by suicide by remoteness areas.

Where do I go for more information?

For more information on suicide and self-harm, visit Suicide & self-harm monitoring.

If you, or someone you know, is struggling with thoughts of suicide or suicide-related behaviour, help is available.

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What is health?

Find the most recent version of this information at:
https://www.aihw.gov.au/reports/australias-health/what-is-health

Health can be viewed as the presence or absence of disease or medically measured risk factors in an individual. However, more broadly, health is 'a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity' (WHO 1946). Health reflects the complex interactions of a person's genetics, lifestyle, and environment.

Australians have good health, in general, and access to an effective health system. How do we know this? We compare Australia with other Organisation for Economic Co-operation and Development (OECD) countries and we use the Australian Health Performance Framework to assess the health of our population and health system. The Framework outlines health indicators that describe specific elements of our health or aspects of our health system's performance. It also compares data for different population groups, different geographic regions, and internationally. The Framework includes the domains of health status, determinants of health, and the health system (see also the Health system domain in Australia's health topic summaries).

What influences health?

There is a close relationship between people's health and the circumstances in which they grow, live, work, play and age (Commission on Social Determinants of Health 2008). Factors such as income, employment, education, housing, social connections and support, the environment, behaviours, and genetics influence health.

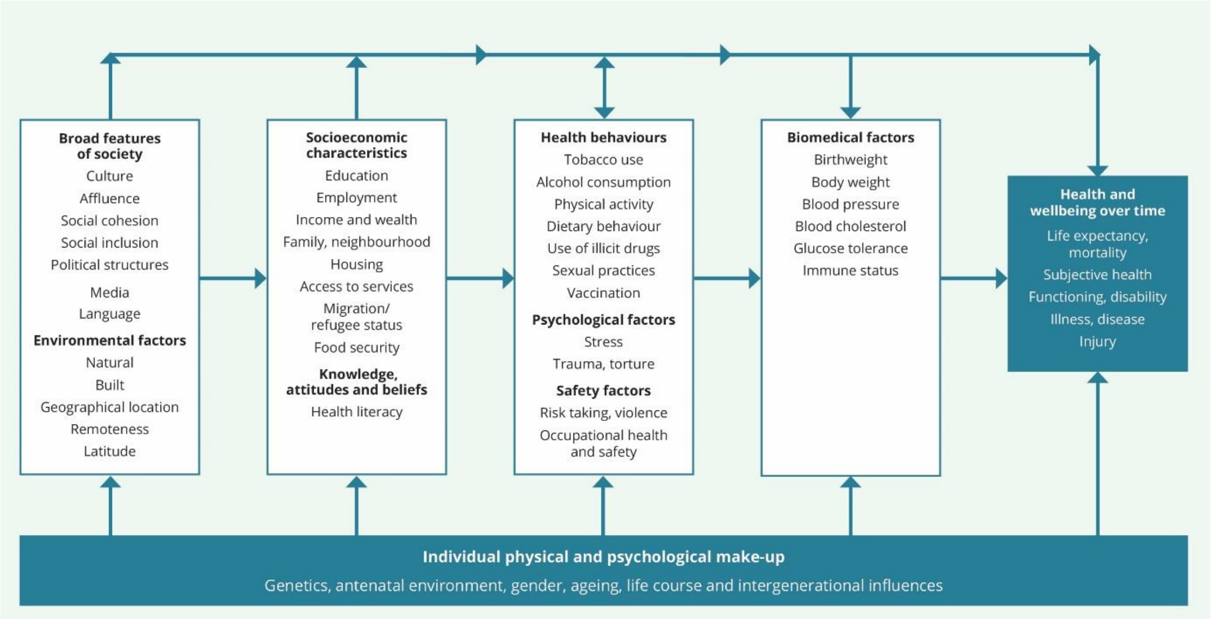
These many factors, known as 'health determinants', may be risk or protective factors, and interact to influence the health of individuals and communities.

The framework in Figure 1 depicts risk factors from 'downstream' behavioural and biomedical factors to 'upstream' risk factors (further away in the causal chain from the health outcome), which include broad features of society such as the natural and built environment, culture and affluence. The factors within each box in Figure 1 can interact and are closely related to each other, and all play a large role in determining health and health outcomes.

The socioeconomic characteristics in the framework – including education; employment; income; family circumstances and early childhood; housing; working conditions; and social support – have each been shown to affect health outcomes, with overlap between them: for example, people with higher education are more likely to earn higher incomes. They have an important influence on health inequities – the avoidable differences in health status seen within and between groups and countries (Commission on Social Determinants of Health 2008).

See Social determinants of health.

Figure 1: Framework for determinants of health



Even more broadly, commercial environments (for example, advertising and supply chains) and digital environments (for example, digital technology and resources such as electronic medical records and advances to diagnostic and therapeutic tools) can be determinants of health; see also the National Preventive Health Strategy 2021–2030 (Department of Health 2021a).

See the Determinants of health domain in Australia's health topic summaries for more information.

Measuring health

Many measures can be used to describe the health of an individual or a population. Some commonly used measures are listed in Table 1.

Table 1: Common measures of health status

Life expectancy	The number of years of life, on average, remaining for an individual at a particular age if death rates do not change. The most commonly used measure is life expectancy at birth.
Mortality	The number of deaths in a population in a given period.
Morbidity	Ill health in an individual and levels of ill health within a population (often expressed

	through incidence, prevalence and comorbidity measures – see Glossary).
Disability-adjusted life year (DALY)	One year of healthy life lost due to illness and/or death. DALYs are calculated as the sum of the years of life lost due to premature death and the years lived with disability due to disease or injury.
Health-adjusted life expectancy	The average length of time an individual at a specific age can expect to live in full health; that is, time lived without the health consequences of disease or injury.
Self-assessed health status	An individual's own opinion about how they feel about their health, their state of mind and their life in general.

These measures are useful to observe trends over time, compare different population groups and geographic regions, and monitor certain health conditions. Health measures enable differences in health outcomes to be identified. These measures are discussed in more detail in the Health status and Health of population groups domains in Australia's health topic summaries.

Health system interventions

The health system supports the health of the nation by treating illness, preventing disease, and maintaining people's health. Health system overview describes how Australia's health system works. A functioning health system ensures that people remain as healthy as possible and for as long as possible. Australia's health system facilitates this by providing services such as hospital care and primary health care (such as general practice and allied health services) and access to preventative measures such as immunisation and vaccination. Health promotion and health protection is also a crucial part of the system which supports people's health. See also the Health system domain in Australia's health topic summaries.

Australian Charter of Healthcare Rights

The Australian Charter of Healthcare Rights (2nd edition) (ACSQHC 2020) describes the 7 key rights of patients and consumers who seek or receive health care:

- Access – the right to access health care services and treatment that meet their needs
- Safety – the right to safe and high-quality health care that meets national standards in a safe environment
- Respect – the right to be treated as an individual, with dignity and respect, and to have culture, identity, beliefs, and choices recognised and respected

- Partnership – the right to be involved in open and honest communication, to make decisions with health care providers, and to choose who to include in planning and decision making
- Information – the right to clear information about conditions and services, to assistance when needed to understand health information, and to access personal health information
- Privacy – the right to privacy and confidentiality of personal information
- Give feedback – the right to comment on care, to have concerns dealt with transparently and in a timely manner, and to share experiences and participate to improve quality of care and health services (ACSQHC 2020).

The application of the Charter to the health system is informed by 3 guiding principles: the right of everyone to access health care; the commitment of the Australian Government to international agreements recognising the right to health; and the acknowledgement of and respect for the different cultures and ways of life in Australian society.

Health data in Australia

The availability of quality, timely, accessible and comprehensive health data is important for measuring health status and service use, and considering improvements to support the health and wellbeing of Australians.

Despite recent information improvements and enhancements and the fact that Australians have access to high quality information in many areas of health, there are aspects of health and the health system that we don’t have adequate information on. Data gaps exist where there are no national data currently available or where data collected are not comprehensive or in a format that can be analysed or used meaningfully.

These gaps in available information can limit the capacity for population health monitoring, research, planning and policy development in important areas of the health system. Some gaps in Australian health data include:

- a lack of person-centred data. Some data are event rather than person based and it is not always possible to see how one person uses multiple services.
- data on primary health care activity and outcomes (the available health data – drawn from Medicare – provide a wide and comprehensive coverage of health care use. However, as with any data source, there are still gaps. For example, Medicare does not contain information about why some healthcare services are used and others are not, as well as diagnostic and health outcome information)
- information on some population groups – such as culturally and linguistically diverse populations and refugees.

Data integration

Data integration (a process combining information from multiple sources, while preserving privacy) is increasingly being used to fill knowledge and data gaps across the health information system. Demand continues to grow both for one-off data integration and more enduring integrated data assets to answer complex cross-sector and cross-jurisdictional health questions. For example, the Analysis of cancer outcomes and screening behaviour for national cancer screening programs in Australia combined data from the National Bowel Cancer Screening Program, BreastScreen Australia, and the National Cervical Screening Program. It was found that screen-detected cancers were less likely to cause death than non-screen-detected cancers (AIHW 2018). In addition, a number of Multi-source Enduring Linked Data Assets have emerged in Australia, including the National Integrated Health Services Information Analysis Asset and the Multi-Agency Data Integration Project.

Health data and COVID-19

Timely and accurate health data from a range of sources have been pivotal in informing responses to the COVID-19 pandemic. The pandemic has made the value of health data, as well as the gaps and issues in the collection and use of that data, more prominent and visible, while also enabling some data sharing and timely improvements.

For more information, see 'Chapter 10 Health information in Australia: an evolving landscape with an integrated future’ in Australia’s health 2022: data insights.

The impact of COVID-19

The COVID-19 pandemic has affected the health and wellbeing of Australians. The pandemic has had direct health effects – for example for those who contracted the disease – and a multitude of indirect health impacts. These indirect impacts have stemmed from the many measures implemented to reduce the spread of the virus and support our health system, such as lockdowns and stay-at-home orders.

These measures have also had the potential to impact people’s mental and emotional wellbeing, health care for other conditions, and health behaviours. In addition, they have had a broader impact on other factors important to health, such as employment, income, family functioning, and social connectedness. However, there have also been improvements in other aspects of health, such as reductions in injuries (including fewer road deaths) and fewer cases of other infectious diseases such as influenza in 2020 (AIHW 2021c).

For more information see Social isolation and loneliness, Employment and unemployment, and ‘Chapter 1 The impact of a new disease: COVID-19 from 2020, 2021 and into 2022’ and ‘Chapter 2 Changes in the health of Australians during the COVID-19 period’ in Australia’s health 2022: data insights.

The measures designed to control the spread of the virus have also had notable impacts on the healthcare system and the way people engage with healthcare services, including:

- reductions in the assessment and screening rates for some medical conditions, such as breast cancer screening (AIHW 2020a)
- increased demands on hospital intensive care units (AIHW 2020b)
- postponement of many non-essential surgical procedures (AIHW 2021a)
- inclusion of more telehealth items in the MBS, increasing the breadth and accessibility of healthcare services (AIHW 2021b; Department of Health 2021b).

Where do I go for more information?

For more information on health definitions and factors influencing health, see:

- World Health Organization
- Department of Health National Preventive Health Strategy 2021–2030.

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Determinants of health

A person’s health and wellbeing is influenced by individual, societal and socioeconomic factors. These topic summaries focus on these ‘determinants of health’, which can affect the health of individuals and communities.

Alcohol

This topic summary is part of the Alcohol, tobacco & other drugs in Australia compendium.

The National Health and Medical Research Council (NHMRC) publishes guidelines for reducing health risks associated with drinking alcohol. New Australian guidelines to reduce health risks from drinking alcohol were released in December 2020. Data for alcohol risk in this report are measured against the guidelines in place at the time of data collection. For example the 2019 National Drug Strategy Household Survey (NDSHS) and 2017-2018 National Health Survey (NHS) data are collected against the 2009 guidelines, while 2020 NHS data are collected against the 2020 guidelines. NDSHS data relating to the updated guidelines are available in the Measuring risky drinking according to the Australian alcohol guidelines report.

The consumption of alcohol is widespread within Australia and associated with many social and cultural activities. Provided compliance with certain conditions, consuming and selling alcohol is legal in Australia and it is widely accepted. When consumed, alcohol produces a number of central nervous system depressant effects.

Alcohol concentration varies considerably with the type of drink. In Australia, beer contains 0.9–6% alcohol, wine contains 12–14%, fortified wines such as sherry and port contain around 18–20%, and spirits such as scotch, rum, bourbon and vodka contain 40–50% (NSW Ministry of Health 2017).

Key findings

- The majority of Australians aged 14 years and over consume alcohol, however the proportion of people drinking in excess of lifetime risk guidelines declined from 21% in 2011 to 16.8% in 2019
- In 2019, 25% of people aged 14 and over exceeded the single occasion risk alcohol guideline by consuming more than 4 standard drinks in one sitting, at least monthly
- Between 2015 and 2020, the highest rates of alcohol and other drug-related ambulance attendances were related to alcohol intoxication
- Alcohol accounted for over 74,500 (53%) drug-related hospitalisations in 2019–20
- There were 1,452 alcohol-induced deaths in 2020
- In 2020–21, alcohol was the most common principal drug of concern in closed treatment episodes provided for clients' own drug use (37%)

Availability

For related content on alcohol availability by region, see also Data by region: International comparisons

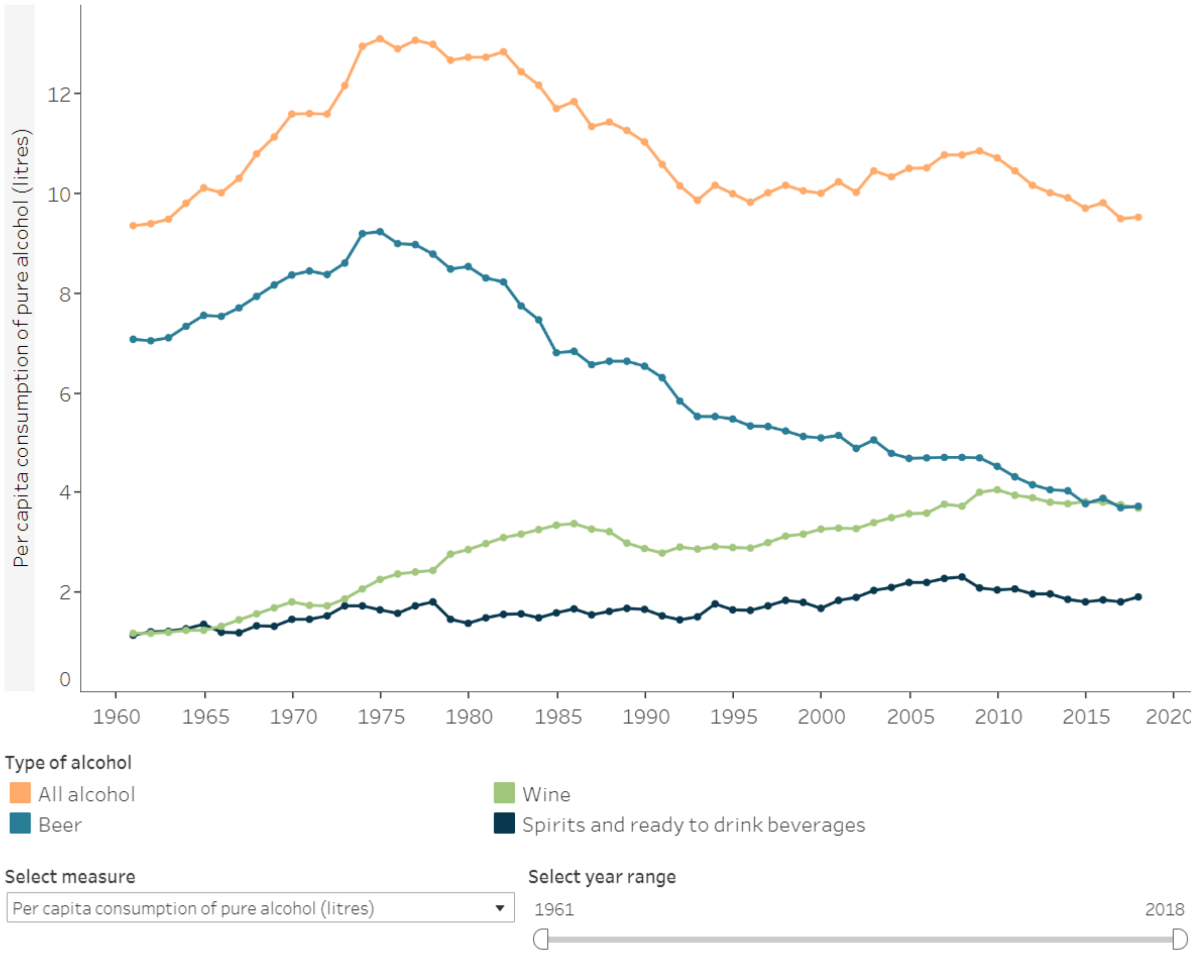
Data about the volume of alcohol available for consumption are collated by the Australian Bureau of Statistics (ABS) from information about import clearance, excise and domestic alcohol sales (ABS 2019a).

- In 2017–18, there were 191.2 million litres of pure alcohol available for consumption through alcoholic beverages in Australia, an increase from 187.6 million litres available in 2016–17 (Figure ALCOHOL1).
- The volume of pure alcohol available for consumption in the form of beer increased by 2.5%, and spirits and ready to drink (RTD) (pre-mixed beverages) by 7.0% between 2016–17 and 2017–18. The volume of pure alcohol available for consumption in the form of wine decreased by 0.2% and cider by 9.0% during this period.
- Beer continues to lead the alcohol supply, contributing to 39.0% of all pure alcohol available for consumption in 2017–18, followed by wine (38.6%), spirits and RTDs (19.9%) and cider (2.5%) (Table S2.3).
- There were 9.51 litres of pure alcohol available for consumption per person aged 15 years and over in 2017–18. However, over the last decade, there was a decline of around 1.1% per year in the overall per capita trend (Figure ALCOHOL1).
- Australia was above the OECD average for litres per capita of alcohol consumed by people aged 15 and over, at 9.5 compared with 8.7 litres per capita in 2020 (OECD 2021).
- As the standard drink consists of 12.5mls of pure alcohol, the apparent consumption of alcohol in 2017–18 is equivalent to an average of 2.72 standard drinks per day per consumer of alcohol aged 15 and over. This is similar to the 2.70 standard drinks observed in 2016–17 (ABS 2019a).
- On average, Australian households spend $32 on alcoholic beverages per week and this has remained stable between 2009–10 and 2015–16 (ABS 2017) (Table S2.4).

Over the past 50 years, levels of apparent consumption of different alcoholic beverages have changed substantially. In particular, over the period 1967–68 to 2017–18:

- The proportion of pure alcohol available for consumption in the form of beer has decreased considerably, from 73.5% to 39.0%.
- Wine consumption as a proportion of total pure alcohol consumption has increased from 14.4% to 38.6%.
- Spirits (including RTDs) have also increased from 12.2% to 19.9% (ABS 2019a).

Figure ALCOHOL1: Apparent consumption of pure alcohol available for consumption, by alcohol type, year ended 30 June 1961 to 2018 (litres per capita and total volume)



Title: Figure ALCOHOL1: Apparent consumption of pure alcohol available for consumption, by alcohol type, year ended 30 June 1961 to 2018 (litres per capita or total volume).

1. Apparent consumption refers to the total amount of alcohol available for consumption in a given year.
2. Per capita consumption of pure alcohol (litres) refers to litres available per person aged 15 and over.
3. A number of changes in methodology have occurred from 2013–14 to 2016–17. Caution should be taken when making comparisons between these years.

Source: AIHW, adapted from the Australian Bureau of Statistics. Supplementary Table S2.3.

http://www.aihw.gov.au

Consumption

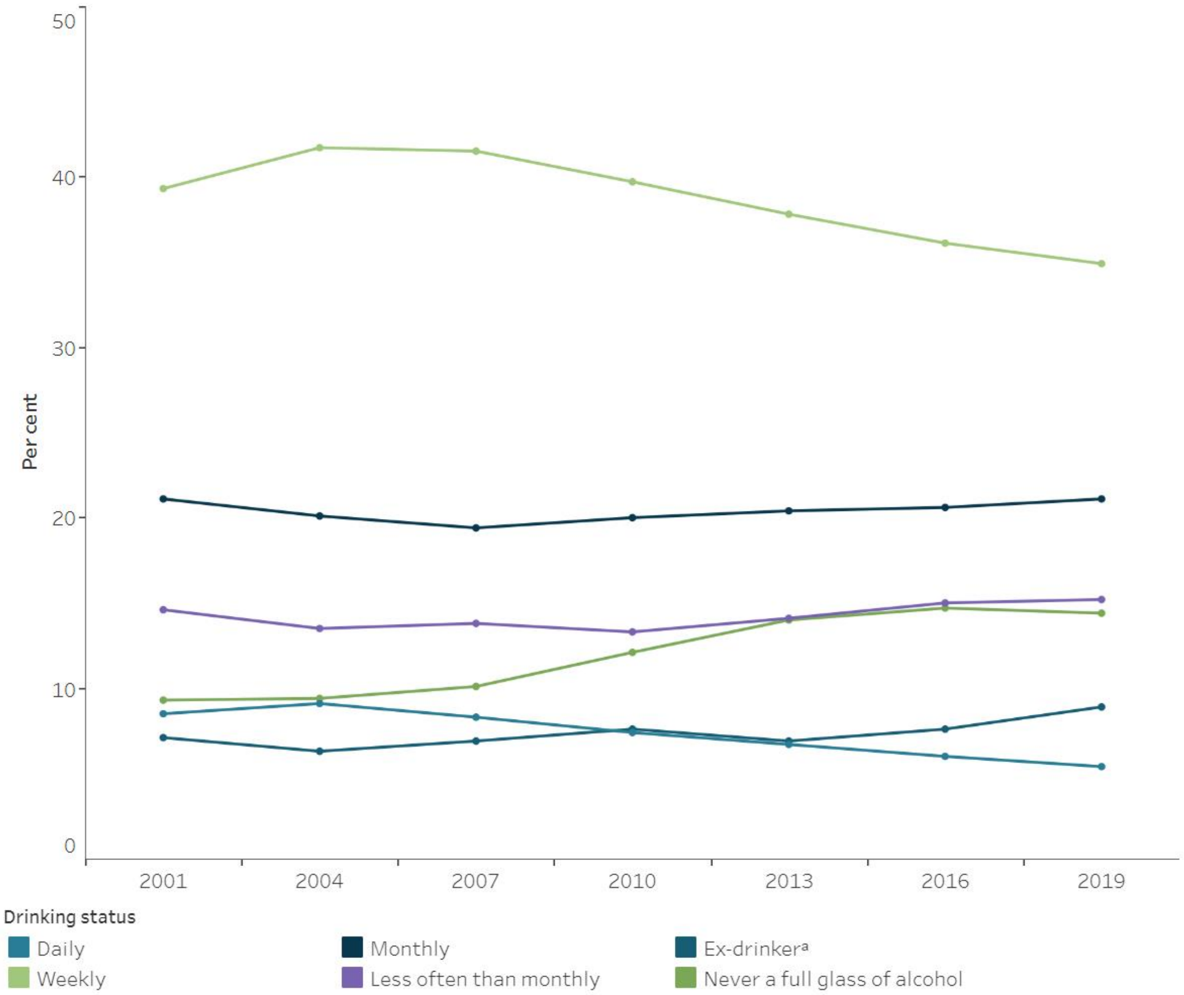
For related content on alcohol consumption by region, see also Data by region: Alcohol consumption

The majority of Australians aged 14 and older have consumed alcohol in their lifetime. The 2019 National Drug Strategy Household Survey (NDSHS) found that:

- Of the population aged 14 and over, around three-quarters (77%) had consumed a full serve of alcohol in the previous 12 months, and 23% had not consumed alcohol (Figure ALCOHOL2; Table S2.25).

- The proportion of the population aged 14 and over who consumed alcohol daily declined significantly between 2016 (6.0%) and 2019 (5.4%) (Table S2.25).
- The proportion of ex-drinkers increased significantly from 7.6% in 2016 to 8.9% in 2019 (Table S2.25).
- Alcohol was the only drug where approval of regular use by an adult (45%) was higher than disapproval (21%) (AIHW 2020).

Figure ALCOHOL2: Alcohol drinking status, people aged 14 and over, 2001 to 2019 (per cent)



Title: Figure ALCOHOL2: Alcohol drinking status, people aged 14 and over, 2001 to 2019 (per cent).
(a) Consumed at least a full serve of alcohol, but has not had an alcoholic drink in the previous 12 months.
Note: The calculation of drinking status and alcohol risk variables was updated for all years in 2019. Trend data may not match previously published results.
Source: AIHW. Supplementary Table S2.25.

http://www.aihw.gov.au

These findings are consistent with the National Health Survey (NHS) which found that in 2017–18 among Australians aged 18 and over, 79% had consumed alcohol in the past year (ABS 2018b). A further 8.5% had consumed alcohol 12 or more months ago, and 11.6% had never consumed alcohol (ABS 2018b) (Table S2.27).

Lifetime risk

Many drinkers consume alcohol responsibly; however, a substantial proportion of drinkers consume alcohol at a level that exceeds that recommended by the NHMRC and in doing so, increase their risk of alcohol-related harm (see Box ALCOHOL1).

Box ALCOHOL1: Summary of the Australian guidelines to reduce health risks from drinking alcohol

The National Health and Medical Research Council (NHMRC) publishes guidelines for reducing health risks of drinking alcohol. The NHMRC released new Australian guidelines to reduce health risks from drinking alcohol in December 2020. Data for alcohol risk in this report are measured against the guidelines in place at the time of data collection. For example NDSHS and 2017-2018 NHS data are collected against the 2009 guidelines, while 2020 NHS data are collected against the 2020 guidelines. NDSHS data relating to the updated guidelines are available in the *Measuring risky drinking according to the Australian alcohol guidelines* report.

The 2009 Guidelines state

Guideline 1: To reduce the risk of alcohol-related harm over a lifetime (such as chronic disease or injury); a healthy adult should drink no more than 2 standard drinks a day.

Guideline 2: To reduce the risks of injury on a single occasion of drinking, a healthy adult should drink no more than 4 standard drinks on any one occasion.

Guideline 3: For children and young people under 18, not drinking is the safest option. For young people aged 15–17 years, delaying the start of alcohol consumption for as long as possible is the safest option.

Guideline 4: Women who are pregnant, planning a pregnancy or breast-feeding should not drink at all. The greatest harm to the foetus or breastfeeding infant occurs when drinking is at high and frequent levels, but no level of drinking is considered safe (NHMRC 2009).

The 2020 Guidelines state:

Guideline 1: To reduce the risk of harm from alcohol-related disease or injury, healthy men and women should drink no more than 10 standard drinks a week and no more than 4 standard drinks on any one day.

Guideline 2: To reduce the risk of injury and other harms to health, children and people under 18 years of age should not drink alcohol.

Guideline 3:
a. To prevent harm from alcohol to their unborn child, women who are pregnant or planning a pregnancy should not drink alcohol.

b. For women who are breastfeeding, not drinking alcohol is safest for their baby (NHMRC 2020).

There has been a decline in the proportion of Australians exceeding the 2009 guidelines for lifetime risk by consuming more than 2 standard drinks per day, on average (Figure ALCOHOL3). The 2019 NDSHS found that:

- The proportion of people aged 14 and older exceeding lifetime risk guidelines declined from 21% in 2001 to 16.8% in 2019. However, there has been little change since 2016 (17.2%) (Table S2.28).
- Of people aged 14 and over, males are far more likely than females to drink at risky levels – about 1 in 4 (24%) males and 1 in 10 (9.4%) females exceeded the lifetime risk guidelines (AIHW 2020).

Similarly, after adjusting for age, the NHS reported that in 2017–18, 16.0% of adults aged 18 and over exceeded the lifetime risk guideline, a decrease from 17.3% in 2014–15 and 19.4% in 2011–12 (Table S2.26). A higher proportion of males than females exceeded the lifetime risk guidelines (23.7% compared with 8.8%) (Table S2.27).

The National Health Survey 2020-21 was collected online during the COVID-19 pandemic and is a break in time series. Data should be used for point-in-time analysis only and can't be compared to previous years. Data for this release were collected against the 2020 Australian guidelines to reduce health risks from drinking alcohol. Estimates using self reported data show that in 2020-21:

- 1 in 4 Australians aged 18 years and over exceeded the 2020 Australian Alcohol Guidelines (25.8%). This includes people who consumed more than 10 drinks in the last week and/or consumed 5 or more drinks in any day at least monthly in the last 12 months.
- Men were more likely than women to exceed the guideline (33.6% compared to 18.5%)
- People born in Australia were almost twice as likely as those born overseas to exceed the guideline (30.0% compared to 17.3%) (ABS 2022).

Single occasion risk

There are a considerable number of Australians who report consuming alcohol in excess of the single occasion risk guidelines – that is, more than 4 standard drinks on any one occasion (this is the case for the 2009 and 2020 guidelines). Specifically, 2019 NDSHS findings showed that:

- 1 in 4 (25%) people aged 14 and over drank at a risky level on a single occasion at least monthly, a similar proportion to 2016 (26%) (Table S2.28).
- As with lifetime risk, a higher proportion of males (33%) than females (16.6%) exceeded the single occasion risk guideline (AIHW 2020).
- While people aged 18–24 (41%) and 25–29 (36%) were most likely to exceed the single occasion risk guideline in 2019, there were significant increases in the proportions for people aged 50–59 (27%, up from 25% in 2016) and 70 and over (8.8%, up from 7.2% in 2016). Conversely, there was a significant decrease in the

proportion of people aged 30–39 who exceeded the single occasion risk guideline in 2019 (28%, compared with 31% in 2016) (Table S3.35).

The 2017–18 NHS results reported about 2 in 5 (42.1%) adults aged 18 and older consumed more than 4 standard drinks on a single occasion at least once in the past year, exceeding the single occasion risk guidelines (ABS 2018b). Adult males (54.2%) were more likely than females (30.5%) to exceed the single occasion risk guideline in the last 12 months (Table S2.29).

Figure ALCOHOL3: Abstainers, lifetime risk or single occasion risk (at least monthly), people aged 14 and over, by age and sex, 2007 to 2019 (per cent)

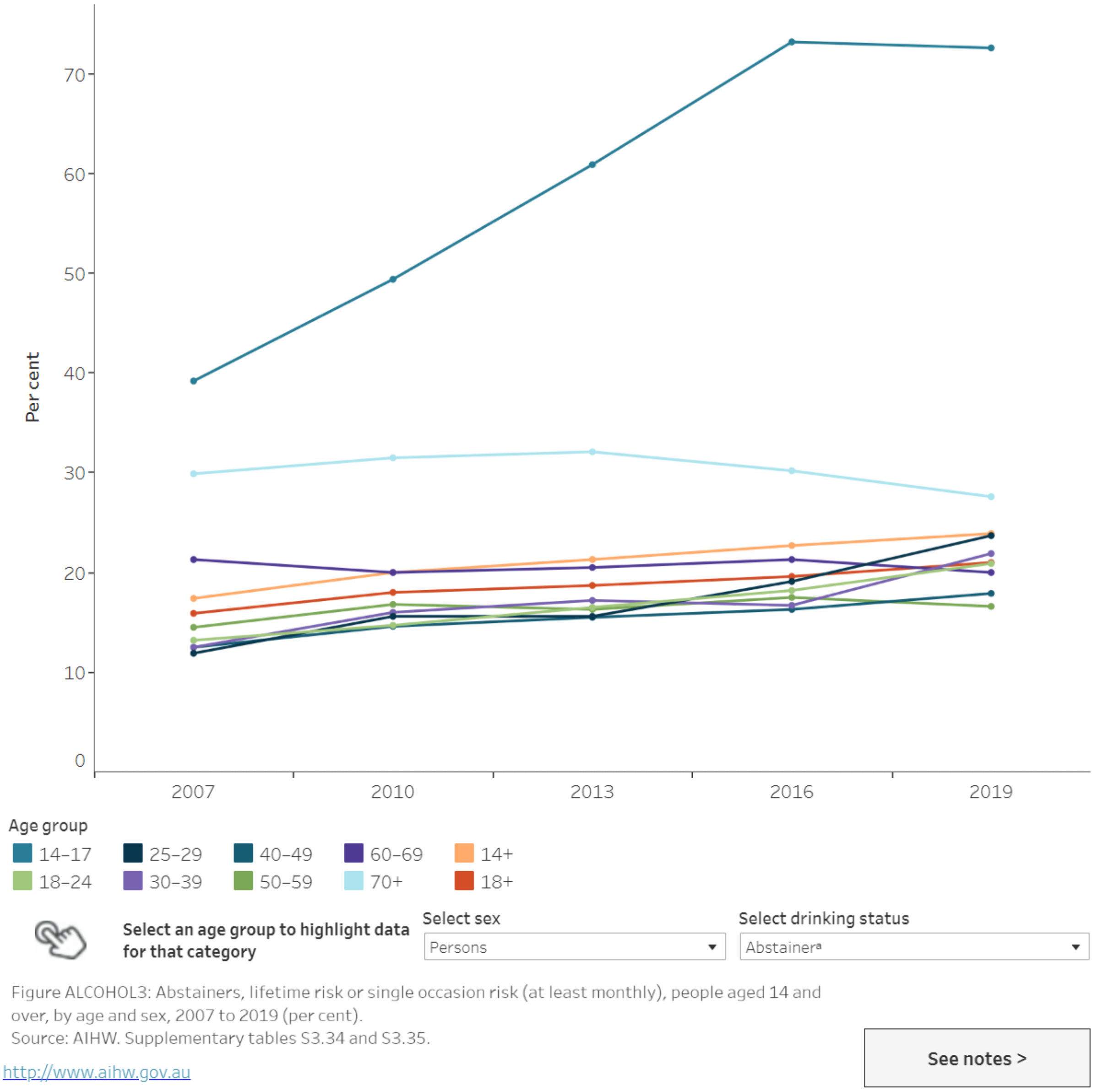


Figure ALCOHOL3: Abstainers, lifetime risk or single occasion risk (at least monthly), people aged 14 and over, by age and sex, 2007 to 2019 (per cent).
Source: AIHW. Supplementary tables S3.34 and S3.35.

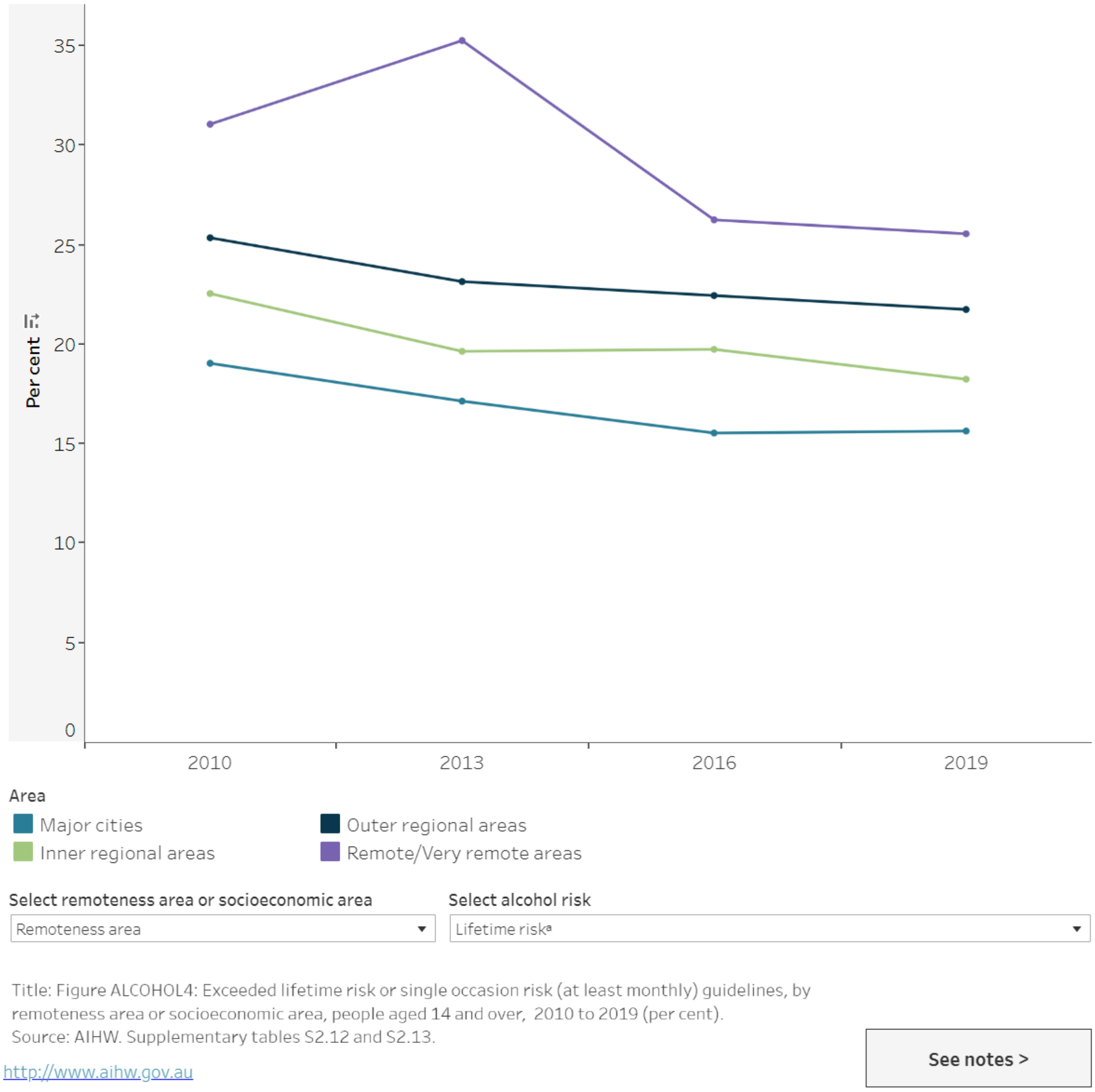
Geographic trends

As with the national trends for the 2019 NDSHS, there were no significant differences in the proportion of people exceeding the lifetime and single occasion risk guidelines across jurisdictions between 2016 and 2019. However, the proportions reported across jurisdictions in 2019 were lower than those reported in 2007 (AIHW 2020). The proportion of ex-drinkers increased significantly between 2016 and 2019 in New South Wales (from 7.2% to 9.3%), Victoria (from 7.0% to 8.8%) and South Australia (from 6.6% to 8.5%) (AIHW 2020).

In general, people living in *Regional* and *Remote* areas of Australia are more likely than people in *Major cities* to exceed risk guidelines.

- The 2019 NDSHS findings showed that people aged 14 or over living in *Remote and very remote* areas of Australia are about 1.5 times as likely as people living in *Major cities* to exceed lifetime risk guidelines (26% compared with 15.6%) and the single occasion risk guidelines (at least monthly) (38% compared with 24%) (Figure ALCOHOL4; Table S2.12). These findings were still apparent after adjusting for differences in age (AIHW 2020).
- The 2017–18 NHS results showed that adults (aged 18 or older) in *Outer regional* and *Remote* areas were 1.7 times as likely to exceed lifetime risk guidelines as those in *Major cities* (24.4% and 14.7%, respectively) (Table S2.26; age-standardised proportions).

Figure ALCOHOL4: Exceeded lifetime risk or single occasion risk (at least monthly) guidelines, by remoteness area or socioeconomic area, people aged 14 and over, 2010 to 2019 (per cent)



Select remoteness area or socioeconomic area: Remoteness area

Select alcohol risk: Lifetime risk[a]

Title: Figure ALCOHOL4: Exceeded lifetime risk or single occasion risk (at least monthly) guidelines, by remoteness area or socioeconomic area, people aged 14 and over, 2010 to 2019 (per cent).
Source: AIHW. Supplementary tables S2.12 and S2.13.

http://www.aihw.gov.au

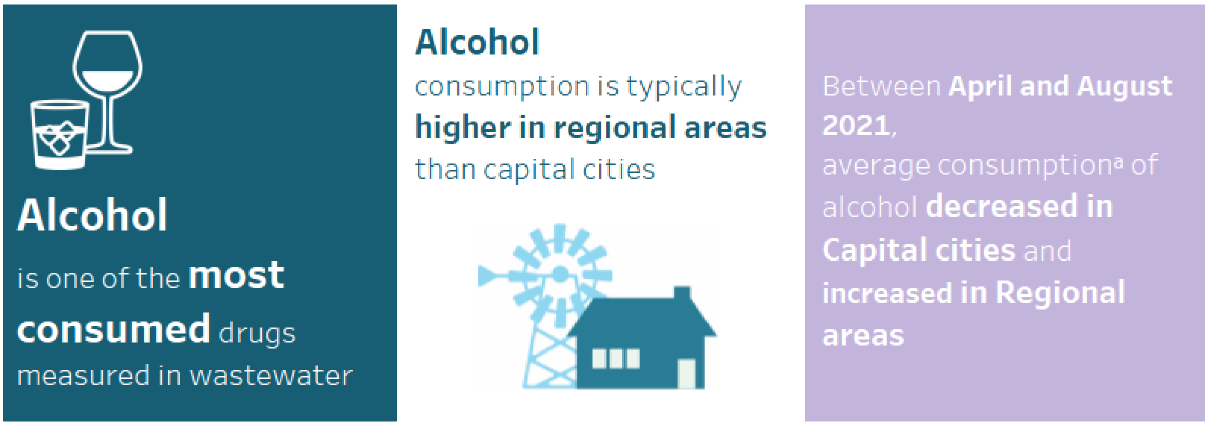
The National Wastewater Drug Monitoring Program (NWDMP) measures the presence of substances in sewerage treatment plants across Australia. Alcohol is typically one of the most commonly detected substances monitored by the program. Since the beginning of the Program, the estimated population-weighted average consumption of alcohol has remained relatively steady, averaging out short-term fluctuations (ACIC 2022).

Data from Report 15 of the NWDMP showed that nationally:

- Consumption of alcohol decreased in capital cities and increased in regional areas.
- Estimated population-weighted average alcohol consumption in regional areas was higher than capital cities in August 2021 (ACIC 2022).

For state and territory data, see the National Wastewater Drug Monitoring Program reports.

Figure ALCOHOL5: Estimated consumption of alcohol in Australia based on detections in wastewater, 2020 to 2021



Alcohol is one of the **most consumed** drugs measured in wastewater

Alcohol consumption is typically **higher in regional areas** than capital cities

Between **April and August 2021**, average consumption[a] of alcohol **decreased in Capital cities** and **increased in Regional areas**

(a) "Average consumption" refers to estimated population-weighted average consumption.

Note: Data are from 58 wastewater treatment sites, covering approximately 57% of the Australian population in 2021.

Source: AIHW. Adapted from NWDMP Report 15.

Poly drug use

Poly drug use is defined as the use of more than 1 illicit drug or licit drug in the previous 12 months. In 2019, the NDSHS showed more than 1 in 4 recent risky drinkers reported recent use of cannabis (27% for lifetime risky drinkers and 28% for single occasion risky drinkers). Around 1 in 5 reported that they were also daily smokers (21% for lifetime risky drinkers and 18.7% for single occasion risky drinkers) (Table S2.68).

Data on alcohol and other drug-related ambulance attendances are sourced from the National Ambulance Surveillance System for Alcohol and Other Drug Misuse and Overdose. Data for 2020 are currently available for New South Wales, Victoria, Queensland, Tasmania and the Australian Capital Territory. Data are presented for 4 snapshot months per year, specifically March, June, September and December. Please see the data quality statement for further information.

In 2020, the proportion of alcohol intoxication-related ambulance attendances where multiple drugs were consumed was low, ranging from 2.5% of attendances in the Australian Capital Territory to 4.7% of attendances in Victoria and Tasmania (Table S2.81).

Harms

For related content on alcohol impacts and harms, see also:

- Health impacts: Deaths due to harmful alcohol consumption

- Social impacts
- Economic impacts
- Older people: Health and harms
- Younger people: Health and harms

Alcohol is absorbed rapidly in the bloodstream and affects the brain within about 5 minutes, though this may vary from person to person depending on body mass and general state of health (NSW Ministry of Health 2017). Short-term effects of alcohol such as a sense of relaxation and reduced inhibitions, may add to the appeal of its consumption. However, when consumed in excess, alcohol can also produce unpleasant effects such as nausea and vomiting and may influence people to engage in harmful behaviour (Table ALCOHOL1).

Table ALCOHOL1: Effects of alcohol consumption

Short-term effects	Long-term effects
• Reduced inhibitions • A sense of relaxation • Loss of alertness or coordination, and slower reaction times • Impaired memory and judgement • Nausea, shakiness and vomiting • Blurred or double vision • Disturbed sleep patterns • Disturbed sexual functioning	• Oral, throat and breast cancers • Liver cirrhosis • Brain damage and dementia • Some forms of heart disease and stroke

Source: NSW Ministry of Health (2017).

Burden of disease and injury

The Australian Burden of Disease Study 2018, found that alcohol use was the fifth highest risk factor contributing to the burden of disease in Australia, and was responsible for 4.5% of the total burden of disease and injury (AIHW 2021b (Table S2.62). The age-standardised rate of total attributable burden due to alcohol use decreased from 9.5 DALY per 1,000 population to 8.5 in 2018 (a 10.5% decline from 2003 to 2018).

Alcohol use contributed to a number of diseases and injuries including:

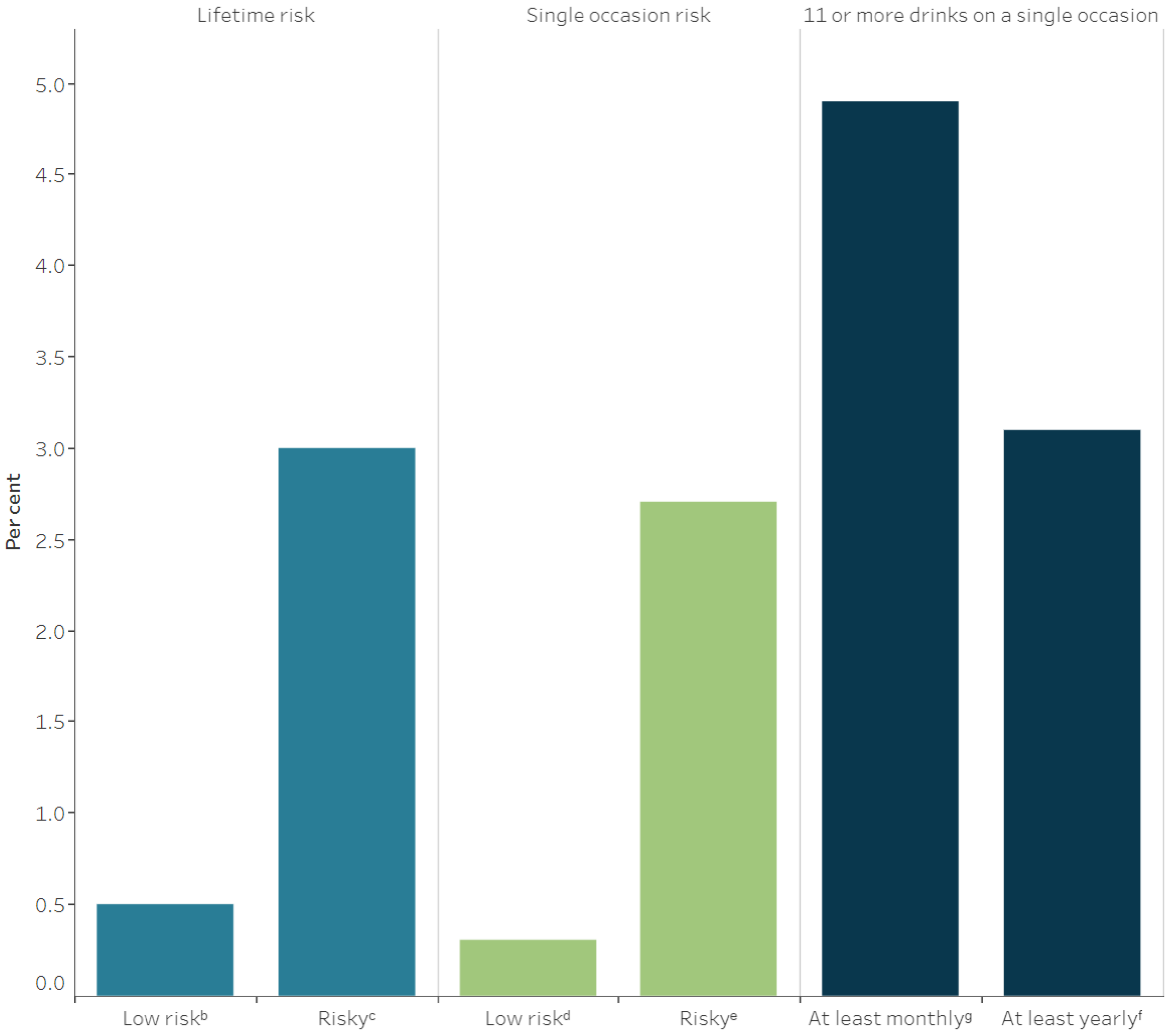
- 100% of the burden due to alcohol use disorders
- 40% of the burden due to liver cancer
- 25% of the burden due to road traffic injuries involving motor vehicle occupants
- 19.2% of the burden due to chronic liver disease

- 14.2% of the burden due to suicide and self-inflicted injuries (AIHW 2021b) (Table S2.63).

The 2019 NDSHS reported that 1.2% of recent drinkers were injured while under the influence of alcohol and required medical attention while less than 1% (0.4%) required admission to hospital for their injuries. Less than 1.0% of recent drinkers required medical attention (0.3%) or hospitalisation (0.2%) because they were intoxicated (AIHW 2020).

This risk increased for people who consumed alcohol at risky quantities. Specifically, 3.0% of people that exceeded lifetime risk guidelines required medical attention due to injuries sustained while drinking or due to intoxication, compared with less than 1% (0.5%) for low risk drinkers. Further, 4.9% of people who consumed 11 or more standard drinks at least monthly, required medical attention for their injuries (Table S2.64; Figure ALCOHOL6).

Figure ALCOHOL6: People who have been injured or intoxicated and required medical attention while under the influence of alcohol, recent drinkers aged 14 and over, by alcohol risk, 2019 (per cent)



Title: Figure ALCOHOL6: People who have been injured or intoxicated and required medical attention while under the influence of alcohol, recent drinkers[a] aged 14 and over, by alcohol risk, 2019 (per cent).
Source: AIHW. Supplementary Table 2.64.

http://www.aihw.gov.au

Ambulance attendances

Data on alcohol and other drug-related ambulance attendances are sourced from the National Ambulance Surveillance System for Alcohol and Other Drug Misuse and Overdose. The highest number and rate of ambulance attendances continues to be alcohol intoxication-related (tables 12 and S2.81).

In 2020, for alcohol intoxication-related ambulance attendances:

- Rates of attendances ranged from 143.3 per 100,000 population in New South Wales to 198.9 per 100,000 population in Queensland.

- The majority of attendances were for males, ranging from 57% of attendances in the Australian Capital Territory to 62% in New South Wales.
- The median age of patients for alcohol intoxication-related attendances ranged from 38 years in Tasmania to 43 years in New South Wales (Table S2.81).

The characteristics of alcohol intoxication-related ambulance attendances varied by region. In 2020:

- Higher rates of attendances were reported in regional areas than in metropolitan areas in New South Wales (157.1 per 100,000 population and 136.4, respectively), Victoria (182.4 per 100,000 population and 145.5, respectively) and Queensland (237.3 per 100,000 population and 154.8, respectively).
- In contrast, Tasmania reported higher metropolitan rates of attendance (201.7 per 100,000 population metropolitan and 96.9 in regional areas).
- Similar proportions of alcohol intoxication-related attendances were transported to hospital in metropolitan and regional areas for New South Wales, Victoria and Queensland, ranging from 79% to 83% of attendances.
- In Tasmania, more metropolitan attendances were transported to hospital than in regional areas (81% and 74%, respectively).
- The Australian Capital Territory (metropolitan only) reported that 70% of alcohol intoxication-related attendances were transported to hospital (Table S2.81).

Hospitalisations

Drug-related hospitalisations are defined as hospitalisations with a principal diagnosis relating to a substance use disorder or direct harm relating to use of selected substances (AIHW 2018).

AIHW analysis of the National Hospital Morbidity Database showed that alcohol accounted for over 1 in 2 (53%) drug-related hospitalisations in 2019–20 (Table S1.8a). Alcohol has remained the most common drug recorded in drug-related hospitalisations across the 5 years to 2019–20.

The number and rate of alcohol-related hospitalisations increased between 2015–16 (68,236 hospitalisations, or 284.5 per 100,00 population) and 2018–19 (75,765, or 301 per 100,000), then declined in 2019–20 (74,511, or 291.5 per 100,000) (Table S1.8b).

In 2019–20, almost 3 in 4 (71%) alcohol-related hospitalisations occurred in *Major cities*. Previous analysis by the AIHW indicates that the relative proportions of hospitalisations by drug type were different in each remoteness area with a higher proportion of drug-related hospitalisations for alcohol (as opposed to other drugs) in *Remote and very remote areas* of Australia than in *Major cities* and *Regional areas* (AIHW 2019). In 2019–20, there were 696.7 alcohol-related hospitalisations per 100,000 population in *Remote and very remote areas* (3,419 hospitalisations) (Table S1.8c).

Deaths

Alcohol-induced deaths are defined as those that can be directly attributable to alcohol use (that is, where an alcohol-related condition is recorded as the underlying cause of death), as determined by toxicology and pathology reports (for example, alcoholic liver cirrhosis or alcohol poisoning). Alcohol-related deaths include deaths directly attributable to alcohol use and deaths where alcohol was listed as an associated cause of death (for example a motor vehicle accident where a person recorded a high blood alcohol concentration) (ABS 2018a). See also Health impacts: Deaths due to harmful alcohol consumption.

Australian Institute of Health and Welfare (AIHW) analysis of the AIHW National Mortality Database showed that of the 1,452 alcohol-induced deaths registered in 2020:

- The highest age-specific rates were for older people—16.0 per 100,000 population for those aged 60–64 years; 13.2 for those 55–59; and 12.3 for those aged 50–54. This compares with age-specific rates of 0.3 (or less) per 100,000 population for people aged 29 and under (Table S1.1e).
- The majority (73%, or 1,056 deaths) were recorded for males (Table S1.1f).

The most common cause of alcohol-induced death in 2020 was liver disease, followed by mental and behavioural disorders due to psychoactive substance use. Mental and behavioural conditions due to psychoactive substance use was also the most common contributor to alcohol-related deaths (Table S1.1f).

In 2020, ABS Causes of Death reported:

- The alcohol-induced death rate for males was 2.8 times higher than females (age-standardised rate of 7.7 per 100,000 population for males, compared with 2.8 deaths per 100,000 population for females).
- For both males and females, the highest age-specific death rate was in those aged 55–64 years (22.4 per 100,000 population for males and 7.1 per 100,000 for females (ABS 2021).

Treatment

The 2020–21 *Alcohol and Other Drug Treatment Services National Minimum Data Set (AODTS NMDS) Early Insights* report shows that alcohol was the principal drug of concern in 37% of treatment episodes provided for clients' own drug use (AIHW 2022a).

This was a similar proportion to 2019–20 (34% of closed treatment episodes) (AIHW 2021a).

Data collected for the AODTS NMDS are released twice each year—an Early Insights report in April and a detailed report mid year. Detailed information about treatment episodes for alcohol will be updated in July 2022.

The Alcohol and Other Drug Treatment Services National Minimum Data Set (AODTS NMDS) provides information on treatment provided to clients by publicly funded AOD treatment services, including government and non-government organisations. Data from the AODTS NMDS show that alcohol is the most common principal drug of concern among clients seeking treatment for their own drug use (AIHW 2021a). In 2019–20, over 1 in 3 (34%) closed treatment episodes were for alcohol—a similar proportion to 2018–19 (36% of episodes) (Table S2.76; Figure ALCOHOL7).

In 2019–20, where alcohol was the principal drug of concern:

- Around two-thirds (65%) of clients were male and over 1 in 6 (18%) were Indigenous Australians (tables S2.77 and S2.78; Figure ALCOHOL7).
- Around half (51%) of clients were aged 30–49 with 26% of clients aged 40–49 and 25% aged 30–39.
- The most common source of referral was self or family (42% of closed treatment episodes), followed by a health service (41%) (Table S2.79).
- The most common main treatment type was counselling (38% of closed treatment episodes), followed by assessment only (18%) and withdrawal management (14%) (Figure ALCOHOL7). These 3 main treatment types have remained the most common over the 10-year period to 2019–20.
- The median treatment duration of closed treatment episodes for alcohol was just under 4 weeks (26 days) (AIHW 2021a).

Figure ALCOHOL7: Treatment provided for own use of alcohol, 2019–20 (per cent)

Source: AIHW Alcohol and Other Drug Treatment Services National Minimum Data Set (AODTS NMDS).

Supplementary tables S2.76, S2.78 and S2.80.

Where the principal drug of concern was alcohol, the proportion of clients who travelled 1 hour or longer to treatment services in 2016–17 was higher in *Regional and remote* areas than in *Major cities* (29% compared with 7%) (AIHW 2019).

At-risk groups

For related content on at-risk groups, see:

- Aboriginal and Torres Strait Islander people: Alcohol consumption

- Older people: Alcohol consumption
- Younger people: Alcohol consumption
- People with mental health conditions: Alcohol consumption

While alcohol is widely consumed in Australia, some population groups are at a greater risk of problematic consumption.

- The proportion of Aboriginal and Torres Strait Islander people exceeding lifetime and single occasion risk guidelines is slightly higher than that of non-Indigenous Australians. There has been an increase in the proportion of Indigenous Australians who exceeded single occasion risk guidelines for drinking between 2002 and 2018–19.
- People aged 70 and over are the most likely to drink alcohol daily and those aged 50–59 were one of the age groups most likely to exceed the lifetime risk guideline.
- People aged 18–24 were the most likely to exceed the single occasion risk guideline, at least monthly.
- A higher proportion of people with a mental health condition reported drinking at risky levels (for both lifetime and single occasion risk) compared with people who had not been diagnosed or treated for a mental health condition.

Policy context

National Alcohol Strategy 2019–2028

The National Alcohol Strategy aims to provide a national framework to prevent and minimise alcohol-related harms among individuals, families and communities by:

- Identifying agreed national priority areas of focus and policy options;
- Promoting and facilitating collaboration, partnership and commitment from the government and non-government sectors; and
- Targeting a 10% reduction in harmful alcohol consumption.
  - Alcohol consumption at levels that puts individuals at risk of injury from a single occasion of drinking, at least monthly.
  - Alcohol consumption at levels that puts individuals at risk of disease or injury over a lifetime (DoH 2019).

Policy support for measures to reduce problems associated with alcohol

The NDSHS includes questions aimed at measuring the level of public support for policies to reduce problems associated with alcohol. In 2019, public support declined for the majority of measures to reduce the harms from alcohol. The policies with the most support to reduce alcohol related harm were:

- more severe penalties for drunk driving (85%)

- the stricter enforcement of the law against supplying alcohol to minors (79%).

The least supported policy measure was to increase the price of alcohol (26%) (AIHW 2020).

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Biomedical risk factors

Find the most recent version of this information at:
https://www.aihw.gov.au/reports/australias-health/biomedical-risk-factors

Biomedical risk factors are bodily states that have an impact on a person's risk of disease. There are a few biomedical risk factors that contribute to the risk of developing chronic health conditions. Risk factors may include high blood pressure, dyslipidaemia, impaired fasting glucose and overweight and obesity as outlined in the National Preventive Health Strategy 2021–2030 (Department of Health 2021).

This page focuses on 3 biomedical risk factors: high blood pressure, dyslipidaemia and impaired fasting glucose – which have been directly linked to specific health outcomes such as cardiovascular disease, including coronary heart disease and stroke, chronic kidney disease and diabetes. Obesity, which is also a biomedical risk factor, is discussed in Overweight and obesity.

Information on this page is largely from the Australian Bureau of Statistics (ABS) population health surveys. The most recent national data on dyslipidaemia and impaired fasting glucose levels were collected in the Australian Health Survey (AHS) in 2011–12, and subsequent national health surveys have relied on self-reported data. More frequent surveys are needed to continue to monitor the levels of these risk factors in the Australian population over time. The ABS has commenced collection of a new Intergenerational Health and Mental Health Study which will include measurement of selected biomedical risk factors.

High blood pressure

High blood pressure – also known as hypertension – is a risk factor for chronic conditions, including heart failure, chronic kidney disease and stroke.

Burden of disease refers to the quantified impact of living with and dying prematurely from a disease or injury.

The Australian Burden of Disease Study 2018 estimated disease burden in Australia due to high blood pressure – which was defined as systolic blood pressure between 110–115 mmHg. In 2018, 5.1% of the total disease burden in Australia was due to high blood pressure, making it the fourth leading risk factor contributing to disease burden (AIHW 2021a). See Burden of disease.

It was estimated that high blood pressure contributed 63% of hypertensive heart disease total burden, 42% of coronary heart disease burden, 39% of stroke burden, 37% of chronic kidney disease burden, and 31% of atrial fibrillation and flutter burden in 2018 (AIHW 2021a).

In the National Health Survey (NHS), high blood pressure was defined as systolic blood pressure greater than or equal to 140 mmHg, or diastolic blood pressure greater than or equal to 90 mmHg or receiving medication for high blood pressure. Based on results from the NHS in 2017–18, an estimated 34% of adults had high blood pressure. This included 23% who had uncontrolled high blood pressure, and 11% whose blood pressure was controlled with medication (AIHW analysis of ABS 2019). The proportion of Australian adults with high blood pressure has remained stable since 2011–12.

Dyslipidaemia

Blood lipids are fats in the blood and include cholesterol and triglycerides. Cholesterol is a fatty substance produced by the liver and carried by the blood to supply material for cell walls and hormones. Triglycerides play an important role in metabolism as an energy source and in helping to transfer dietary fat throughout the body.

Out-of-range levels of blood lipids – known as dyslipidaemia – can contribute to the development of atherosclerosis, a build-up of fatty deposits in the blood vessels. This build-up increases the risk of cardiovascular diseases.

Blood tests are used to determine levels of the commonly measured lipids. The standard lipid blood tests include measurements of total cholesterol, low-density lipoprotein cholesterol (LDL, or 'bad' cholesterol), high-density lipoprotein cholesterol (HDL, or 'good' cholesterol), as well as triglycerides.

The Australian Burden of Disease Study 2018 estimated disease burden in Australia due to high cholesterol levels – defined as LDL cholesterol between 0.7–1.3 mmol/L. High cholesterol levels contributed 2.7% of the total burden of disease in Australia in 2018. It was estimated that high cholesterol contributed 37% of coronary heart disease total burden and 16% of the total burden from stroke (AIHW 2021a). See Burden of disease.

The most recent national data on measured blood lipid levels were collected in the AHS in 2011–12, and subsequent national health surveys collected self-reported data on high cholesterol levels (ABS 2013).

Based on self-reported data from the NHS in 2017–18, an estimated 1.5 million adults (or 7.8%) reported that they had high cholesterol levels (AIHW analysis of ABS 2019). This was lower than the self-reported prevalence in 2014–15, where 1.6 million adults (or 9.1%) reported high cholesterol levels (AIHW analysis of ABS 2017).

Self-reported data underestimate the true impact of dyslipidaemia in the population, as many people are unaware they have out-of-range levels of blood lipids. In the AHS in 2011–12, blood lipid levels were measured via a blood test. A person had dyslipidaemia if they had one or more of the following: total cholesterol greater than or equal to 5.5 mmol/L, LDL cholesterol greater than or equal to 3.5 mmol/L, HDL cholesterol less than 1.0 mmol/L in men or less than 1.3 mmol/L in women, triglycerides greater than or equal to 2mmol/L, or were taking lipid-modifying medication (ABS 2013).

Based on these data, 2 in 3 (63%, or an estimated 8.5 million) Australian adults had out-of-range blood lipid levels. This included 57% with uncontrolled out-of-range blood lipids and 6.6% with normal blood lipid levels who were taking lipid-modifying medication (AIHW analysis of ABS 2014; AIHW 2015).

High blood cholesterol levels for 2020–21

Data for 2020–21 are based on information self-reported by the participants of the ABS 2020–21 NHS.

Previous versions of the NHS have primarily been administered by trained ABS interviewers and were conducted face-to-face. The 2020–21 NHS was conducted during the COVID-19 pandemic. To maintain the safety of survey respondents and ABS Interviewers, the survey was collected via online, self-completed forms.

Non-response is usually reduced through Interviewer follow-up of households who have not responded. As this was not possible during lockdown periods, there were lower response rates than previous NHS cycles, which impacted sample representativeness for some sub-populations. Additionally, the impact of COVID-19 and lockdowns might also have had direct or indirect impacts on people's usual behaviour over the 2020–21 period.

Due to these changes, comparisons with previous high cholesterol level data over time are not recommended.

Based on self-reported data from the 2020–21 NHS, an estimated 840,000 adults (or 4.3%) reported that they had high cholesterol levels (ABS 2022).

The data presented for high cholesterol levels on the rest of this page are from the 2017–18 NHS and prior versions.

Impaired fasting glucose

The initial stages of type 2 diabetes, also known as pre-diabetes, are characterised by impaired glucose regulation. This includes both impaired fasting glucose (IFG) and impaired glucose tolerance (IGT). People who have IFG or IGT are at risk of future development of diabetes and cardiovascular disease.

The Australian Burden of Disease Study 2018 estimated disease burden in Australia due to high blood plasma glucose – which was defined as intermediate hyperglycaemia (blood plasma glucose between 4.9–6.9 mmol/L), as well as diabetes. High blood plasma glucose was responsible for 4.3% of the total burden of disease in Australia in 2018 (AIHW 2021a). See Burden of disease.

Based on self-reported data from the NHS in 2017–18, an estimated 99,700 adults reported that they had high glucose levels measured in their blood or urine. This was around 0.5% of the adult population (AIHW analysis of ABS 2019). This was consistent with results reported in 2014–15 (AIHW analysis of ABS 2016).

Self-reported data underestimate the true impact of impaired glucose regulation in the population, as many people are unaware they have impaired glucose regulation. In the 2011–12 AHS, impaired glucose regulation was assessed via measurement of fasting plasma glucose levels. A person who did not currently have diabetes but had a fasting plasma glucose result ranging from 6.1 to 6.9 mmol/L was at high risk of diabetes. The ABS 2011–12 AHS collected measured data on IFG. IGT was not measured (ABS 2013).

Based on measured data, an estimated 420,000 (or 3.1%) Australian adults had IFG. The proportion of adults with IFG generally increased with age and was highest in people aged 75 and over compared with those aged 35–44 (7.5% and 2.1%, respectively) (AIHW analysis of ABS 2014; AIHW 2015).

High glucose levels for 2020–21

Data for 2020–21 are based on information self-reported by the participants of the ABS 2020–21 NHS.

Previous versions of the NHS have primarily been administered by trained ABS interviewers and were conducted face-to-face. The 2020–21 NHS was conducted during the COVID-19 pandemic. To maintain the safety of survey respondents and ABS Interviewers, the survey was collected via online, self-completed forms.

Non-response is usually reduced through Interviewer follow-up of households who have not responded. As this was not possible during lockdown periods, there were lower response rates than previous NHS cycles, which impacted sample representativeness for some sub-populations. Additionally, the impact of COVID-19 and lockdowns might also have had direct or indirect impacts on people's usual behaviour over the 2020–21 period.

Due to these changes, comparisons with previous high glucose level data over time are not recommended.

Based on self-reported data from the 2020–21 NHS, an estimated 28,100 adults (or 0.1%) reported that they had high glucose levels measured in their blood or urine (ABS 2022).

The data presented for high glucose levels on the rest of this page are from the 2017–18 NHS and prior versions.

Multiple biomedical risk factors

Biomedical risk factors can have an interactive or cumulative effect on disease risk. Multiple risk factors can increase the risk of disease, lead to earlier disease onset, increase severity and complicate treatment.

The development of one risk factor can lead to the occurrence of another, or they may have shared causes. For example, high blood pressure and dyslipidaemia are often related to poor diet and being overweight.

Based on measured data from the AHS in 2011–12, an estimated 1 in 4 (25%) Australian adults had both high blood pressure and dyslipidaemia. This includes people with measured high blood pressure and dyslipidaemia, and those who take medication to control these conditions. This increased with age, from 4.3% in people aged 18–34 to 65% in people aged 75 and over. Just over 7 in 10 (71%) adults had either high blood pressure, dyslipidaemia or both risk factors. This was highest in people aged 75 and over (96%) (AIHW analysis of ABS 2014; AIHW 2015).

Managing biomedical risk factors

Treating or managing biomedical risk factors includes changes in lifestyle (such as dietary modifications or increased physical activity), use of medications, and surgery. Improving biomedical risk factors can prevent disease, delay disease progression, and improve treatment outcomes, and have the potential to enhance the health of the population.

- In 2019–20, hypertension was the most commonly reported chronic condition at general practice encounters, and dyslipidaemia was the third most commonly reported chronic condition (NPS MedicineWise 2021).
- In 2019–20, over 61 million prescriptions for blood pressure lowering medicines were dispensed to the Australian population under the Pharmaceutical Benefits Scheme; more than half (57%) of all cardiovascular medicines dispensed (AIHW 2021b). Additional data about the use of blood pressure lowering medications by country of birth and English proficiency are presented in 'Chapter 7 Reporting on the health of culturally and linguistically diverse populations in Australia' in Australia's health 2022: data insights.
- In 2017–18, an estimated 23% of adults had measured high blood pressure but were not taking any blood pressure medication. There has been no change in the prevalence of uncontrolled high blood pressure since 2011–12 (AIHW analysis of ABS 2019).
- In 2011–12, 87% of people with measured dyslipidaemia were not using lipid modifying medications (AIHW analysis of ABS 2014). This reflects current guidelines, which state that prescription of lipid modifying medications is not based on dyslipidaemia alone, but on the absolute risk of cardiovascular disease (RACGP 2018). The absolute risk of cardiovascular disease considers risk factors, such as blood pressure and cholesterol levels, in combination.

Impact of COVID-19 on the monitoring and management of biomedical risk factors

Measures put in place as part of government responses to COVID-19 (including lockdowns, quarantine requirements, and resource reallocations) may have affected the management of risk factors.

Nationally representative data on the number of people newly diagnosed with high blood pressure, dyslipidaemia and impaired fasting glucose during COVID-19 are currently not available. There is also no data available on the impact of COVID-19 measures on the management of these biomedical risk factors.

However, emerging research suggest that COVID-19 measures might have had an impact on pathology testing to detect or monitor these risk factors, and the prescription of medications to manage these conditions.

In New South Wales and Victoria, data from a study comparing pathology testing in general practices showed that non-acute respiratory illness pathology testing decreased during the first and second waves of COVID-19 in 2020 (Imai et al. 2021). Data from the general practice insights report have shown that the prescribing rates of lipid lowering medications and blood pressure lowering medications increased sharply in March 2020, before measures such as restrictions on movement were put in place (NPS MedicineWise 2021).

Further data are required to explore the impact of COVID-19 measures on the monitoring and management of biomedical risk factors.

Where do I go for more information?

For more information on biomedical risk factors, see:

- Heart, stroke and vascular disease—Australian facts—risk factors
- Cardiovascular disease, diabetes and chronic kidney disease—Australian facts: risk factors 2015
- Australian Burden of Disease Study 2018: Interactive data on risk factor burden
- ABS AHS: biomedical results for chronic diseases, 2011–12
- ABS NHS: first results, 2017–18
- ABS NHS: health conditions prevalence, 2020–21

Visit Risk factors for more on this topic.

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Built environment and health

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https://www.aihw.gov.au/reports/australias-health/built-environment-and-health

The built environment influences our health in many ways, including activity levels, access to nutritious food, the houses we live in, where we work, contact with nature and the spaces we have for social interactions. It also affects the air we breathe and the water we drink, and shelters us from the weather.

What is the built environment?

The built environment refers to the human-made surroundings where people live, work and recreate. It includes buildings and parks as well as supporting infrastructure such as transport, water and energy networks (Coleman 2017).

The built environment interacts with the natural environment through its use of land, water and energy resources, and the waste and emissions produced. Conversely, extreme weather events such as floods, cyclones, bushfires and heatwaves are considered the largest risk to the built environment and people who live in it. See Natural environment and health.

Urban form

Economic development and technological advances have brought with them a range of benefits such as a higher average standard of living, which can influence health outcomes positively. Cities and the number of cars have also grown with economic development, increasing convenience and economic opportunity. There are also costs associated with the growth of cities; these costs can be mitigated to an extent through effective urban planning (Grant et al. 2017).

The shape, size, population density and layout of a city is known as the urban form. In 2020, 90% of the Australian population lived in *Major cities* or *Inner regional* areas (ABS 2021). Australian cities have unusually low population densities compared with cities in other developed countries with similar population sizes (Coleman 2017). Australia's cities are also characterised by:

- small, dense cores with large, low population density outer suburbs
- segregated land use that separates where people live from where they work, often by great distances (Coleman 2017).

Urban form and population density may play a role in the spread and transmission of communicable diseases, such as COVID-19, as it may be easier for people to maintain physical distance from one another in areas of low population density (Frumkin 2021). There are many other environmental, social, and economic impacts from this type of urban form, with flow-on effects to human health, including:

- increased car dependence, which decreases physical activity and increases the risk of chronic disease and its risk factors including obesity and hypertension, as well as increasing the risk of injury from accidents (Chandrabose et al. 2019). Road transport also increases the level of pollutants, including PM2.5 (see Glossary), reducing air quality in built-up areas
- loss of natural areas and agricultural land, which reduces areas for biodiversity conservation and food production
- socioeconomic inequality, as more affordable housing is often found further away from city centres and employment areas, which requires longer travel times, increased travel costs, and results in reduced time available to engage in healthy behaviours such as physical activity (Christian 2012; Daley et al. 2018; Trubka et al. 2010).

Walkability

Neighbourhood walkability (see Glossary) affects health through its impact on physical activity and social capital (see Glossary) (Giles-Corti et al. 2010). People are more likely to walk for recreation or exercise if they live in neighbourhoods that are within a walkable distance of destinations (including public transport services), have well- connected streets and higher residential densities (Gebel et al. 2009; Kamruzzaman et al. 2016).

Participating in 30 minutes of walking on average a day can lower the risk of heart disease, stroke, and diabetes (National Heart Foundation 2019). The health benefits increase with increased levels of activity and intensity, with up to 30–40% reduction of risk for some conditions at the higher levels of activity (Hamer and Chida 2008; Williams and Thompson 2013). Adding 15 minutes of brisk walking, 5 days each week, could reduce disease burden due to physical inactivity by about 13% (AIHW 2017). If this time increased to 30 minutes, the burden could be reduced by about 26% and benefits would extend to all ages, particularly people aged 65 and over (AIHW 2017).

A 'walkability index' has been created by the Centre for Urban Research, which combines dwelling density (see Glossary), daily living destinations and street connectivity (Arundel et al. 2017). Using this index, only a minority of Australians living in cities live in walkable communities, and these are generally concentrated in the inner (and some middle) suburbs. However, there are some exceptions where the implementation of policies has resulted in highly walkable outer suburbs, such as in Perth and Canberra (Arundel et al. 2017). The Liveable Neighbourhoods operational policy created by The Western Australian Planning Commission in 1997 provides guidance and requirements for the design of urban areas (WAPC 2015). A study by Bull et al. (2015) found that for every 10% increase in compliance with the policy, participants were:

- 53% more likely to walk within their neighbourhood
- 40% less likely to feel unsafe
- 14% more likely to have better mental health.

The study also found that:

- people living within 1.6 km of a convenience store, shopping centre or newsagent were 2 times more likely to walk regularly
- people with access to parks and well-connected footpaths were 2.5 times more likely to walk for more than one hour each week
- children living closer to school and having highly connected street networks and low traffic volumes were nearly 4 times more likely to regularly walk to school.

Green space

Green space (see Glossary) includes areas of public and private land such as nature reserves, public parks, residential gardens and sporting facilities. It is important for both physical and mental health (AIHW 2011; Sugiyama et al. 2008). Spending 2 hours or more in natural environments over the week is associated with higher levels of self-reported good health and wellbeing compared with those who spend no time in them (White et al. 2019).

Australian research examining the association between green space and health outcomes indicated that:

- there was a three-fold increase in the likelihood of doing any moderate-vigorous physical activity if more than 95% of dwellings in the suburb were within 400m of a park (Mavoa et al. 2016)
- access to a larger park within 1.6 km of home increased the likelihood of walking for 150 minutes or more in a week (equivalent to Australia's Physical Activity and Sedentary Behaviour Guidelines for adults) (Sugiyama et al. 2010).

Green space, particularly tree canopy, has also been associated with a range of health benefits such as reduced cardiovascular disease and lower psychological distress (Astell-Burt and Feng 2019, 2020). However, available research that examines the association between access to green spaces and health outcomes shows mixed findings (Frumkin et al. 2017; Hartig et al. 2014). This is largely due to differences in methodology and definitions of measures. Additionally, factors other than access to green spaces may be associated with their use. For example, lower socioeconomic areas tend to perceive quality, neighbourhood aesthetics and safety of green spaces to be lower than those from higher socioeconomic areas (Sugiyama et al. 2015).

Green space also provides places for social interaction, both planned and incidental, and facilitates community connections and wellbeing (Infrastructure Australia 2019). This is important for feelings of safety, neighbourhood satisfaction and positive mental health, and can help to reduce social isolation (Giles-Corti et al. 2010; Mahmoudi Farahani 2016; Mavoa et al. 2019).

Well-planned green space supports biodiversity, improves air quality, and reduces noise pollution and temperatures in urban areas (Kent and Thompson 2019). Contact with the natural environment may also benefit our immune system (WHO and SCBD 2015). Conversely, the loss of green space, particularly tree canopy coverage, can increase temperatures in urban areas (Government of South Australia 2019).

Impact of COVID-19

Access to urban green space played an important role in the COVID-19 pandemic, particularly during lockdown periods, when movement was restricted and gyms were closed. Surveys focussing on some of Australia's major cities found that lockdowns and working from home was associated with an overall increased number of visits to, and time spent in, green spaces (Astell-Burt and Feng 2021; Berdejo-Espinola et al. 2021). This was particularly evident in Melbourne, which was in lockdown during the time of one of the surveys (Astell-Burt and Feng 2021). However, some people decreased their use of green space (Berdejo-Espinola et al. 2021). Almost half of children aged 3–18 were reported to have spent less time being outdoors (42%) and physically active (42%) in a typical week during the pandemic compared with before the pandemic (RCH Poll 2020). Lockdowns also highlighted potential social inequities. People experiencing financial difficulty were less likely to visit green spaces and were less likely to perceive a benefit of these visits (Astell-Burt and Feng 2021). A survey of people living in Brisbane also found that older people were less likely to increase their use of green space (Berdejo-Espinola et al. 2021).

Transport

An effective transport system is an essential part of a healthy built environment. It provides access to the resources and facilities people need for a healthy life, such as employment, health care and nutritious food. Transport systems can positively influence health by promoting active travel (see Glossary), or negatively influence health through traffic accidents and sedentary behaviour. Transport systems can also:

- negatively affect human health through air pollutants such as PM2.5
- contribute to greenhouse gas emissions (see Glossary) and global climate change
- increase environmental noise
- lead to the reduction of natural environments (Infrastructure Australia 2019; Kent and Thompson 2019).

How do Australians commute to work?

On the day of the 2016 Census of Population and Housing (Census), 9.2 million people travelled an average of 16.5 km to their workplace:

- 79% travelled by private vehicle
- 14% took public transport
- 5.2% either cycled or walked.

The average distance travelled was shortest for those living in the Greater Darwin area (13 km), and greatest for those living in regional areas of Western Australia (21 km) (ABS 2018a).

Car dependence

The great majority of Australians depend on their cars for transport. While cars allow for increased mobility and convenience, and technology has led to cars that are less polluting, a high level of dependence on cars for transport has a range of implications for human and environmental health (Infrastructure Australia 2019). Car-dependent suburbs tend to have poor access to public transport, employment services and shops. Car dependence also:

- increases traffic congestion, commuting times and air and noise pollution
- can lead to an increase in traffic accidents and affect respiratory and cardiovascular health, as well as mental health and life satisfaction (BITRE 2016; Giles-Corti et al. 2016)
- is associated with sedentary lifestyles and growing rates of overweight and obesity (Sugiyama et al. 2020).

Poor air quality due to traffic emissions can be harmful to both human health and the ecosystem and tends to concentrate around major road corridors (Infrastructure Australia 2019). Car dependence can have a larger effect on those from lower socioeconomic areas, who often have less choice in housing location and may have to live in outer suburbs due to housing affordability. This results in a higher proportion of their household income being spent on car-related expenses (and less available for health needs), and increased vulnerability to changes in fuel prices and mortgage stress (Dodson et al. 2004; Dodson and Sipe 2008; Infrastructure Australia 2019).

COVID-19 lockdowns in Australia led to increased working from home and an associated drop in car and public transport use (Beck and Hensher 2020a, 2020b). During the second quarter of the 2020 calendar year, which coincided with Australia's first lockdown due to COVID-19, there was an estimated 22% decline in vehicle kilometres travelled (BITRE 2021). A similar proportion of people increased and decreased their physical activity during the pandemic between April and June 2020 (ABS 2020a, 2020b; AIHW 2021b).

Traffic accidents

Traffic-related accidents are a major public health issue and can result in injury, disability or death. In Australia, there were about 1,100 deaths due to road traffic crashes in 2020. The number and population rate of road deaths decreased over the decade from 2011 to 2020 (by 13% and 25% respectively). Comparable data for road crash hospitalisations are available only for the period 2013−2016 and show the number and population rate of hospitalised injuries has increased (by 11% and 6.2% respectively) (BITRE 2021).

There was also a 12% decline in the number of road deaths during the second quarter of 2020 calendar year (which broadly coincided with the Australia's first lockdown) compared with the previous quarter – a 17% decline in deaths when compared with the same quarter in 2019 (BITRE 2021). While motorcyclist and pedal cyclist deaths increased or did not change during the lockdown period, pedestrian, vehicle driver and passenger deaths decreased (BITRE 2021). There was a 52% decrease in the number of motor vehicle drivers presenting to emergency departments for trauma in April 2020 when compared with April 2019 (AIHW 2021b; VISU 2020).

Active travel

Active travel is the process of being physically active (usually walking or cycling) while moving from one place to another and can include multiple modes of transport in one trip. The health benefits of active travel include:

- increased physical activity
- social and psychological benefits from incidental interactions with other people
- reductions in greenhouse gas emissions and traffic congestion and less noise and air pollution.

Living in close proximity (400–800m) to a mix of destinations is associated with higher levels of active transport across all age groups (Boulange et al. 2017; McCormack et al. 2008; Sallis et al. 2012). Other factors associated with increased active travel include safety from traffic, well-lit streets and footpaths (Sallis et al. 2012).

On Census night in 2016, of those who commuted to work, 5.2% walked or cycled (ABS 2018a). People who walked or cycled to work generally had the shortest commuting distance.

Restrictions associated with the first wave of the COVID-19 pandemic in Australia resulted in a decline in active travel in absolute terms (as occurred for other modes of transport) but a modest increase (from 14% to 20%) in the proportion of trips accounted for by active transport (Beck and Hensher 2020a). Analysis of intentions of survey participants suggests this increased use of active transport may continue once the pandemic is over (Beck and Hensher 2020b).

Food environments

Diet is a factor that can be modified and aspects of a person’s diet can influence the extent to which they are at risk of, or protected against, a range of chronic conditions as well as overweight and obesity. See Diet and Overweight and obesity. The food environment plays a role in the food and drinks we choose to buy and consume through factors such as availability, accessibility, affordability and marketing of healthy and unhealthy food options. Additional factors within the food environment including living in areas of greater socioeconomic disadvantage or living in rural and remote areas, are also associated with more limited access to healthy food choices (Dutko et al. 2012; Fleischhacker et al. 2011; Lewis and Lee 2016; Thornton et al. 2016). A range of indicators are used to estimate how healthy the Australian food environment is in the

Australia’s Food Environment Dashboard (Australia’s Food Environment Dashboard 2022).

The National Preventive Health Strategy has described the following food environment factors as being associated with having either a protective or adverse effect on Australian’s health and wellbeing (Department of Health 2021):

Protective	**Adverse**
Closer proximity to supermarkets	Density of fast-food and alcohol outlets
Access to urban agriculture and community gardens	Marketing and product placement of unhealthy items in supermarkets
Access to affordable, nutritious fresh food	

The relationship between the food environment and dietary intake is complex, largely due to an interplay of a variety of factors and behaviours as well as inconsistencies in methods and measured outcomes (Mahendra et al. 2017; Ni Mhurchu et al. 2013). Therefore, improvements to standardisation of measures and further research to better understand the relationship between availability of food, individual food choices and health outcomes in Australia are needed.

Housing

Housing has a very important influence on health and wellbeing. It provides shelter, safety, security and privacy. The availability of affordable, sustainable and appropriate housing enables people to better participate in the social, economic and community aspects of their lives. Housing construction and design and the social and neighbourhood environment can affect various aspects of physical and mental health and quality of life of the inhabitants (Giles-Corti et al. 2012).

In Australia, building design codes regulate the insulation, ventilation, room sizes, ceiling heights and access to sunlight of dwellings. However, the built environment is slow to adapt to increases in extreme heat events, and heat-related deaths are expected to increase over time (Coleman 2017).

It has been estimated that almost one million Australians live in housing regarded as being in poor condition – according to the Household Income and Labour Dynamics in Australia survey which used a five-point scale to rate external dwelling condition as very good–excellent; good; average; poor; or very poor-derelict (Baker et al. 2016). Poor-quality housing is associated with greater psychological distress (Giles-Corti et al. 2012) and lower self-assessed general and physical health (Baker et al. 2016).

Frequent moves, renting, and being in financial housing stress are associated with negative physical health outcomes for children (Dockery et al. 2013).

In cities, housing affordability and homelessness are major challenges. On Census night in 2016, an estimated 116,000 people were homeless (ABS 2018b), and in 2017–18, more than one million low-income households were in financial housing stress (AIHW 2021a). See Health of people experiencing homelessness.

In remote areas, inadequate supply and poor conditions of social housing can lead to housing overcrowding, particularly for Aboriginal and Torres Strait Islander people (AIHW 2019) − see Determinants of health for Indigenous Australians. Overcrowding can affect health and education outcomes and reduce employment opportunities (Infrastructure Australia 2019).

Overcrowding is particularly relevant in relation to highly infectious diseases such as COVID-19, as these conditions make it hard to create physical distance between other members of the household (Buckle et al. 2020; Frumkin 2021). Overcrowding is more prevalent in areas of social disadvantage, among multi-generational families and when housing tenure is marginal or informal (Buckle et al. 2020). Poor housing conditions such as overcrowding have been associated with COVID-19 incidence and deaths across counties in the United States (Ahmad et al. 2020).

Water resources

Reliable and safe drinking water and wastewater services are vital for the wellbeing and long-term sustainability of communities. In metropolitan areas, water infrastructure includes drinkable supply and wastewater services; many rural and remote areas rely on small, localised or onsite systems (Infrastructure Australia 2019).

Water quality in urban areas of Australia is generally good, however some parts of regional Australia do not meet drinking water standards (Coleman 2017). In some remote communities, water and wastewater infrastructures are poorly maintained, routinely fail, or fail to provide services to the appropriate standard (Infrastructure Australia 2019).

With the increasing population, and longer and more severe droughts expected, maintaining water supply and quality will become increasingly challenging (Coleman 2017).

Where do I go for more information?

For more information on the built environment and health, see:

- Health and the environment: a compilation of evidence
- Department of the Environment and Energy Australia: state of the environment 2016: built environment
- Infrastructure Australia Australian Infrastructure Audit 2019: social infrastructure
- Heart Foundation Blueprint for an Active Australia
- Australia’s Food Environment Dashboard.

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Diet

Find the most recent version of this information at:
https://www.aihw.gov.au/reports/australias-health/diet

The food and beverages people consume (their diet) play an important role in their overall health and wellbeing. Food provides energy, nutrients and other components that, if consumed in insufficient or excess amounts, can result in ill health. A healthy diet helps to prevent and manage health risk factors such as overweight and obesity, high blood pressure and high blood cholesterol, as well as associated chronic conditions, including type 2 diabetes, cardiovascular disease and some forms of cancer (NHMRC 2013). Diet-related chronic conditions are among the leading causes of death and disability in Australia.

Australian Dietary Guidelines

The Australian Dietary Guidelines provide evidence-based advice on healthy eating habits to promote overall health and wellbeing, reduce the risk of diet-related disease and protect against chronic conditions (NHMRC 2013). They recommend that Australians eat a wide variety of nutritious foods from the 5 food groups every day:

- vegetables and legumes/beans
- fruit
- grain (cereal) foods
- lean meat and poultry, fish, eggs, nuts and seeds and legumes/beans
- milk, yoghurt, cheese and dairy alternatives.

Discretionary foods are foods and drinks that aren't needed for a healthy diet and don't fit into the 5 food groups. They are high in energy, saturated fat, added sugars, added salt and/or alcohol and low in fibre. The Australian Dietary Guidelines recommend that their consumption should be limited.

The Australian Dietary Guidelines also provide advice on the number of serves of each food group that Australians should eat each day. Different amounts are recommended for people of different ages, sex, life stages, height and physical activity level.

This page presents the latest nationally available data to report the extent to which Australians are meeting the recommended guidelines.

See Australian Dietary Guidelines.

Dietary intake for 2020–21

Data for 2020–21 are based on information self-reported by the participants of the Australian Bureau of Statistics (ABS) 2020–21 National Health Survey (NHS).

Previous versions of the NHS have primarily been administered by trained ABS interviewers and were conducted face-to-face. The 2020–21 NHS was conducted during the COVID-19 pandemic. To maintain the safety of survey respondents and ABS Interviewers, the survey was collected via online, self-completed forms.

Non-response is usually reduced through interviewer follow-up of households who have not responded. As this was not possible during lockdown periods, there were lower response rates than previous NHS cycles, which impacted sample representativeness for some sub-populations.

Additionally, the impact of COVID-19 and lockdowns might also have had direct or indirect impacts on people's usual behaviour over the 2020–21 period.

Due to these changes, comparisons with previous diet data over time are not recommended.

Based on self-reported data from the 2020–21 National Health Survey, for Australian adults aged 18 years and over:

- About 9 in 10 (91%) didn't consume the recommended number of serves of vegetables (96% for men and 87% for women).
- Just over 1 in 2 (55%) didn't consume the recommended number of serves of fruit (59% for men and 52% for women).
- About 1 in 16 (6.4%) consumed sugar sweetened drinks daily (ABS 2022a, 2022b).

This page includes dietary information about the Australian population from 2 surveys:

- In the National Nutrition and Physical Activity Survey 2011–12, participants were asked about all the foods and drinks they consumed in the day before they were surveyed, using a method known as 24-hour dietary recall (ABS 2013).
- In the National Health Survey 2017–18, participants were asked about their fruit and vegetable consumption and their sugar sweetened drink consumption using short questions, such as, 'How many serves of fruit do you usually eat each day?' (ABS 2019b).

There are strengths of, and limitations to, the information from each survey – while the 2011–12 information is more comprehensive, the 2017–18 information is more recent. Because of this, information from both surveys is included on this page. However, because of the different methods used in the surveys, the results from the 2 surveys should not be compared with each other.

Data from both 24-hour dietary recalls and short survey questions are also subject to various biases. For example, data collected from nutrition surveys are subject to potential under-reporting of food intake, due to:

- actual changes in diet that participants may make when they know they will be surveyed
- misrepresentation (whether deliberate, unconscious or accidental) to make diets appear healthier or to make diets quicker to report (ABS 2014).

How common are poor diets?

The 5 food groups

In 2011–12, most Australians didn't consume the recommended number of serves from the 5 food groups (ABS 2017; Table 1).

Table 1: Proportion (%) of Australians who do not eat the recommended serves of the 5 food groups[(a)], 2011–12

Food group	Males (Aged 2–18)	Females (Aged 2–18)	Men (Aged 19+)	Women (Aged 19+)
Vegetables and legumes/beans	99.6	99.7	96.5	94.8
Fruit[(b)]	53.5	54.0	70.7	77.0
Grain (cereal) foods	60.5	73.7	66.6	75.6
Lean meat and poultry, fish, eggs, nuts and seeds and legumes/beans	92.4	98.7	79.1	87.0
Milk, yoghurt, cheese and alternatives	80.4	79.8	89.9	96.5

(a) The recommended number of serves can differ by age and sex and provide the total daily amount of food required each day. See the Australian Dietary Guidelines recommended serves for adults and recommended serves for children and adolescents for further details.

(b) Includes dried fruit, fresh or canned fruit and fruit juice.

Source*:* ABS 2017.

In 2017–18, most Australians didn't consume the recommended number of serves of vegetables (ABS 2018). The proportion not meeting the recommendation was similar for boys (95%) and girls (93%) aged 2–17, and higher for men (96%) than for women (89%).

However, the proportion of Australians consuming the recommended number of serves of fruit in 2017–18 (ABS 2018) was higher than the proportion meeting the recommendation for vegetables. The proportion not meeting the recommendation was higher for boys (30%) than for girls (24%) aged 2–17, and higher for men (53%) than for women (44%).

Discretionary foods

More than one-third (35%) of total energy consumed in 2011–12 was from discretionary foods (ABS 2014). The percentage of total energy consumed from discretionary foods was:

- similar for males (39%) and females (38%) aged 2–18
- slightly higher for men (36%) than for women (33%) aged 19 and over.

Sugar sweetened drinks are a discretionary food. In the NHS 2017–18, the frequency and amount of soft drink, cordials, sports drinks, and caffeinated energy drinks consumed was collected. Fruit or vegetable juices, flavoured milk, coffee, tea and alcoholic beverages were excluded from the scope of the survey (ABS 2018).

In 2017–18:

- 7.1% of children and adolescents aged 2–17 and 9.1% of those aged 18 and over consumed sugar sweetened drinks daily.
- Men were almost twice as likely (12%) as women (6.4%) to consume sugar sweetened drinks daily (ABS 2018).

Trends

Before 2011–12, the last national nutrition survey of children and adults was conducted in 1995. Under-reporting of food intake is estimated to have increased from 1995 to 2011–12, so comparisons between the 2 surveys are based on serves per 10,000 kilojoules rather than reported daily intake (ABS 2017).

Between 1995 and 2011–12, the estimated number of serves per 10,000 kilojoules consumed:

- increased for lean meat and poultry, fish, eggs, nuts and seeds and legumes/beans
- remained similar for fruit; grain (cereal) foods; and milk, yoghurt, cheese and alternatives
- decreased for vegetables and legumes/beans, and discretionary foods (ABS 2017).

Health impact

Burden of disease refers to the quantified impact of living with and dying prematurely from a disease or injury.

Burden of disease analysis estimates the contribution of various risk factors to disease burden. In 2018, 5.4% of the total burden of disease in Australia was attributable to dietary risks (such as a diet low in wholegrains and fruit) (AIHW 2021). Dietary risks were the third leading risk factor contributing to the total burden of disease, after tobacco use and overweight and obesity.

About 50% of coronary heart disease total burden and 26% of bowel cancer burden, type 2 diabetes burden and stroke burden were attributable to dietary risks (AIHW 2021). See Burden of disease.

Variation between population groups

See Determinants of health for Indigenous Australians for information on diet among Aboriginal and Torres Strait Islander people.

Remoteness area

In 2017–18, after adjusting for age differences, a greater proportion of Australians aged 18 and over living in *Outer regional and remote* areas (53%) did not meet the daily fruit recommendation compared with those living in *Major cities* (48%) (Figure 1). The proportions not eating the vegetable recommendation were similar for adults living in *Outer regional and remote* areas (92%) and those living in *Major cities* (93%) (AIHW analysis of ABS 2019a).

In 2017–18, after adjusting for age differences , Australians aged 18 and over living in *Outer regional and remote* areas were more likely to consume sugar sweetened drinks daily (14%) than those living in *Major cities* (8.3%) (AIHW analysis of ABS 2019a).

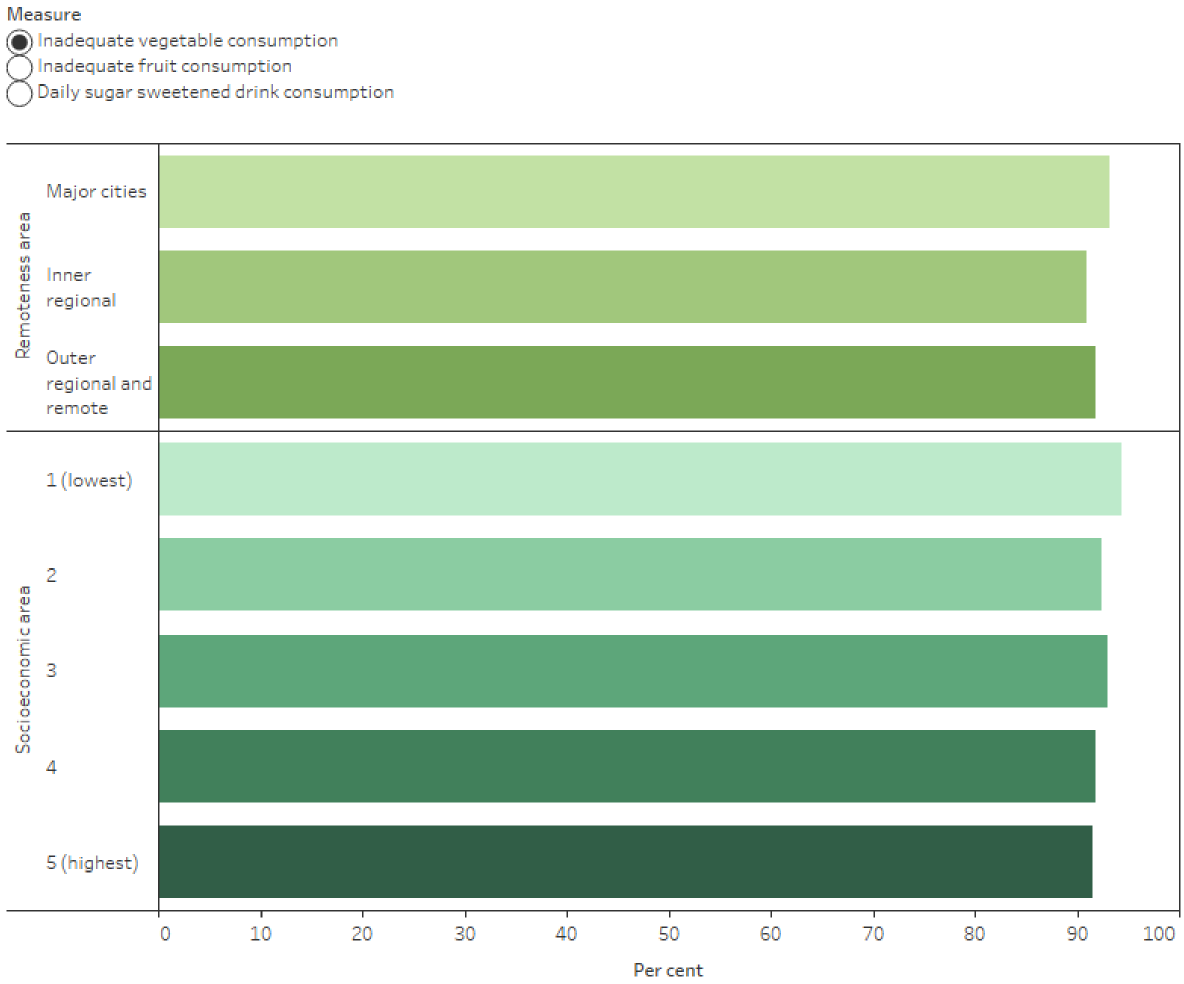
Socioeconomic area

In 2017–18, after adjusting for age differences, Australians aged 18 and over living in the lowest socioeconomic areas were less likely to meet the fruit and vegetable recommendations than those living in the highest socioeconomic areas, although the differences were not large:

- 53% of those living in the lowest socioeconomic areas didn’t meet the fruit recommendation, compared with 46% in the highest areas.
- 94% of those living in the lowest socioeconomic areas didn’t meet the vegetable recommendation, compared with 92% in the highest areas (AIHW analysis of ABS 2019a).

Australian adults living in the lowest socioeconomic areas were 3 times as likely to drink sugar sweetened drinks daily (15%) as those living in the highest socioeconomic areas (4.4%) in 2017–18, after adjusting for age differences (AIHW analysis of ABS 2019a).

Figure 1: Prevalence of poor diet among adults, by selected population characteristics, 2017–18



Measure

● Inadequate vegetable consumption
○ Inadequate fruit consumption
○ Daily sugar sweetened drink consumption

Note: Rates are age-standardised to the 2001 Australian population.
Source: AIHW analysis of ABS 2019a.
http://www.aihw.gov.au/

Impacts of COVID-19 on diet

Data are highlighting how public health measures put in place during the early stages of COVID-19 (for example, quarantine, the closure of non-essential services and restrictions on venue capacity) have impacted Australians' dietary habits.

Opportunity-induced eating and coping with negative emotions (such as stress) might also have an impact on unhealthy snacking behaviour (Verhoeven et al. 2015).

Data from the ABS Household Impacts of COVID-19 Survey showed that:

- In June 2020 (during the early months of the COVID-19 pandemic in Australia), nearly 3 in 10 females (28%) and around 1 in 6 males (16%) reported eating more snack foods (for example, chips, lollies, biscuits) than what was usual prior to the implementation of public health measures in March 2020.

- In contrast, 2 in 10 (20%) people aged 18–64 reported that they reduced their consumption of soft drinks, cordials and energy drinks during the same time period.
- In April 2020, about 1 in 3 people (36%) reported decreased consumption of take-away or delivered meals compared with before the pandemic.
- About 4 in 10 people (38%) reported increases in cooking or baking (of those who usually cook or bake) (ABS 2020a, 2020b).

For more information on how the pandemic has affected the population's health in the context of longer term trends, see 'Chapter 2 Changes in the health of Australians during the COVID-19 period ' in Australia's health 2022: data insights.

Where do I go for more information?

For more information on diet, see:

- Poor diet
- Nutrition across the life stages
- Australian Burden of Disease Study 2018: Interactive data on risk factor burden
- Australian Bureau of Statistics (ABS) Australian Health Survey: nutrition first results—foods and nutrients, 2011–12
- ABS Australian Health Survey: consumption of food groups from the Australian Dietary Guidelines, 2011–12
- ABS National Health Survey: first results, 2017–18

Visit Food & nutrition for more on this topic.

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Family, domestic and sexual violence

Find the most recent version of this information at:
https://www.aihw.gov.au/reports/domestic-violence/family-domestic-and-sexual-violence

Family, domestic and sexual violence is a major health and welfare issue in Australia, occurring across all socioeconomic and demographic groups, but predominantly affecting women and children. These types of violence can have a serious impact on individuals, families and communities, and can inflict physical injury, psychological trauma and emotional suffering. These effects can be long-lasting and can affect future generations.

For information, support and counselling contact **1800RESPECT on 1800 737 732** or visit the 1800RESPECT website.

What is family, domestic and sexual violence?

Family violence is violence between family members, such as between parents and children, siblings, and intimate partners.

Domestic violence is a type of family violence that occurs between current or former intimate partners (sometimes referred to as intimate partner violence).

Both family violence and domestic violence include behaviours such as:

- physical violence (for example, hitting, choking, use of weapons)
- sexual violence (for example, rape, penetration by objects, unwanted touching)
- emotional abuse, also known as psychological abuse (intimidating, humiliating)
- coercive control (controlling access to finances, monitoring movements, isolating from friends and family).

Sexual violence includes sexual assault, sexual threat, sexual harassment, child sexual assault, street-based sexual harassment and image-based abuse sexual harassment (NASASV 2021). However, the Australian Bureau of Statistics (ABS) Personal Safety Survey (PSS) uses a narrower definition of sexual violence, including only sexual assault and sexual threat, with sexual harassment and abuse against children reported separately. Sexual violence in its broadest form can occur in the context of family or domestic violence, or be perpetrated by other people known to the victim or by strangers (ABS 2017a).

Other forms of violence that can occur within the context of family and domestic violence include: stalking, technology-facilitated abuse and elder abuse , with the latter occurring where there is an expectation of trust and/or where there is a power imbalance between the party responsible and the older person (Kaspiew et al. 2019).

How common is family, domestic and sexual violence?

The most recent ABS PSS in 2016 provides an estimate of the number of Australians who have been victims of family, domestic and sexual violence. While every experience of family, domestic or sexual violence is very personal and different, it is most common for this type of violence to be perpetrated against women, by men. There is currently no national data on the proportion of Australians who have perpetrated family, domestic and sexual violence.

Source: ABS 2017b.

Source: ABS 2017b.

Source: ABS 2017b.

Physical and/or sexual family and domestic violence

Results from the 2016 PSS show that an estimated 3.6 million Australian adults (20% of the population) reported experiencing physical and/or sexual family and domestic violence since the age of 15. It is estimated that of all Australian adults:

- 11.8% (2.2 million) had experienced violence from a partner.
- 5.1% (935,000) had experienced violence from a boyfriend, girlfriend or date.
- 6.6% (1.2 million) had experienced violence from another family member.

Partner violence remained relatively stable between 2005 and 2016.

Emotional abuse by a partner

In the 2016 PSS, it was more common for Australians to report having ever experienced emotional abuse by a previous partner (15%) than a current partner (5.7%) since the age of 15. Conversely, emotional abuse in the last 12 months, was more common amongst current partners (3.0%) than previous partners (1.6%). Between 2012 and 2016 there was an increase in the proportion of women (from 2.5% to 3.2%) and men (from 1.5% to 2.9%) who experienced emotional abuse by a current partner.

Sexual violence

An estimated 2.2 million Australians (12% of the population) reported experiences of sexual violence (threat and/or assault) since the age of 15. It is estimated that of all Australian adults:

- 5.3% (966,700) had experienced sexual violence from an intimate partner since the age of 15.
- 6.4% (1.2 million) had experienced sexual violence from another known person.
- 3.1% (564,000) had experienced sexual violence from a stranger.

Women were more likely to be victims than men across all types of perpetrator relationships. Prevalence of sexual violence against women was highest for women in the 18–24 year age group (5.9%), with prevalence decreasing as age increased. The proportion of women who experienced sexual violence increased between 2012 and 2016 (from 1.2% to 1.8%).

Based on the 2016 PSS, over 1 in 2 (53% or 5 million) women and 1 in 4 (25% or 2.2 million) men had experienced sexual harassment (indecent phone calls, text messages, emails or social media posts; indecent exposure; inappropriate comments; and unwanted sexual touching) in their lifetime (ABS 2017b).

Other forms of violence and abuse

Violence exists on a spectrum of behaviours. The same social and cultural attitudes underpinning family, domestic and sexual violence are at the root of other behaviours such as stalking. Technology can facilitate abuse and has become an important consideration in these types of violence.

Stalking is classified as unwanted behaviours (such as following or unwanted contact) that occur more than once and cause fear or distress and is considered a crime in every state and territory of Australia (ABS 2017b). Based on the 2016 PSS, 1 in 6 (17% or 1.6 million) women and slightly over 1 in 16 (6.5% or 587,000) men had experienced stalking since the age of 15.

A 2020 report by Australia's eSafety Commissioner on adult's negative online experiences found that:

- 67% of those surveyed had a negative online experience in the 12 months to August 2019.

- 10% of those surveyed said they have been tracked electronically using technology to monitor movements without consent.
- 8% of those surveyed said they received threats of real-life harm or abuse.

For more detail, see:

- Family, domestic and sexual violence in Australia: continuing the national story 2019
- Family, domestic and sexual violence data in Australia:
  - Physical and/or sexual family and domestic violence
  - Emotional abuse by a partner
  - Sexual violence

Family, domestic and sexual violence during the COVID-19 pandemic

Since early 2020, there has been concern about the impact of the COVID-19 pandemic on family, domestic and sexual violence. The impacts of a pandemic can be wide-ranging and situational stressors, such as victims and perpetrators spending more time together, or increased financial or economic hardship, can be associated with increased severity or frequency of violence (Payne et al. 2020). Pandemics can also affect the 'responses' to violence – the actions taken after an incident of violence has occurred.

The Australian Institute of Criminology (AIC) explored intimate partner violence experienced by women in Australia in the first 12 months of the COVID-19 pandemic from February 2020. Select key findings from the online survey of more than 10,000 women are summarised in Table 1.

Table 1: Intimate partner violence experienced by women in Australia during the first 12 months of the COVID-19 pandemic

	Physical violence	Sexual violence	Emotionally abusive, harassing and controlling behaviours
Overall prevalence of intimate partner violence [(a)]	9.6%	7.6%	32%
Experienced intimate partner violence for the first time [(a)]	3.4%	3.2%	18%
Reported that intimate partner violence had increased in frequency or severity [(a, b)]	42%	43%	40%

(a) Of women who had been in a relationship longer than 12 months.

(b) Of women who had a history of violence from their current or most recent partner.

Source: Boxall and Morgan 2021.

Many women did not seek help during the COVID-19 pandemic

Over 1 in 4 women (26%) who had experienced physical or sexual violence in the 12 months before the survey said they had been unable to seek assistance on at least one occasion due to safety concerns (Boxall and Morgan 2021).

See also AIHW's Family, domestic and sexual violence service responses in the time of COVID-19.

For more information on how the pandemic has affected Australians in the context of longer-term trends, See 'Chapter 2 Changes in the health of Australians during the COVID-19 pandemic' in Australia's health 2022: data insights

What influences family, domestic and sexual violence?

Social attitudes and norms shape the context in which violence occurs. The National Community Attitudes towards Violence against Women Survey (NCAS) in 2017 indicated that most Australians reject attitudes supportive of violence against women and have a good understanding of violence against women.

While results were generally encouraging, some findings were concerning and highlight areas for improvement. Select estimates from the NCAS are summarised below.

Attitudes supportive of violence against women

- Almost 1 in 3 (32%) Australians believed that women who do not leave their abusive partners are partly responsible for violence continuing.
- Over 2 in 5 (42%) Australians agreed it was common for sexual assault accusations to be used as a way of getting back at men.
- 1 in 5 (20%) Australians believed violence is a normal reaction to day-to-day stress.
- Over 1 in 5 (21%) Australians agreed that sometimes a woman can make a man so angry he hits her without meaning to (Webster et al. 2018).

Understanding of violence against women

- Over 1 in 3 (34%) Australians did not know that women are more likely to be sexually assaulted by a known person than a stranger.
- 2 in 5 Australians did not know where to access help for a domestic violence issue.

- While almost 2 in 3 (64%) Australians recognised that men are more likely to be perpetrators of domestic violence, this declined by 7 percentage points between 2013 and 2017.
- Almost 1 in 5 (19%) Australians did not recognise that women are more likely than men to suffer physical harm from domestic violence (Webster et al. 2018).

For more detail see:

Family, domestic and sexual violence data in Australia

- People who are intolerant of violence against women
- People with highest understanding of non-physical forms of violence

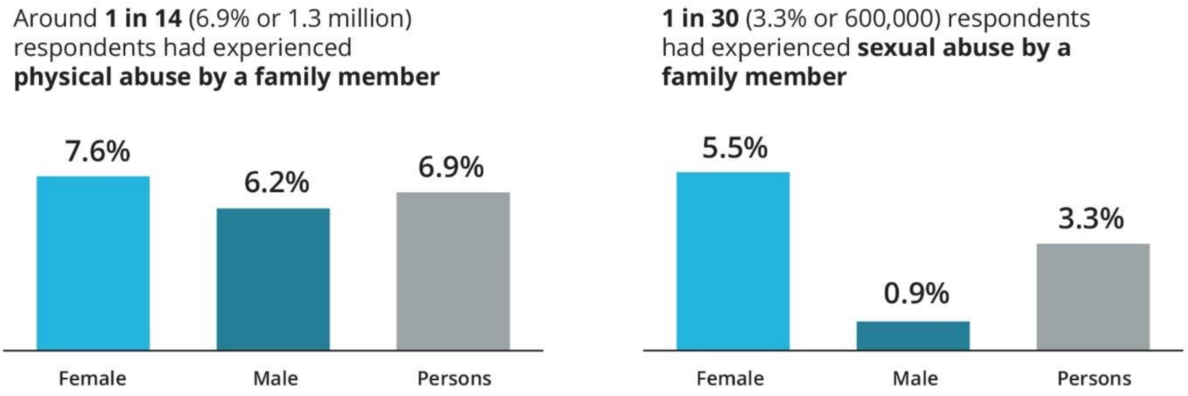
Who is at risk of family, domestic and sexual violence?

Family, domestic and sexual violence occurs across all ages and demographics. However, some groups are more vulnerable than others because they are at greater risk or because the impacts and outcomes of violence can be more serious or long-lasting.

Children

Children are more vulnerable to family, domestic and sexual violence.

The 2016 PSS asked participants (aged 18 and over) about their experiences of violence before the age of 15, also referred to as abuse:



Around **1 in 14** (6.9% or 1.3 million) respondents had experienced **physical abuse by a family member**

1 in 30 (3.3% or 600,000) respondents had experienced **sexual abuse by a family member**

Notes

1. Respondents reporting more than one type of violence and/or more than one perpetrator group (family or non-family) will be counted once in each discrete group. Respondents reporting more than one perpetrator type in the same perpetrator group (e.g. parent and step-parent) will be counted once in that group.
2. Family includes parent, step-parent, sibling, step-sibling and other relative or in-law.

Source: ABS 2017b.

For more detail, see:

- Family, domestic and sexual violence data in Australia
    - Children exposed to their parent or carer's experience of domestic violence
    - Hospitalisations for family and domestic violence

Child protection services

In Australia, state and territory governments are responsible for providing child protection services to anyone aged under 18 who has been, or is at risk of being, abused, neglected or otherwise harmed, or whose parents are unable to provide adequate care and protection. In 2020–21:

- 178,800 Australian children (32 per 1,000) received child protection services.
- Infants aged less than one were most likely (40 per 1,000) to receive child protection services and adolescents aged 15–17 were least likely (26 per 1,000).
- Emotional abuse, including exposure to family violence, was the most common primary type of abuse, identified in 55% (27,200 children) of substantiated cases (substantiations). Neglect was the primary type of abuse in 21% (10,600 children) of cases, physical abuse in 14% (6,900 children) and sexual abuse in 10% (4,800 children).
- Similar proportions of girls and boys were the subjects of substantiations for physical abuse, emotional abuse and neglect. However, girls were more likely to be the subject of substantiations for sexual abuse (71% of sexual abuse substantiations) (AIHW 2022).

The rate of children who were the subject of substantiations remained fairly stable in the 5 years to 30 June 2021, however the rate of children who were the subject of notifications has increased from 43 per 1,000 in 2016–17 to 52 per 1,000 in 2020–21.

Data on child protection services during the first 7 months after COVID-19 was declared a pandemic (March to September 2020) can be found in Child protection in the time of COVID-19.

Women

More women than men experience family, domestic and sexual violence. Table 2 shows the proportion of people aged 18 and over who experienced violence from a previous or current partner since the age of 15.

Table 2: Proportion of men and women who experienced violence or abuse from a partner since the age of 15, by type of violence or abuse, 2016

	Women (%)	Men (%)
Physical and/or sexual violence from a previous partner	14.6	4.4
Physical and/or sexual violence from a current partner	2.9	1.7
Emotional abuse from a previous/current partner	23.0	15.9

Source: ABS 2017b.

Women’s exposure to violence differs across age groups and by perpetrator type. When experiences of partner violence are expanded to those perpetrated by all intimate partners – including current or previous boyfriends, girlfriends or dates – young women are particularly at risk.

The 2016 PSS reported that young women were more likely to experience intimate partner violence and/or sexual violence than older women in the 12 months before the survey with an estimated:

- 1 in 25 (4.0% or 117,000) women aged 18–34 experienced intimate partner violence, compared with 1.5% (96,000) aged 35 and over.
- 1 in 25 (4.3% or 125,000) women aged 18–34 experienced sexual violence, compared with 0.7% (45,000) aged 35 and over (ABS 2017b).

In interpreting these results, it is important to note that younger women were less likely to have ever had a cohabiting partner compared with women aged 35 and over. Similarly, men aged 18–34 were more at risk of intimate partner violence in the 12 months before the survey than those aged 35 and over – 2.0% of men aged 18–34 experienced intimate partner violence compared with 0.8% aged 35 and over (ABS 2017b).

Other at-risk groups

Other social and cultural factors can also increase the risk of experiencing family, domestic and sexual violence. In some cases, these factors may overlap or combine to create an even greater risk. Additional factors that can increase the risk of violence include remoteness and socioeconomic area of residence, disability, sexual orientation, gender identity and cultural influences. Aboriginal and Torres Strait Islander women are particularly at risk and have much higher rates of hospitalisation because of family violence. Data on the experiences of Indigenous women can be found in Indigenous community safety.

For more information on the prevalence of family, domestic and sexual violence across select population groups, see:

- Family, domestic and sexual violence in Australia: continuing the national story
- Family, domestic and sexual violence data in Australia
  - Physical and/or sexual family and domestic violence
  - Emotional abuse by a partner
  - Sexual violence

What services or support do those who have experienced family, domestic and sexual violence use?

Responses to family, domestic and sexual violence are provided informally in the community and formally through justice systems, and treatment and support services.

The 2016 PSS found that there were differences in propensity to seek help, advice or support following partner violence depending on partner status and victim sex:

Source: ABS 2017b.

Source: ABS 2017b.

Similarly, estimates indicate that more females (50% or 316,900) than males (28% or 20,900) sought help, advice or support after the most recent incident of sexual assault by a male perpetrator. The 2016 PSS also found that for 87% (553, 900) of most recent incident of sexual assaults against women by men, the police were not contacted.

See also: Help sought after sexual assault and Sexual assault reported to police in Family, domestic and sexual violence data in Australia web report.

Police responses

When an incident of violence is reported to police by a victim, witness or other person, it can be recorded as a crime. The ABS collects data on selected family, domestic and sexual violence crimes recorded by police. In 2020:

- More than 1 in 2 (54% or 70,000) recorded assaults were related to family and domestic violence (excluding Victoria and Queensland), a 7.8% increase from 65,000 in 2019.

- Almost 2 in 5 (37% or 82) recorded murders were related to family and domestic violence (ABS 2021).

Since 2011, the number of sexual assault victims recorded by police has increased each year (ABS 2021). It is unclear whether this change reflects an increased incidence of sexual assault, an increased propensity to report sexual assault to police, increased reporting of historical crimes, or a combination of these factors. Of all 2020 police-recorded sexual assaults, 68% were reported to police within one year (ABS 2021).

For more detail, see:

- Family, domestic and sexual violence data in Australia
  - Crime rates for family and domestic violence
  - Crime rates for sexual assault

Homelessness services

People accessing specialist homelessness services (SHS) may need support due to family and domestic violence. Data cannot currently distinguish between victims and perpetrators of violence.

In 2020–21, SHS agencies assisted around 116,200 clients (42% of all SHS clients) who had experienced domestic and family violence. Of these 116,200 clients:

- Over 3 in 4 (77% or 88,900) clients were female; and of the 23,600 aged 25–34, more than 9 in 10 (92% or 21, 700) were female.
- 4 in 10 (40%) of those aged 10 and over also had a current mental health issue.
- Over 1 in 10 (12% or 10,700) of those aged 10 and over had problematic drug and/or alcohol use.
- 1 in 50 (2.1%) clients were living with disability.

See also Homelessness and homelessness services and Specialist homelessness services clients who have experienced family and domestic violence in AIHW’s Family, domestic and sexual violence data in Australia.

Hospitalisations

Hospitals provide health services for individuals who have experienced assault, including those whose hospitalised assault case (hospitalisation) is a result of family or domestic violence. These data do not include presentations to emergency departments and will relate to more severe (and mostly physical) experiences of family and domestic violence. Only those assault hospitalisations where the perpetrator is coded as being a family member (including spouse or domestic partner) can be identified, consequently these data may underestimate family and domestic assault hospitalisations.

In 2019–20, more than **3 in 10** (35% or 7,600) assault hospitalisations were due to family and domestic violence.

Of all family and domestic assault hospitalisations in 2019–20:

- 73% (5,600) were female and 27% (2,000) were male.
- 63% (4,800) had the perpetrator reported as a spouse or domestic partner.
- 37% (2,800) had the perpetrator reported as a parent or other family member.

See also Injury in Australia, Hospital care, Examination of hospital stays due to family and domestic violence 2010-11 to 2018-19 and Hospitalisations for family and domestic violence in Family, domestic and sexual violence data in Australia.

1800RESPECT

1800RESPECT is Australia’s national telephone and online counselling and support service for people affected by family, domestic and sexual violence, their family and friends and frontline workers. In 2020-21, 1800RESPECT responded to 286,546 telephone and online contacts (These numbers include every contact to the service including disconnections, pranks and wrong numbers).

See also 1800RESPECT contacts in Family, domestic and sexual violence data in Australia.

What are the consequences of family, domestic and sexual violence?

Burden of disease

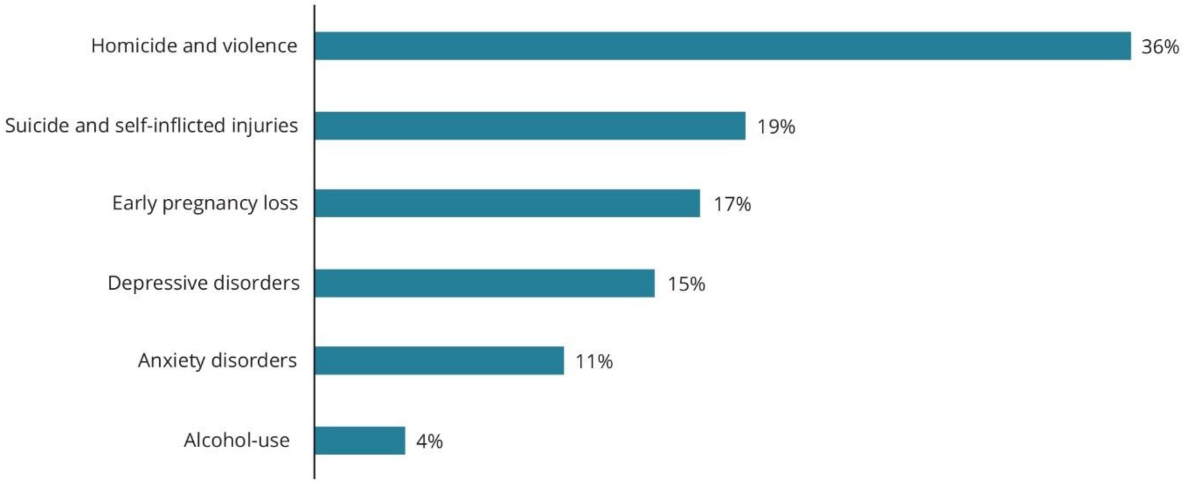
Burden of disease refers to the quantified impact of living with and dying prematurely from a disease or injury.

The Australian Burden of Disease Study 2018 estimated the impact of various diseases, injuries and risk factors on total burden of disease for the Australian population. For women aged 15 to 44 years, intimate partner violence was ranked as the fourth leading risk factor for total disease burden, and child abuse & neglect was the leading risk factor. Child abuse & neglect was ranked third for men in the same age group (AIHW 2021a).

In 2018, **intimate partner violence** contributed to:

- **228 deaths** (0.3% of all deaths among females) in Australia
- **1.4% of the total burden of disease and injury among Australian women**

Total burden attributable to **intimate partner violence:**



Note: Burden estimated in females only.
Source: AIHW 2021a, AIHW 2021b.

In 2018, **child abuse and neglect** contributed to:

- **813 deaths** (0.5% of all deaths) in Australia
- **2.2% of the total burden of disease and injury**

Total burden attributable to **child abuse and neglect:**

Source: AIHW 2021a, AIHW 2021b.

See also: Burden of disease and Family, domestic and sexual violence in Australia.

Long-term health impacts

Findings from the Australian Longitudinal Study on Women's Health demonstrated that women who had experienced childhood sexual abuse were more likely to have poor general health and to experience depression and bodily pain, compared with those who had not experienced sexual abuse during childhood (Coles et al. 2018). Women who had experienced childhood sexual or emotional or physical abuse had higher long-term primary, allied, and specialist health care costs in adulthood, compared with women who had not had these experiences during childhood (Loxton et al. 2018).

Deaths

Between July 2019 and 30 June 2020, the AIC's National Homicide Monitoring Program (NHMP) recorded 86 domestic homicide victims from 81 domestic homicide incidents (see Glossary for definitions). Data from the NHMP are from police and coronial records (Serpell et al. 2022).

Of all domestic homicide victims, 69% (59) were female. Of all female victims of domestic homicide, 61% (36) were killed by an intimate partner. For male victims of domestic homicide, 37% (10) were killed by an intimate partner.

In 2019–20, the rate of domestic homicides was 0.32 per 100,000 – the second lowest annual rate (2017–18 and 2018–19 both 0.30 per 100,000) since the collection began in 1989–90 (Serpell et al. 2022).

A recent report, Examination of hospital stays due to family and domestic violence 2010–11 to 2018–19, found that people who had had a family and domestic violence hospitalisation were 10 times as likely to die due to assault, 3 times as likely to die due to accidental poisoning or liver disease, and 2 times as likely to die due to suicide, as a comparison group (AIHW 2021b).

Further data on domestic homicides can be obtained from ABS Recorded Crime - Victims. See also Causes of death.

Where do I go for more information?

For more information on health impacts of family, domestic and sexual violence, see:

- Family, domestic and sexual violence in Australia: continuing the national story 2019
- Family, domestic and sexual violence data in Australia
- Council of Australian Governments National Plan to Reduce Violence against Women and their Children 2010–2022

Visit Family, domestic and sexual violence for more on this topic.

For information, support and counselling contact **1800RESPECT on 1800 737 732** or visit the 1800RESPECT website .

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Health literacy

Find the most recent version of this information at:
https://www.aihw.gov.au/reports/australias-health/health-literacy

Health literacy relates to how people access, understand and use health information in ways that benefit their health. People with low health literacy are at higher risk of worse health outcomes and poorer health behaviours.

The idea of health literacy is dynamic and evolving. While there are many published definitions, there is no consensus on its meaning (Sørensen et al. 2012). Health literacy initially focused on the ability of individuals to read and understand medical information, however the way information is delivered by health care professionals and organisations is equally important. Therefore, health literacy has 2 main components:

- Individual health literacy – these are individual skills, such as the ability to find, understand and use health information; for example, to complete health care forms or understand and use the health care system.
- The health literacy environment – these are the health system-based elements, such as policies, processes, and materials, which affect the way the individual engages with the health system (ACSQHC 2014a).

Why is health literacy important?

People with low health literacy are more likely to have worse health outcomes overall (Berkman et al. 2011) and adverse health behaviours, such as:

- lower engagement with health services, including preventive services such as cancer screening (Kobayashi et al. 2014)
- higher hospital re-admission rates (Mitchell et al. 2012)
- poorer understanding of medication instructions (for example, non-adherence, improper usage) (Marvanova et al. 2011; Miller 2016)
- lower ability to self-manage care (Geboers et al. 2016).

In contrast, higher levels of health literacy are associated with increased patient involvement in shared decision making (de Oliveira et al. 2018; Seo et al. 2016), which is important in patient-centred care. Improving health literacy is therefore a key element in allowing people to partner with health professionals for better health.

At the population level, low health literacy may be a contributing factor to health inequalities among certain groups (Kickbusch et al. 2006). There is a strong association between some social determinants of health, such as lower levels of education and socioeconomic status, older age, and being from a culturally and linguistically diverse background, and low health literacy (Adams et al. 2009; Heijmans et al. 2015; Rowlands et al. 2015). Targeting health literacy programs at these groups has the potential to reduce health inequalities.

The COVID-19 pandemic highlights the importance of health literacy in the wider community. Throughout the pandemic, whole populations have been asked to understand and rapidly digest complex health concepts relating to infection, vaccination uptake and use of the health care system to produce a coordinated response to limit the spread of disease. Understanding health literacy levels among the population (and vulnerable sub-populations) helps the development and delivery of consumable and effective population health messages during such large-scale outbreaks.

See Health promotion and health protection

Measuring health literacy

Data generated by measuring health literacy can inform policy decisions and assist health organisations to tailor services appropriately to particular groups of people. The Organisation for Economic Co-operation and Development (OECD) identified that addressing gaps in health literacy measurement is an important way to remove barriers to health literacy (Moreira 2018). However, the ability to measure health literacy is hampered by the broad range of definitions, a lack of consensus on what to measure, and the multiple approaches to measuring it (Osborne et al. 2013; Poureslami et al. 2017). This makes it difficult to provide comparable reporting on health literacy over time.

Health Literacy Survey

In 2018, the Australian Bureau of Statistics (ABS) conducted the Health Literacy Survey (ABS 2019), using the Health Literacy Questionnaire (HLQ) (Osborne et al. 2013). The HLQ is a validated tool that has been used in a range of settings, in Australia and abroad (ABS 2019; Bo et al. 2014; NZ Ministry of Health 2018).

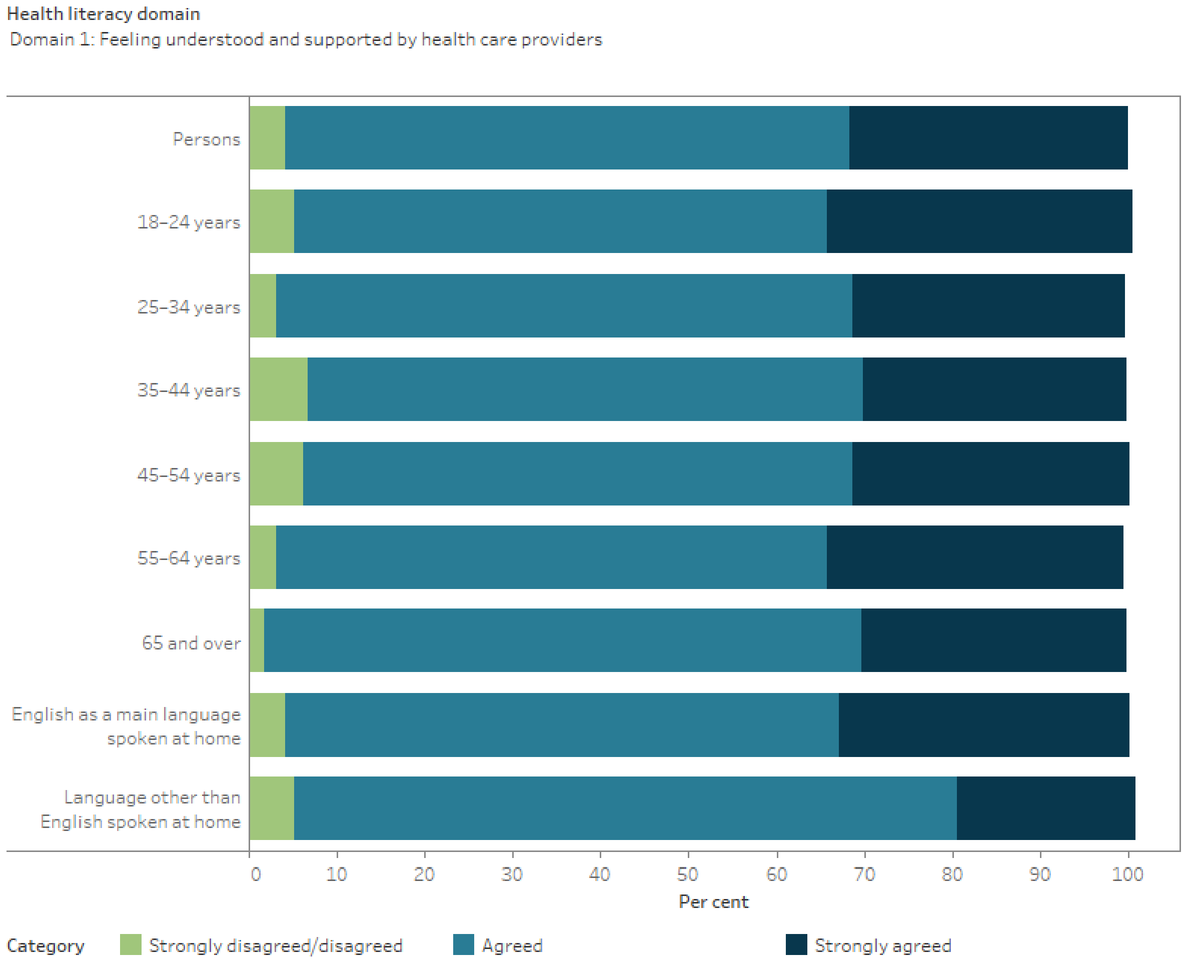
The benefits of the Health Literacy Survey data are that they report a larger range of health literacy characteristics and can therefore be used to improve health service provision. The HLQ does not give a total score of health literacy, nor does it state whether health literacy levels are high or low. Rather, it assesses health literacy across 9 domains that encompass both individual and health environment measures and so provides information about gaps or strengths in the health literacy of the population (Beauchamp et al. 2017).

Selected estimates from the 2018 ABS Health Literacy Survey show:

- The majority of people (97%) agreed or strongly agreed that they have sufficient information to manage their health (Figure 1a).
- The majority of people (96%) felt that they are understood and supported by health care providers (Figure 1a).
- The majority of people (92%) agreed or strongly agreed that they are actively managing their health (Figure 1a).

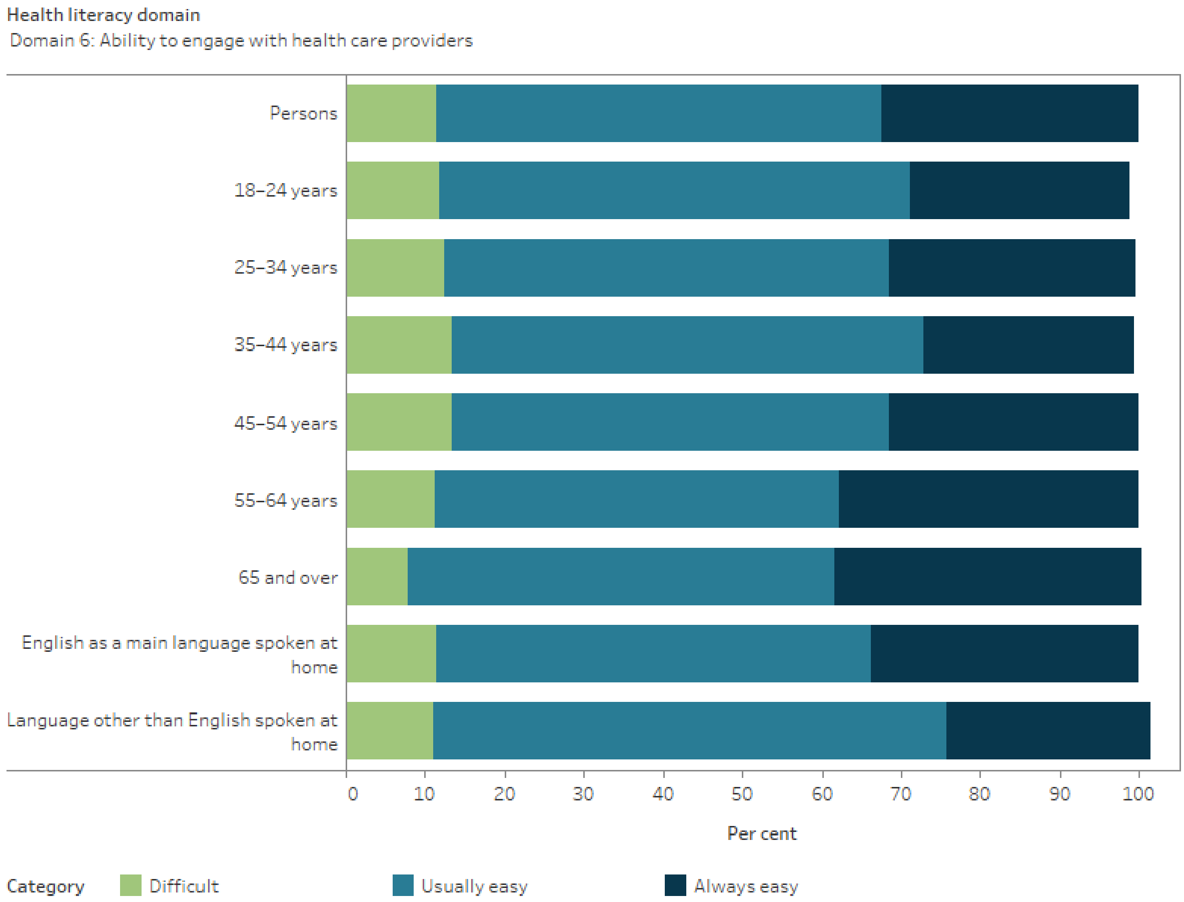
- While the majority of people (83%) felt they are able to appraise health information, as many as 1 in 6 (17%) people disagreed or strongly disagreed that they are able to do so (Figure 1a).
- Almost 2 in 5 (39%) people find it always easy to understand health information well enough to know what to do, with a further 54% stating that they usually find this easy (Figure 1b).

Figure 1a: Health Literacy Survey 2018—summary results, for persons aged 18 and over



\# proportion has a high margin of error and shold be used with caution.
Notes:
Proportions may not add up to 100% as data have been randomly adjusted to avoid the release of confidential data.
Source: ABS 2019.
http://www.aihw.gov.au/

Figure 1b: Health Literacy Survey 2018—summary results, for persons aged 18 and over



Health literacy domain
Domain 6: Ability to engage with health care providers

Notes
1. 'Difficult' comprises 'cannot do or always difficult', 'usually difficult' and 'sometimes difficult'.
2. Proportions may not add up to 100% as data have been randomly adjusted to avoid the release of confidential data.
Source: ABS 2019.
http://www.aihw.gov.au/

The findings from the 2018 ABS Health Literacy Survey also showed that for some domains there was variation by age group. Younger people aged 18–24 were almost twice as likely to strongly agree that they have access to social support compared with older people aged 65 and over (39% compared with 20%). In contrast, navigating the health care system appears to be more difficult for younger age groups. Nearly 1 in 5 (19%) people aged 18–24 stated that they find navigating the health care system difficult, and this decreased to 7.9% for those aged 65 and over.

There was also some variation in the results according to main language spoken in the home (Figures 1a and 1b). Overall, the proportion of people who disagreed or strongly disagreed that they feel understood and supported by health care providers was similar for people who spoke English in the home (4.2%) and those who did not (5.2%). However, a higher proportion of people who spoke English in the home strongly agreed they feel understood and supported by health care providers (33%) than those who did not speak English in the home (20%).

Additionally, those who spoke English in the home were more likely to always find it easy to actively engage with health care providers (34%) than those who spoke a language other than English in the home (26%).

How can health literacy be improved?

The National Statement on Health Literacy (ACSQHC 2014b) acknowledges the importance of health literacy in enabling effective partnerships in health, and proposes actions that can be implemented within the health system to improve health literacy levels. This has been a driver for health literacy at the local level, with Local Health Networks, Primary Health Networks and community organisations designing and implementing locally appropriate health literacy interventions.

Some examples of activities being undertaken at the national and community levels to improve health literacy are provided below.

National initiatives

The National Strategic Framework for Chronic Conditions (Australian Health Ministers' Advisory Council 2017) and the National Safety and Quality Health Service Standards (ACSQHC 2021) are 2 national initiatives that acknowledge and integrate health literacy as an important component of the health system.

Community initiatives

The Centre for Culture, Ethnicity and Health works closely with community, government and health professionals to represent people from culturally diverse backgrounds, particularly migrants and refugees. It provides a range of resources to address health literacy across all audiences, including:

- health literacy training courses – including the first health literacy course in Australia
- health translations directory – an online library of health information translated into more than 100 languages (in conjunction with the Victorian Government)
- Drop the Jargon day – a national day encouraging health professionals to think about using simple language with their clients, in place of medical terms and acronyms.

Where do I go for more information?

For more information on health literacy, see:

- ABS National Health Survey: Health Literacy, 2018
- Australian Commission on Safety and Quality in Health Care National Statement on Health Literacy – Taking action to improve safety and quality
- Centre for Culture, Ethnicity and Health Resources in Health literacy

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Illicit drug use

Find the most recent version of this information at:
https://www.aihw.gov.au/reports/illicit-use-of-drugs/illicit-drug-use

Illicit drug use affects individuals, families and the broader Australian community. These harms are numerous and include:

- health impacts such as burden of disease, death, overdose and hospitalisation
- social impacts such as violence, crime and trauma
- economic impacts such as the cost of health care and law enforcement
- some specific population groups are at greater risk of experiencing disproportionate harms associated with illicit drug use, including young people, people with mental health conditions and people identifying as gay, lesbian, bisexual, transgender or intersex (Department of Health 2017).

Definition of illicit drug use

'Illicit use of drugs' covers the use of a broad range of substances, including:

- illegal drugs – drugs prohibited from manufacture, sale or possession in Australia, including cannabis, cocaine, heroin and amphetamine-type stimulants
- pharmaceuticals – drugs available from a pharmacy, over-the-counter or by prescription, which may be subject to non-medical use (when used for purposes, or in quantities, other than for the medical purposes for which they were prescribed). Examples include opioid-based pain relief medications, opioid substitution therapies, benzodiazepines, steroids, and over-the-counter codeine (not available since 1 February 2018)
- other psychoactive substances – legal or illegal, used in a potentially harmful way – for example, kava; synthetic cannabis and other synthetic drugs; inhalants such as petrol, paint or glue (Department of Health 2021).

Each data collection cited on this page uses a slightly different definition of illicit drug use; see the relevant report for information.

How common is illicit drug use?

According to the 2019 National Drug Strategy Household Survey (NDSHS), an estimated 9.0 million (43%) people aged 14 and over in Australia had illicitly used a drug at some point in their lifetime (including the non-medical use of pharmaceuticals), and an estimated 3.4 million (16.4%) had used an illicit drug in the previous 12 months. This was similar to proportions in 2016 (43% and 15.6%, respectively) but has increased since 2007 (38% and 13.4%, respectively) (Figure 1).

In 2019, the most common illicit drug used in the previous 12 months was cannabis (11.6%), followed by cocaine (4.2%) and ecstasy (3.0%) (Figure 1). A number of changes were reported in the recent use of illicit drugs between 2016 and 2019, including increases in the use of:

- cannabis (from 10.4% to 11.6%)
- cocaine (from 2.5% to 4.2%)
- ecstasy (from 2.2% to 3.0%)
- hallucinogens (from 1.0% to 1.6%)
- inhalants (from 1.0% to 1.4%)
- ketamine (from 0.4% to 0.9%) (Figure 1) (AIHW 2020).

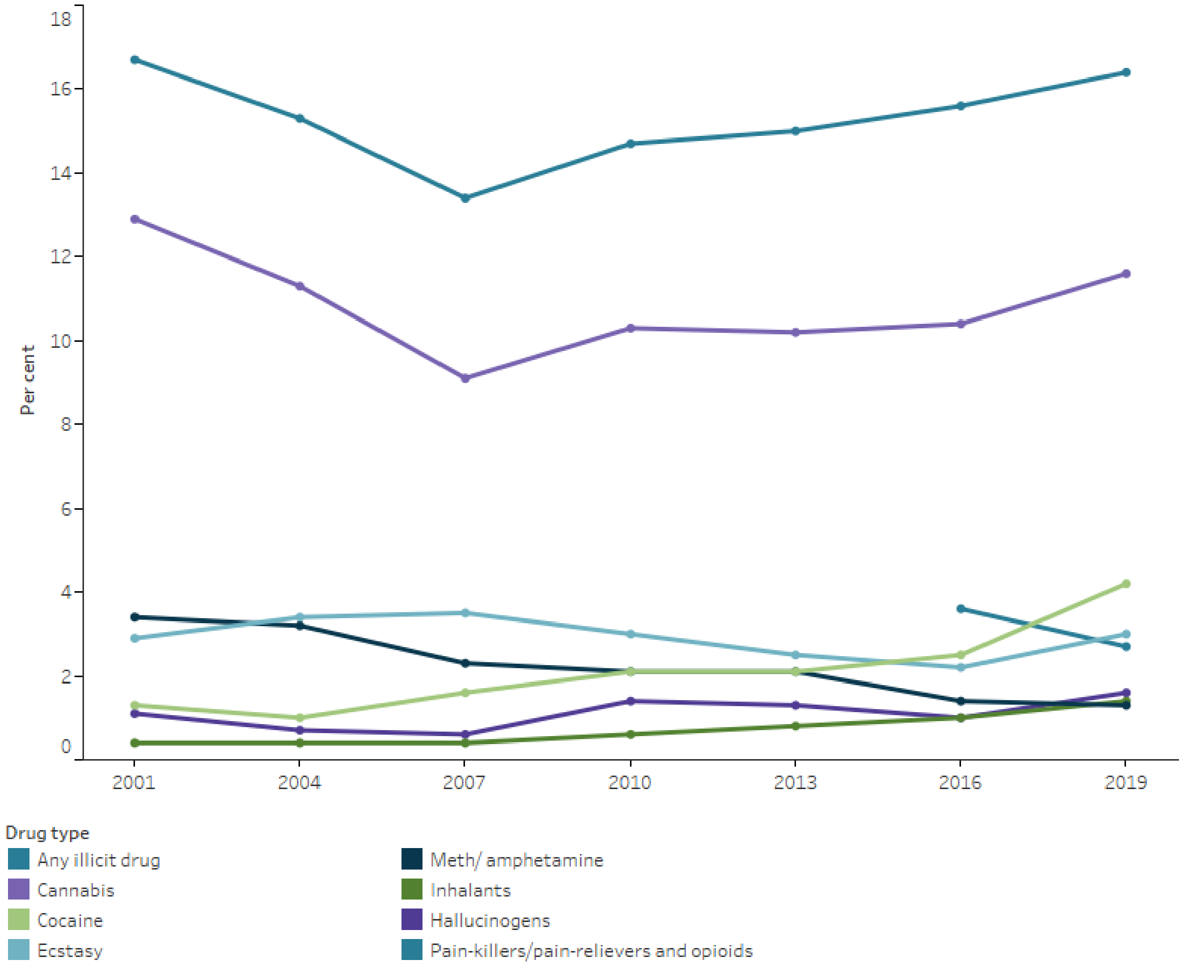
Overall, in 2019, an estimated 900,000 people (4.2%) aged 14 and over used a pharmaceutical drug for non-medical purposes in the previous 12 months, a decline from 4.8% (an estimated 1 million people) in 2016 (AIHW 2020). Between 2016 and 2019, the proportion of people using 'pain-killers and opioids' for non-medical purposes declined from 3.6% to 2.7%. This decline is most likely due to a reclassification of medications containing codeine that was implemented in 2018. Under the change, drugs with codeine (including some painkillers) can no longer be bought from a pharmacy without a prescription. The proportion of people using codeine for non-medical purposes has halved since 2016, from 3.0% to 1.5% in 2019.

In 2016, pain-killers and opioids used for non-medical purposes were the second most commonly used illicit drug in the previous 12 months after cannabis, but in 2019, they were fourth, after cannabis, cocaine and ecstasy (AIHW 2020).

Due to the changes in the recent use of a number of illicit drugs between 2016 and 2019, meth/amphetamines are no longer in the top 5 illicit drugs most likely to be used in the previous 12 months. Meth/amphetamine use has been declining since it peaked at 3.4% in 2001 and stabilised in 2019 (1.4% in 2016 and 1.3% in 2019).

To better understand illicit drug use in Australia, it is important to consider the frequency of drug use and not just the proportion of people who have used a drug in the previous 12 months. Some drugs are used more often than others, and the health risks of illicit drug use increase with the frequency, type, and quantity of drugs used (Degenhardt et al. 2013). While cocaine and ecstasy were used by more people in the previous 12 months, most people used these drugs infrequently with 57% of people who used cocaine and 51% of people who used ecstasy reporting they only used the drug once or twice a year in the 2019 NDSHS. Conversely, monthly or more frequent drug use was more commonly reported among people who had used cannabis (50%) or meth/amphetamines (33%).

Figure 1: Proportion of people aged 14 and over who recently used selected illicit drugs, 2001 to 2019



[Notes]

Source: National Drug Strategy Household Survey 2019 (AIHW 2020)
http://www.aihw.gov.au/

Impact of COVID-19 on illicit drug use

In 2021, the Illicit Drug Reporting System (IDRS) was adapted to collect information about the experiences during COVID-19 of people who regularly inject drugs. Data collection took place between June–July 2021.

- 12% of IDRS participants had difficulties accessing sterile needles and syringes, and 5% had difficulties safely disposing of used needles and syringes.
- 49% of IDRS participants had a disruption of their drug treatment since COVID-19 (Sutherland et al. 2022b).

Health impact

Deaths

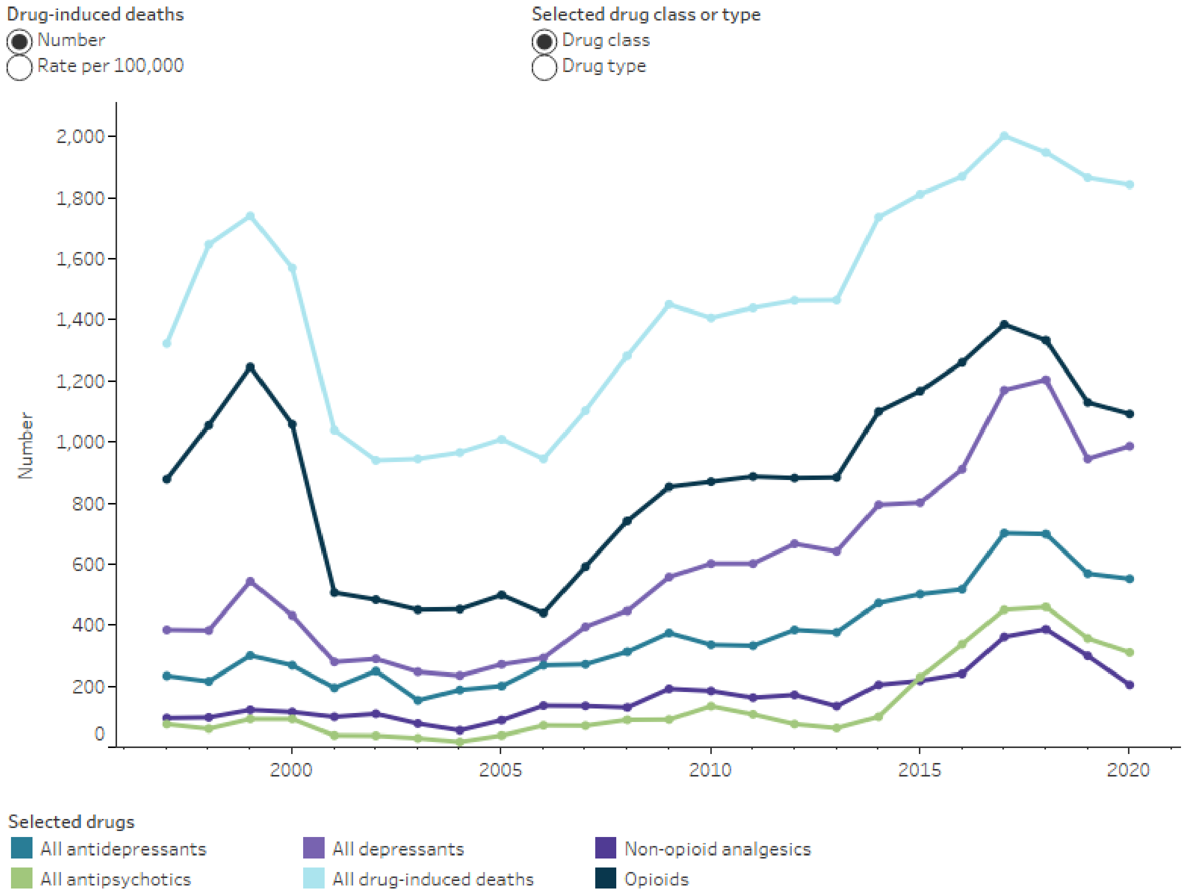
Drug-induced deaths are defined as those that can be directly attributable to drug use and includes both those due to acute toxicity (for example, drug overdose) and those due to chronic use (for example, drug-induced cardiac conditions) as determined by toxicology and pathology reports (see Glossary for more information).

Analysis of the AIHW National Mortality Database (Figure 2) showed that:

- In 2020, 1,842 deaths were drug-induced, equivalent to 7.2 per 100,000 population, age-standardised – among one of the highest rates on record, but still lower than the rate in 1999 of 9.1 deaths per 100,000 population.
- Opioids continue to be the most common drug class present in drug-induced deaths over the past decade (4.3 per 100,000 population in 2020). Opioids include the use of a number of drug types, including heroin, opiate-based analgesics (such as codeine and oxycodone) and synthetic opioid prescriptions (such as tramadol and fentanyl).
- In 2020, benzodiazepines were the most common single drug type present in drug-induced deaths (3.2 per 100,000 population) (benzodiazepines are included in the drug class 'depressants').
- Over the past decade, drug-induced deaths were more likely to be due to prescription drugs than illegal drugs, and there has been a substantial rise in deaths with a prescription drug present. For synthetic opioids (including fentanyl and tramadol) in particular, the rate has increased from 0.3 per 100,000 population (75 deaths) in 2011 to 0.8 (218 deaths) in 2020.

In 2020, 5 or more drugs were present in 19.3% of all drug-induced deaths, and a further 17.9% reported 3 drugs present. Females were more likely than males to have 5 or more drugs present at toxicology (23.0% and 17.3%, respectively) (ABS 2021).

Figure 2: Drug-induced deaths, by selected drug type and drug class, number and rate, 1997 to 2020



Drug-induced deaths
● Number
○ Rate per 100,000

Selected drug class or type
● Drug class
○ Drug type

[Notes]

Note: Data have been adjusted for Victorian additional death registrations in 2019. A time series adjustment has been applied to causes of death to enable a more accurate comparison of mortality over time. When the time series adjustment is applied, deaths are presented in the year in which they were registered (i.e. removed from 2019 and added to 2017 or 2018). For more detail please refer to Technical note: Victorian additional registrations and time series adjustments in Causes of death, Australia, 2019 (ABS Cat. no. 3303.0).
Source: AIHW analysis of the National Mortality Database 1997–2020.
http://www.aihw.gov.au/

Burden of disease

According to the Australian Burden of Disease Study 2018, illicit drug use contributed to 3% of the total burden of disease and injury in 2018 (AIHW 2022b). This included the impact of opioids, amphetamines, cocaine, cannabis and other illicit drug use, as well as unsafe injecting practices. The rate of total burden of disease and injury attributable to illicit drug use increased by 35% between 2003 and 2018 (AIHW 2022b).

Opioid use accounted for the largest proportion (31%) of the illicit drug use burden, followed by amphetamine (24%), unsafe injecting practices (18%), cocaine (11%) and cannabis (10%) use. Illicit drug use was responsible for almost all burden due to drug use and disorders (excluding alcohol) (AIHW 2022b). See Burden of disease.

Hospitalisations

The National Drug and Alcohol Research Centre (NDARC) reports information on drug-related hospitalisations, excluding alcohol (see Glossary for more information).

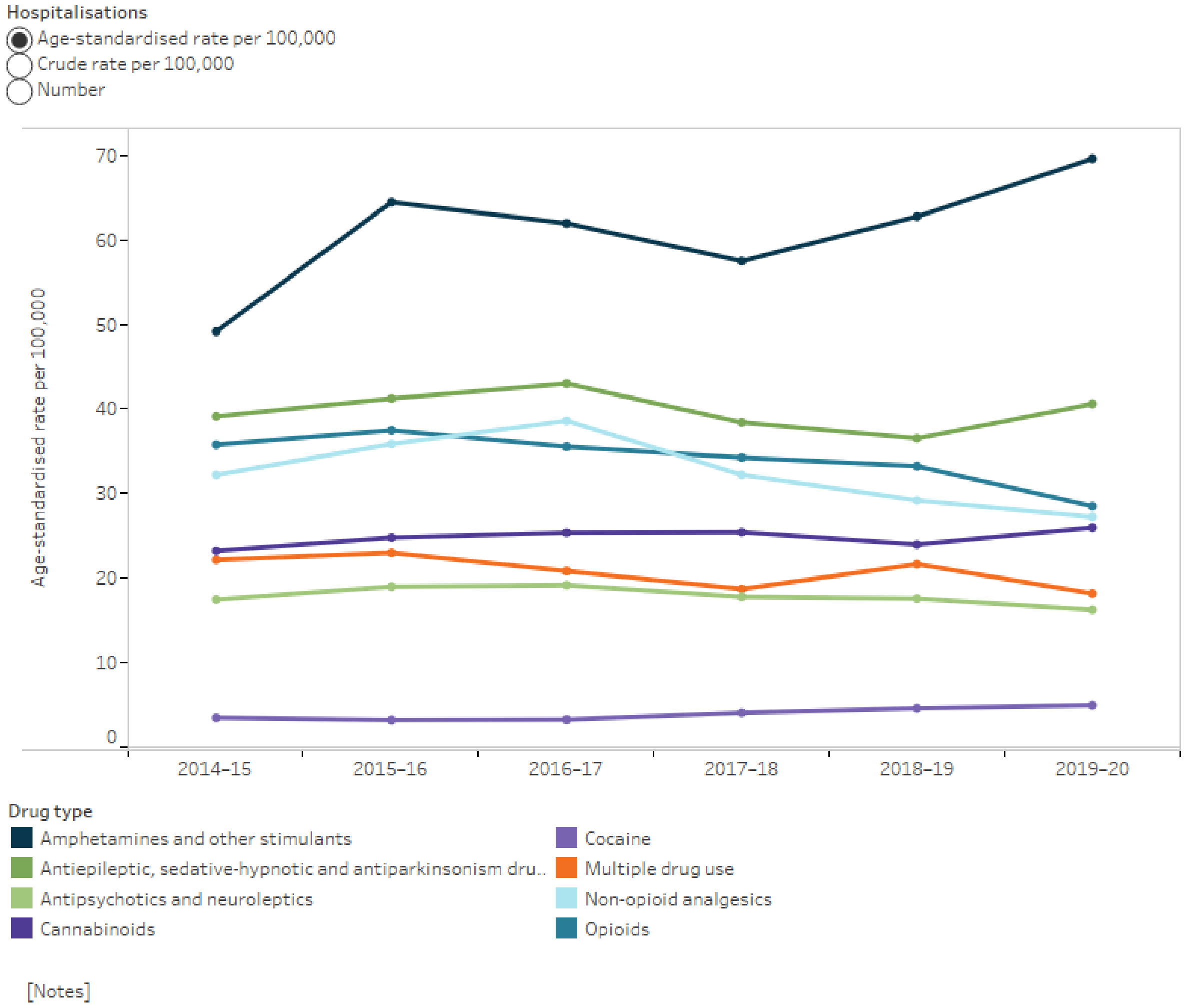
In 2019–20, 62,757 hospitalisations were drug-related, equating to 0.6% of total hospitalisations in Australia's public and private hospitals, a small increase from 2018–19 (61,780, 0.5% of total hospitalisations).

Taking into account population growth and ageing, the age-standardised rate of drug-related hospitalisations increased from 199 hospitalisations per 100,000 people in 2010–11 to 272 in 2015–16. This rate declined to 250 in 2017–18 and has remained steady in 2018–19 and 2019–20 (251 and 253 hospitalisations per 100,000 people, respectively).

Between 2018–19 and 2019–20, amphetamines and other stimulants accounted for the highest rate of hospitalisations (from 63 to 70 per 100,000). The rate for antiepileptic, sedative-hypnotic and antiparkinsonism drugs increased between 2018–19 and 2019–20 (from 37 to 41 per 100,000). Conversely, opioids saw decreases in the rate of hospitalisations (from 33 to 28 per 100,000); this has been on a steady decline since 2015–16 (Chrzanowska et al. 2022, Figure 3).

See Alcohol risk and harm for information on drug-related hospitalisations where alcohol was the drug.

Figure 3: Hospitalisations by selected drug-related principal diagnosis, number and rate, 2014–15 to 2019-20



Source: National Drug and Alcohol Research Centre (NDARC); Trends in drug-related-hospitalisations in Australia, 2019-20 http://www.ndarc.med.unsw.edu.au

Ambulance attendances

2020 data on alcohol and other drug-related ambulance attendances are currently available for 5 jurisdictions: New South Wales, Victoria, Queensland, Tasmania, and the Australian Capital Territory. Data are reported for 4 snapshot months per year, specifically March, June, September, and December.

- Across reporting jurisdictions, the highest number and rate of ambulance attendances for illicit drugs were for cannabis, meth/amphetamine and benzodiazepines.
- Around 90% of benzodiazepine-related ambulance attendances resulted in transfer to hospital; heroin had the lowest rate of transfer to hospital (around 63%).
- In over half of all benzodiazepine and opioid analgesic-related ambulance attendances, multiple drugs (excluding alcohol) were reported (AHIW 2022c).

Non-fatal overdose

Data from the 2021 IDRS and Ecstasy and related Drugs Reporting System (EDRS) include rates of self-reported overdose:

- Of the 2021 IDRS participants, 11% reported a non-fatal opioid overdose in the past 12 months (Sutherland et al. 2022b).
- Of the 2021 EDRS participants, 16% reported experiencing a non-fatal stimulant overdose in the past 12 months, stable relative to 2020 (18%) (Sutherland et al. 2022a).

Treatment

The Alcohol and other drug treatment services in Australia Early Insights Report for 2020–21 reported that amphetamines accounted for 24% of treatment episodes, followed by cannabis at 19% then heroin at 4.6% (AIHW 2022a).

Amphetamines were the most common principal illicit drug of concern in 2020–21. Between 2011–12 and 2020–21, closed treatment episodes for amphetamines as a principal drug of concern increased from around 16,900 to 54,000 and increased for cannabis from around 32,300 to 43,400 episodes (AIHW 2022a).

See Alcohol and other drug treatment services.

Social impact

The social impacts of illicit drug use are pervasive and include criminal activity, engagement with the criminal justice system and victimisation. For example:

- Just under 2 in 5 participants of the 2021 IDRS (39%) and over 1 in 3 participants of the 2021 EDRS (36%) reported participating in criminal activities. The most common criminal activities were property crime and selling and/or dealing of drugs (Sutherland et al. 2022a, Sutherland et al. 2022b).
- In 2019, slightly over 1 in 10 (10.5%) people aged 14 and over had been a victim of an illicit drug-related incident (experiencing verbal abuse, physical abuse or being put in fear) in the previous 12 months, an increase from 9.2% in 2016 (AIHW 2020).
- In 2018–19, just over 1 in 5 (21%) victims and 12% of offenders had consumed illicit drugs or non-therapeutic levels of pharmaceutical drugs before a homicide incident (Bricknell 2021).

Priority populations

The National Drug Strategy 2017–2026 specifies priority populations who have a high risk of experiencing direct and indirect harm as a result of drug use, including young people, people with mental health conditions and people identifying as gay, lesbian, bisexual, transgender or intersex (Department of Health 2017).

Young people

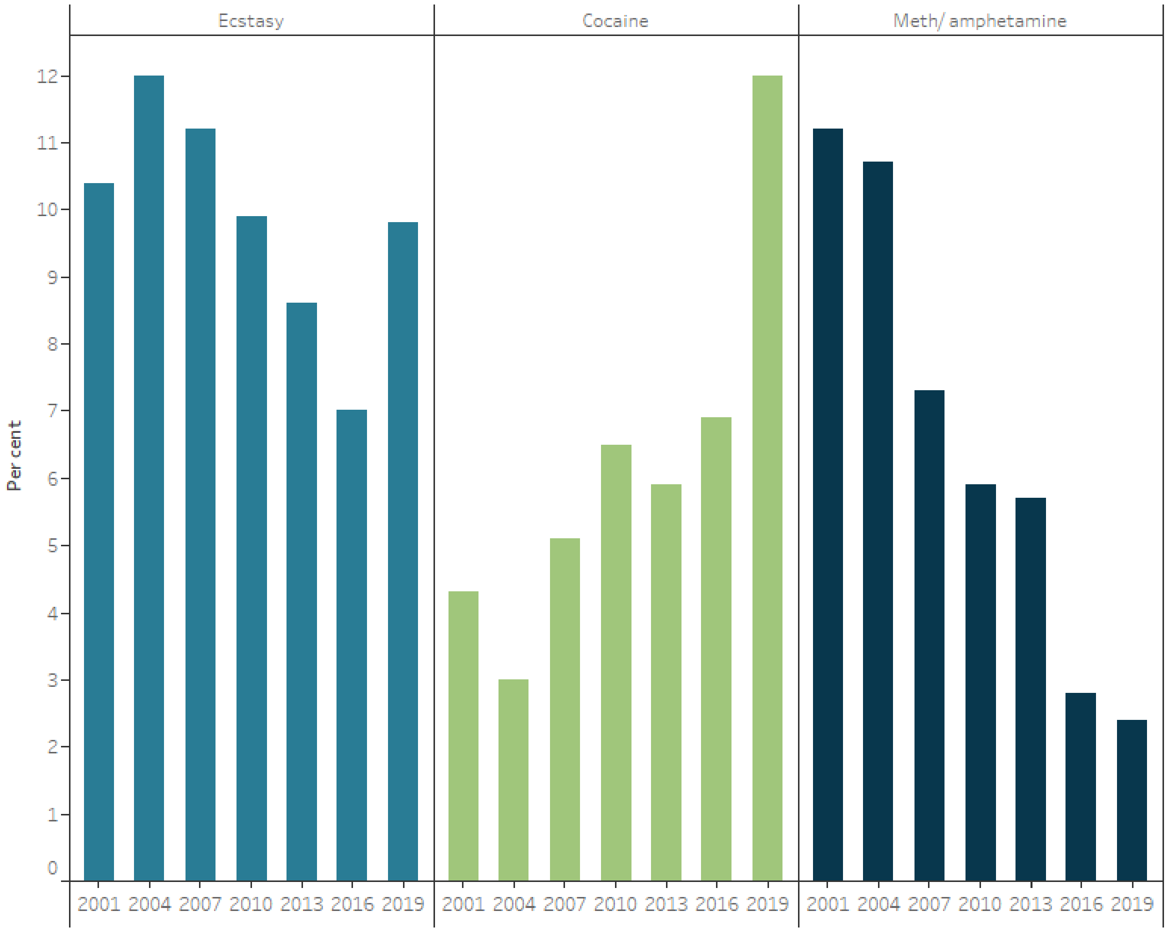
Young people are susceptible to permanent damage from alcohol and other drug use as their brains are still developing, which makes them a vulnerable population (Department of Health 2017).

Young people (aged 14–29) in 2019 were less likely to have used an illicit drug in the previous 12 months than young people in 2001– with a particularly large difference seen among teenagers and people in their 20s. For example, in 2001, 28% of 14–19 year olds had used an illicit drug in the previous 12 months, but by 2019, this was 16% (AHIW 2020).

In 2019, people aged 20–29 were the most likely to have used an illicit drug in the previous 12 months (31%), a similar proportion to 2016 (28%). There have been significant changes in the types of drugs used by people in their 20s. Ecstasy use among people in their 20s declined from 12.0% in 2004 to 7.0% in 2016 then rose again to 9.8% in 2019. This was the first time an increase was reported in ecstasy use for people in this age group in over a decade, with use returning to a similar level reported in 2001 (10.4%) (Figure 4). Cocaine use among people in their 20s was at its highest level in 2019. Much of the rise in cocaine use among people in this age group occurred between 2016 and 2019 – from 4.3% in 2001 to 6.9% in 2016 and up to 12.0% in 2019. On the other hand, use of methamphetamines among people in their 20s is at its lowest level since 2001 (declined from 11.2% in 2001 to 2.4% in 2019) (AIHW 2020).

See Health of young people.

Figure 4: Proportion of people aged 20–29 who recently used ecstasy, cocaine, or meth/amphetamine, 2001 to 2019



Notes:
1. Recent use defined as use in the previous 12 months.
2. Ecstasy includes 'designer drugs' before 2004.
3. Meth/amphetamine defined as use in the previous 12 months for non medical purposes.
Source: National Drug Strategy Household Survey 2019 (AIHW 2020).
http://www.aihw.gov.au/

People with mental health conditions

The presence of a mental health condition may lead to a drug use disorder, or vice versa. In some cases where there is a comorbidity, the person who uses drugs can develop a drug use disorder as a consequence of repeated use to relieve or cope with mental health symptoms (Marel et al. 2016).

In 2019, the NDSHS showed that the proportion of people self-reporting a mental health condition was higher among people aged 18 and over who reported the use of illicit drugs in the previous 12 months (26%) than those who had not used an illicit drug over this period (15.2%) (AIHW 2020). For example, mental health conditions were reported by:

- 31% of people who recently used meth/amphetamines (compared with 16.6% of non-users)
- 27% of people who recently used cannabis (compared with 15.4% of non-users)

- 22% of people who recently used ecstasy (compared with 16.7% of non-users)
- 22% of people who recently used cocaine (compared with 16.6% of non-users) (AIHW 2020).

The EDRS reported an increase in self-reported mental health conditions between 2014 and 2020 (from 28% to 52%) (Peacock et al. 2021a). See Physical health of people with mental illness.

People identifying as lesbian, gay, bisexual, transgender, intersex or queer

People who identify as lesbian, gay, bisexual, transgender, intersex or queer can be at an increased risk of licit and illicit drug use. These risks can be increased by a number of issues such as stigma and discrimination, familial issues, fear of discrimination and fear of identification (Department of Health 2017). The NDSHS provides substance use estimates by sexual identity for people identifying as gay, lesbian or bisexual, however it does not include estimates for people identifying as transgender or intersex (AIHW 2020).

The NDSHS has consistently shown that the proportion of people reporting illicit drug use has been higher among people who identify as gay, lesbian or bisexual than among heterosexual people – 40% compared with 15.4% had used an illicit drug in the previous 12 months in 2019. After adjusting for differences in age, in comparison to heterosexual people, gay, lesbian or bisexual people were:

- 9.0 times as likely to use inhalants in the previous 12 months
- 3.9 times as likely to have used meth/amphetamines in the previous 12 months
- 2.6 times as likely to have used ecstasy in the previous 12 months (AIHW 2020).

The types of illicit drugs people had used in the last 12 months varied quite considerably by a person's sexual orientation and it is important to note that there are differences in substance use between people who identified as gay or lesbian and people who identified as bisexual (AIHW 2020).

The Writing Themselves In National Report describes findings from the national survey of health and wellbeing among lesbian, gay, bisexual, trans, queer, asexual (LBGTQA+) young people in Australia. The survey was conducted from September to October 2019 and participants needed to be aged between 14 and 21 years. The survey shows that in the previous 6 months:

- 27% of participants aged 14 to 17 years and 43% of participants aged 18 to 21 years reported using any drug for non-medical purposes.
- 28% of participants reported using cannabis.
- 7.0% of participants reported using ecstasy/MDMA (Hill et al. 2022a).

The Private Lives survey is Australia's largest national survey of the health and wellbeing of lesbian, gay, bisexual, transgender, intersex and queer (LGBTIQ) people, with the age of participants ranging from 18 to 88 years. The survey showed that 44% of participants reported using one or more drugs for non-medical purposes in the previous 6 months. Of this, cannabis was the highest at 30%, followed by Ecstasy/MDMA at 13.9%.

Within the past 6 months, 14.0% of participants reported experiencing a time when they had struggled to manage their drug use or where it negatively impacted their everyday life (Hill et al. 2022b).

Where do I go for more information?

For more information on illicit drug use, see:

- Alcohol, tobacco & other drugs in Australia
- National Drug Strategy Household Survey 2019
- Alcohol and other drug treatment services in Australia annual report
- Australian Burden of Disease Study 2018: interactive data on risk factor burden
- National Drug and Alcohol Research Centre

Visit Illicit use of drugs for more on this topic.

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Insufficient physical activity

Find the most recent version of this information at:
https://www.aihw.gov.au/reports/australias-health/insufficient-physical-activity

Physical activity is any body movement produced by skeletal muscles that uses energy (WHO 2018). Low levels of physical activity are a major risk factor for chronic conditions. People who are not active enough have a greater risk of developing cardiovascular disease, type 2 diabetes, osteoporosis and dementia. Being physically active improves the immune system and mental and musculoskeletal health, and reduces other risk factors such as overweight and obesity, high blood pressure and high blood cholesterol. Physical activity can also improve symptoms and/or delay or halt the progression of a number of conditions or the onset of associated diseases and complications (Pedersen and Saltin 2015).

Being physically active is important across all ages and contributes to healthy growth and development in children and adolescents (WHO 2018). Physical activity and exercise guidelines for all Australians are evidence-based recommendations that outline the minimum amount of physical activity required for health benefits (Department of Health 2021). The Guidelines recognise that different amounts and types of physical activity are required across the life span for optimal health.

This page focuses on the physical activity component of the Guidelines measurable through national health surveys.

Physical activity guidelines for adults

Physical activity can include:

- going for a walk, jog or bike ride
- playing a sport
- going swimming, or taking a class at the gym.

Adults aged 18–64 should be active on most (preferably all) days, accumulating at least 150 minutes of moderate intensity physical activity or 75 minutes of vigorous intensity physical activity each week (or an equivalent combination of both).

People aged 65 and over should accumulate at least 30 minutes of moderate intensity physical activity on most, preferably all days (Department of Health 2021).

See Physical Activity for Adults (aged 18–64 years) and Physical Activity for older Australians (65 years and older)

How common is insufficient physical activity?

Insufficient physical activity for 2020–21

Data for 2020–21 are based on information self-reported by the participants of the Australian Bureau of Statistics (ABS) 2020–21 National Health Survey (NHS).

Previous versions of the NHS have primarily been administered by trained ABS interviewers and were conducted face-to-face. The 2020–21 NHS was conducted during the COVID-19 pandemic. To maintain the safety of survey respondents and ABS Interviewers, the survey was collected via online, self-completed forms.

Non-response is usually reduced through interviewer follow-up of households who have not responded. As this was not possible during lockdown periods, there were lower response rates than previous NHS cycles, which impacted sample representativeness for some sub-populations.

Additionally, the impact of COVID-19 and lockdowns might also have had direct or indirect impacts on people's usual behaviour over the 2020–21 period, and the module used to collect information on physical activity was changed as part of the NHS 2020–21.

Due to these changes, comparisons to previous insufficient physical activity data over time are not recommended.

Based on self-reported data from the 2020–21 NHS:

- Almost 3 in 10 adults (27%) aged 18–64 did not perform at least 150 minutes of physical activity in the past week, and a similar number (30%) did not perform physical activity over 5 or more days.
- 1 in 2 (50%) of those aged 65 and over (47% of men and 52% of women) were insufficiently active, that is they did not participate in at least 30 minutes of physical activity per day over 5 or more days in the past week (ABS 2022b).

The remainder of this page reports on data from the NHS 2017–18 and prior releases.

Adults

Information on physical activity for adults is based on self-reported data from the ABS 2017–18 NHS. The survey relies on people accurately remembering their physical activity levels, which can introduce recall bias and lead to over or underestimations of the amount of physical activity completed.

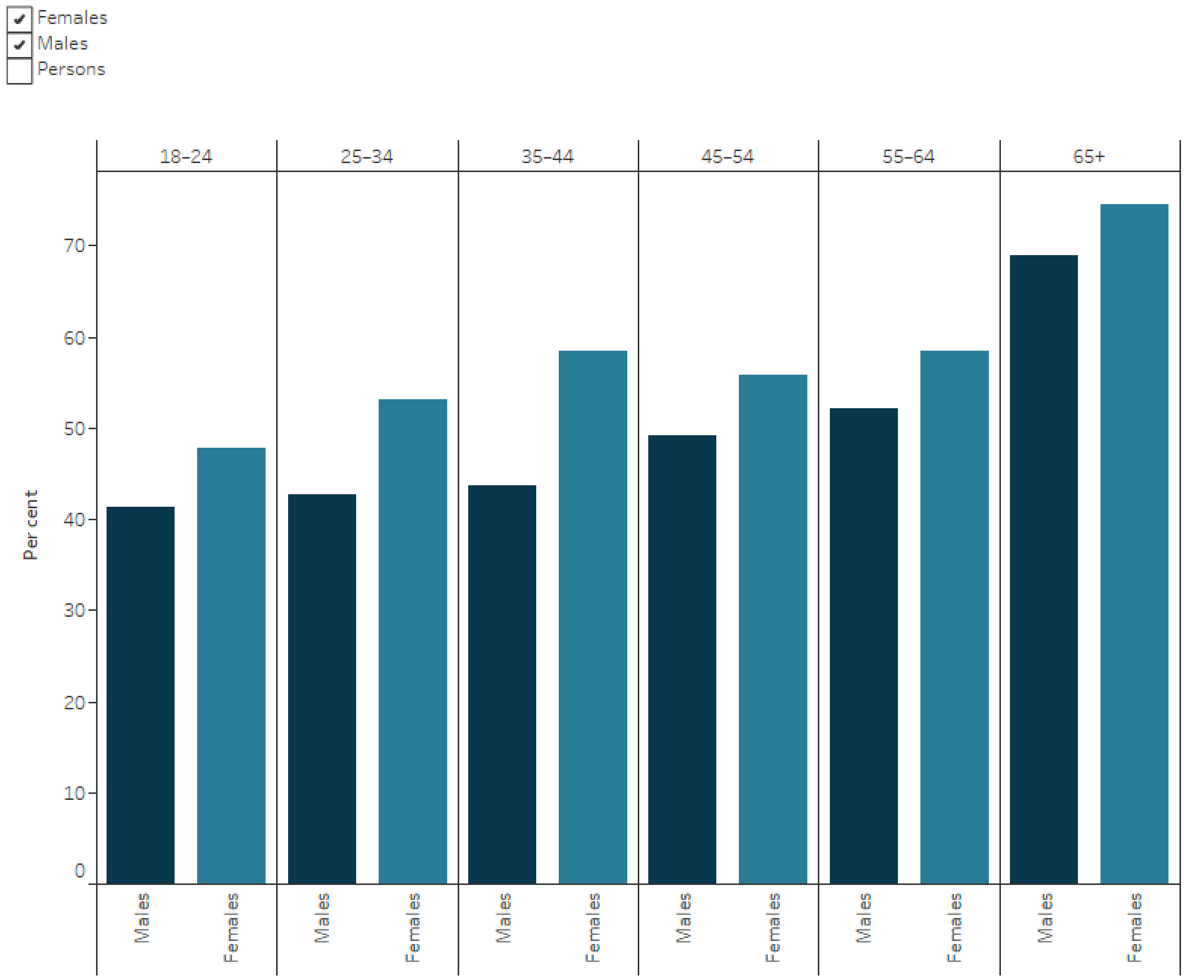
Insufficient physical activity is defined here as:

- for adults aged 18–64: not completing 150 minutes of moderate to vigorous activity (where time spent on vigorous activity is multiplied by 2) across 5 or more days a week
- for adults aged 65 and over: not completing 30 minutes or more of physical activity on at least 5 days each week.

Based on self-reported data from the 2017–18 NHS, more than half (55%) of adults didn't participate in sufficient physical activity (AIHW analysis of ABS 2019). Women were more likely than men to be insufficiently active (59% compared with 50%).

The rate of insufficient physical activity generally increases with age – less than half of those aged 18–24 were insufficiently active (41% of men and 48% of women) compared with more than two-thirds of those aged 65 and over (69% of men and 75% of women) (Figure 1).

Figure 1: Prevalence of insufficient physical activity among adults, by age and sex, 2017–18



Note: Physical Activity includes physical activity at work, walking for fitness, recreation, or sport; walking to get to or from places; moderate exercise; and vigorous exercise (multiplied by 2) in the week prior to interview. Data does not include people for whom this measure was not known or not applicable.
Source: AIHW analysis of ABS 2019.
http://www.aihw.gov.au/

Trends

There was a slight decrease in the percentage of adults who were insufficiently active between 2007–08 and 2017–18, after adjusting for age differences – from 69% to 65% (AIHW 2019). However, rates did not change significantly between 2014–15 and 2017–18. These data exclude workplace physical activity as information on this was collected in 2017–18 only.

Children and young people

Physical activity guidelines for children and young people

Physical activity for children includes:

- energetic play (such as climbing, running, jumping and dancing)
- going for a swim, walk, jog or bike ride
- playing a sport.

Additionally, screen time during childhood can have long-term impacts on a child's development and should be limited (Department of Health 2021). For school-aged children, this does not include screen time needed for school work.

Children aged 2–5 (who have not yet started full-time schooling) should spend at least 180 minutes a day on a variety of physical activities, including energetic play, with no more than 60 minutes of screen time per day.

Children and young people aged 5–17 should accumulate at least 60 minutes of moderate to vigorous activity per day and no more than 120 minutes of recreational screen time per day (Department of Health 2021).

See Physical Activity Guidelines for infants, toddler and preschoolers (birth to 5 years) and Physical Activity Guidelines for children and young people (5–17 years).

The most recent data available on physical activity and sedentary screen time for children and young people aged 2 and over is from the ABS 2011–12 National Nutrition and Physical Activity Survey. However, under the Intergenerational Health and Mental Health Study, the ABS National Nutrition and Physical Activity Survey is scheduled to be conducted again in 2023.

In 2011–12, 83% of children aged 2–5, 88% of children aged 5–12, and 98% of young people aged 13–17 had not met the physical activity and sedentary behaviour guidelines on all 7 days in the previous week (AIHW 2018).

See Physical activity across the life stages for more information on the physical activity and sedentary behaviour of Australian children and young people.

See also Health of children and Health of young people.

Health impact

Burden of disease refers to the quantified impact of living with and dying prematurely from a disease or injury. Burden of disease analysis estimates the contribution of various risk factors to disease burden.

In 2018, 2.5% of the total disease burden in Australia could have been avoided if all people in Australia were sufficiently active (as defined in the Australian Burden of Disease Study) (AIHW 2021).

The total burden due to insufficient physical activity for associated diseases was:

- 20% for type 2 diabetes
- 16% for coronary heart disease
- 16% for uterine cancer
- 12% for bowel cancer
- 12% for dementia
- 9.2% for stroke
- 3.2% for breast cancer.

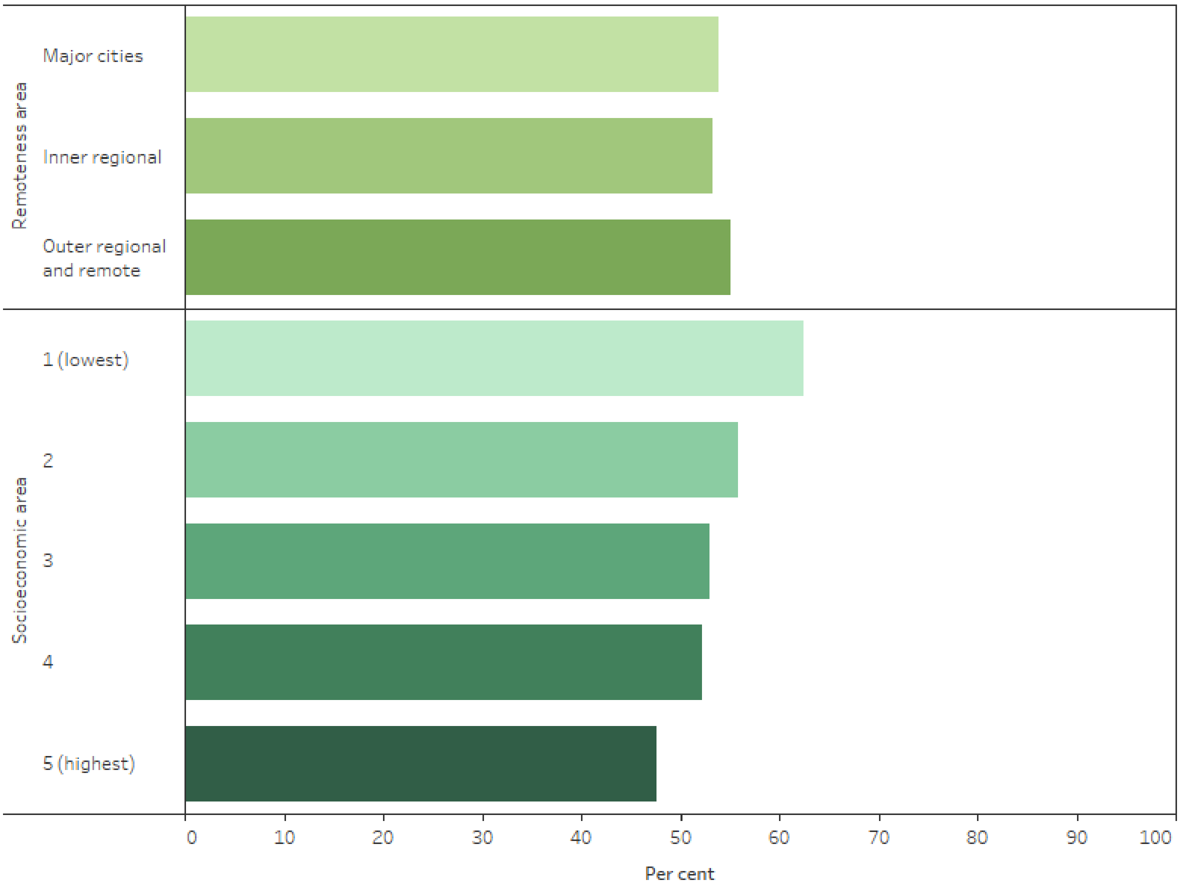
See Burden of disease.

Variation between population groups

See Determinants of health for Indigenous Australians for information on insufficient physical activity among Aboriginal and Torres Strait Islander people.

There were no significant differences in the prevalence of insufficient physical activity between remoteness areas for adults in 2017–18, after adjusting for age differences (AIHW 2019). However, there were differences between socioeconomic areas – 63% of adults in the lowest socioeconomic areas were insufficiently active compared with 48% in the highest, after adjusting for age (Figure 2). See Rural and remote health and Health across socioeconomic groups.

Figure 2: Prevalence of insufficient physical activity among adults, by selected population characteristics, 2017–18



Notes:
1. Physical Activity includes physical activity at work, walking for fitness, recreation, or sport; walking to get to or from places; moderate exercise; and vigorous exercise in the week prior to interview. Data does not include people for whom this measure was not known or not applicable.
2. Rates are age-standardised to the 2001 Australian standard population.
Source: AIHW analysis of ABS 2019.
http://www.aihw.gov.au/

Insufficient physical activity during COVID-19

Data over the COVID-19 pandemic period are showing how Australia's response to COVID-19 has impacted people's physical activity levels. Overall, the relationship between public health measures designed to address COVID-19 and physical activity is complex.

Restrictions on some activities and gathering sizes commenced in March 2020 in Australia. Between April and June 2020, data from the 2020 ABS Household Impacts of COVID Survey showed that a similar proportion of Australians aged 18 and over reported increasing (21%) or decreasing (19%) their total time spent on exercise or other physical activity than they did prior to the restrictions (in March 2020) (ABS 2020a, 2020b).

Data also suggests that the type of physical activities that adults participated in changed between April to June 2020. Participation in recreational and fitness activities (for example, home exercise, bike riding and recreational walking) were least impacted by COVID-19 restrictions, while participation in organised and team sports (for example, football/soccer, basketball and gym workouts) decreased over this period (Clearinghouse for Sport 2021).

One year on from the initial restrictions, fewer Australian adults reported exercising at a gym or playing an organised sport one or more times per week (25% in June 2021) than they did prior to the restrictions in March 2020 (38%) (ABS 2021). Although by February 2022, this rose to 30% (ABS 2022a).

For more information on how the pandemic has affected the population's health in the context of longer-term trends, see 'Chapter 2 Changes in the health of Australians during the COVID-19 period' in Australia's health 2022: data insights.

Where do I go for more information?

For more information on insufficient physical activity, see:

- Insufficient physical activity
- Physical activity across the life stages
- Australian Burden of Disease Study 2018: Interactive data on risk factor burden
- Physical activity during pregnancy 2011–12

Visit Physical activity for more on this topic.

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Natural environment and health

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The natural environment comprises the atmosphere, land, water, oceans, and the diversity of living things (UN 2019). It provides essential resources for health and wellbeing including food, fresh water, wood and fibre, fuel and medicines. It also helps regulate weather, vegetation, soils, and the quality of water and air, and provides a range of aesthetic, cultural, recreational and spiritual services to people (Whitmee et al. 2015).

As a result of human activity, the health of most or all the planetary systems that provide these services is currently in decline, including some already considered irreversibly damaged (UN 2019).

This page presents a selection of evidence on the influence of the natural environment on human physical and mental health in Australia. See Built environment and health for information on the health impacts of the human-made surroundings.

COVID–19, the natural environment and health

The interactions between human activity, the environment and its impact on health are complex. The COVID–19 pandemic has changed the way people interact with the environment and may have encouraged a greater awareness of people's connectedness with the environment (McCunn 2020).

Population-based restrictions due to the pandemic affect not only humans, but also the natural environment. For example, as a result of lockdowns, reduced transport emissions were documented to have led to

- decreases in global fossil CO2 emissions (Le Quéré et al. 2021)
- improvements in air quality in Australian cities such as Sydney and Melbourne in the first half of 2020 (Boroujeni et al. 2021; Duc et al. 2021; Ryan et al. 2021).

Conversely, the pandemic has also had negative impacts on waste production in the environment from extensive use of:

- face masks
- protective personal equipment
- other medical waste
- plastics from online shopping and food deliveries (Patrício Silva et al. 2021). In Victoria, it was estimated that used face masks accounted for 104 tons of waste a day during the first wave of the pandemic and 160 tons a day during the second wave (Boroujeni et al. 2021).

Climate change and health

What is climate change?

Climate change refers to a change in the pattern of weather – which affects oceans, land surfaces and ice sheets – occurring over decades or longer (Australian Academy of Science 2019). Human activities associated with a range of sectors – such as energy supply, industry agriculture, forestry and transport – contribute to atmospheric greenhouse gas concentrations. Greenhouse gases (see Glossary) trap heat in the atmosphere, which heats the land and oceans and changes weather patterns, including increasing the likelihood of extreme events (IPCC 2014). Globally:

- The average annual temperature in 2021 was estimated to be 1.11ºC above the pre-industrial (1850–1900) average (WMO 2022).
- The 7 years from 2015 to 2021 were the hottest on record (WMO 2022).
- Global greenhouse gas concentrations continue to increase (WMO 2022).

Climate change affects environmental determinants of human health through a range of different pathways, from the frequency of extreme weather events to the prevalence of infectious and communicable diseases, to the availability of food and water (Ebi et al. 2018). This can result in health effects such as thermal stress, injury, vector-borne (see Glossary) and other infectious diseases, food insecurity and poor mental health (McMichael et al. 2006). The social determinants of health are also being affected by climate change (WHO 2018a).

Climate change affects some population groups more than others. Groups at greater risk include older people, children, people with chronic conditions and multimorbidity, outdoor workers, people living in rural and remote areas, those living in low-lying, flood- or bushfire-prone areas, and socioeconomically disadvantaged groups.

Climate change also is likely to affect Aboriginal and Torres Strait Islander people to a greater extent than non-Indigenous populations (Beggs et al. 2021; HEAL Network and CRE-STRIDE 2021; McNamara and Westoby 2011; Moggridge and Thompson 2021), for example, by disrupting connection to Country, exacerbating existing risk factors or compounding historical injustices (Beggs et al. 2021; HEAL Network and CRE-STRIDE 2021).

Extreme weather events

The extreme weather events described here include heat waves, drought, bushfires, violent storms, heavy rainfall events and flooding, which cause deaths and injuries and affect the Australian community through impacts to critical infrastructure, essential services, food production, the economy and ecosystems (Reisinger et al. 2014). Under climate change, the intensity and the frequency of heatwaves and drought, and the number of days with fire weather conditions has increased and is projected to continue increasing (BOM and CSIRO 2020). Without mitigation and adaptation (see Glossary), the health impacts of these events are also likely to increase (Beggs et al. 2019; WHO 2018b) and disproportionately affect vulnerable populations such as older people as well as future generations (Cheng et al. 2018; Thiery et al. 2021).

Heatwaves and very hot days

The Bureau of Meteorology data show that 2019 was Australia's hottest year on record, with average temperatures 1.52 degrees Celsius above the long-term average (BOM 2020). The number of extremely warm days has increased (BOM and CSIRO 2020), increasing the probability of heatwaves (see Glossary). Very high monthly maximum temperatures occurred around 2% of the time for the period 1960–1989, compared with over 12% of the time for the period 2005–2019 (BOM and CSIRO 2020). This increase in the number of very hot days is projected to continue (BOM and CSIRO 2020).

Heatwaves are associated with heat-related conditions ranging from minor rashes and body cramps to more serious conditions such as heatstroke (severe hyperthermia). Excessive heat can also exacerbate existing health conditions such as heart disease, diabetes, kidney disease and mental and behavioural conditions; reduce productivity; and increase the geographic spread of vector-borne diseases and transmission of food-borne diseases such as gastroenteritis (AMA 2015).

Increases in hospitalisations and deaths in Australia have been observed during heatwaves (Varghese et al. 2020; Williams et al 2018). For the period 2007–2017, in Australia, deaths increased by 2% during heatwaves (1418 additional deaths over the 11-year period), with the highest increases occurring in Adelaide (8%) and regional Tasmania (11%) (Varghese et al. 2020). Single events can result in large numbers of additional deaths, for example, there were 374 additional deaths (a 62% increase in all-cause mortality) in Victoria during a heatwave from 26 January to 1 February 2009 (DHHS 2009).

Bushfires

Bushfire has long been a part of the Australian experience. However, the 2019–20 bushfire season in Australia saw an unprecedented area of Australia's temperate forest burnt – more than 20%, compared with approximately 2% in previous major fire years (Boer et al. 2020). This was set against the hottest and driest year on record in 2019 and the highest Accumulated Forest Fire Danger Index value (see Glossary) since records begin in 1950.

The adverse health effects during this period included:

- 33 deaths directly attributed to the fires (Royal Commission into National Natural Disaster Arrangements 2020)
- increases in hospital admissions and emergency department presentations for respiratory conditions in areas affected by bushfire smoke (AIHW 2020, 2021c; Wen et al. 2022)
- over half (54%) of Australian adults experiencing anxiety or worry due to the bushfires (Biddle et al. 2020)

- disproportional impacts on Aboriginal and Torres Strait Islander people as well as regions with high fire density and lower socioeconomic status (Nolan et al. 2021; Wen et al. 2022 Williamson et al. 2020).

For more detailed information on the 2019–20 bushfires, see *Australian bushfires 2019–20: exploring the short-term health impacts* and *Data update: Short-term health impacts of the 2019–20 bushfires*.

While bushfires are a common part of the Australian summer season, the number of deaths they cause varies from year to year. For example, there was an average of 5.4 bushfire-related deaths per year between 1901 and 1964, and 10.5 per year between 1965 and 2011 (Blanchi et al. 2012) – noting that this comparison does not take population growth into account. A large proportion of these deaths occurred in 7 individual years – between 1926 and 2009 (Blanchi et al. 2021) the 2009 Black Saturday bushfires killed 173 people (The 2009 Victorian Bushfires Royal Commission 2010).

Smoke generated by bushfires can affect respiratory and cardiovascular health over large geographical areas, as evidenced by increased respiratory and cardiovascular hospital attendances during bushfire events (AIHW 2020, 2021c; Chen et al. 2006; Johnston et al. 2002; Kolbe and Gilchrist 2009; Morgan et al. 2010; Tham et al. 2009; Wen et al. 2022). However, as exposure to bushfire smoke is typically infrequent and sporadic, there is limited information available about prolonged exposure to bushfire smoke or long-term physiological health effects and research is underway on this topic (enHealth 2021). See air pollution for more information on smoke-related air quality.

There is evidence of both immediate and long-term impacts of bushfire on mental health. Lived experience of bushfire has been found to increase the occurrence of psychological and behavioural disorders such as anxiety, depression, post-traumatic stress disorder (PTSD) (see Glossary) and substance misuse and the effects can persist for years after the impact (Bryant et al. 2018; Finlay 2012; Gibbs et al. 2021). For example, a follow-up study of psychological outcomes 5 years after the 2009 Black Saturday bushfires found that 22% of people who had been in communities severely affected by the fires were suffering probable PTSD, major depressive episode or severe distress, compared with 5.6% of people who had been in regions that were less affected by the fires (Bryant et al. 2018). Ten years after the fires this figure remained at 22% for severely affected communities (Gibbs et al. 2021).

Drought

Australia is drought-prone and many areas have a dry climate. Long periods of below-average rainfall adversely affect the natural environment and have flow-on effects for human health (AIHW 2011; Kalis et al. 2009).

Many of these health effects have been documented globally, including malnutrition and mortality, water-borne disease such as those caused by *Escherichia coli*, airborne and dust-related disease, vector-borne diseases such as dengue fever, mental health effects and distress (Stanke et al. 2013).

The mental health effects of drought appear to be complex and may vary by sex. From 2001−02 to 2007−08, people living in drought-affected areas in rural Australia had higher levels of distress than people living in urban areas (O'Brien et al. 2014). A 2012 study (Hanigan et al. 2012) found an increased risk of suicide among males aged 30−49 living in rural areas of Australia during periods of drought between 1970 and 2007. Findings on the effects of drought on the mental health of women are mixed (Hanigan et al. 2018; Powers et al. 2015).

Drought can also restrict physical and financial access to healthy foods. For example, drought was identified as the primary contributor to substantial increases in the price of fresh fruit (43% rise) and vegetables (33% rise) between 2005 and 2007 (Quiggin 2007).

Storms and floods

Health effects from storms and floods may be short-term (for example, physical trauma), medium-term (for example, the spread of vector-borne disease) or long-term (such as post-traumatic stress and depression) (Fewtrell and Kay 2008; Ivers and Ryan 2006). The floods in Australia in 2022 had major impacts across large parts of Queensland and New South Wales, the full extent of which will be determined as data becomes available. Between 1900 and 2015, there were 1,859 deaths identified as being associated with flooding (Haynes et al. 2017). While there was a significant decrease in the national death rate due to floods between 1900 and 1959, there was only a slight decrease in the flood fatality rate between 1960 and 2015 and this decrease was not statistically significant (Haynes et al. 2017). Remoteness increases risk of death from flooding (Peden et al. 2017), for example, widespread flooding contributed to a notable rise in the rate of unintentional drowning deaths in *Remote* and *Very remote* areas between 2015–16 and 2016–17 (AIHW 2019).

A survey of the disaster-related trauma from the 2010−2011 Queensland floods and cyclones found that 14% of respondents felt terrified, helpless or hopeless following the events and 7.1% of respondents continued to experience distress months later (Clemens et al. 2013). Persistent post-traumatic stress disorder has also been reported in children and adolescents, 18 months after a Category 5 cyclone (McDermott et al. 2014).

Like drought, storm and flood damage can also restrict food availability and increase food prices. These weather events may also have broader economic impacts. As an example, the reduced banana supply following Cyclone Yasi in 2011 resulted in a 0.7 percentage point increase in inflation (Debelle 2019) affecting the entire Australian economy.

Ultraviolet radiation

Ultraviolet radiation (UV) (see Glossary) from the sun is essential for good health as it helps the body manufacture vitamin D (WHO 2019). However, it is also known to cause a number of cancers, such as non-melanoma skin cancers (including basal and squamous cell carcinomas), melanoma (including melanoma in situ) and cancer of the eye. It can also cause cataracts (estimated to be responsible for 20% of cataracts globally (WHO 2019) and about 411,000 Australians (1.7% of the population) had cataracts in 2017–18 (AIHW 2021d). In Australia in 2018, high sun exposure was responsible for 0.7% of the total burden of disease (AIHW 2021a).

The age standardised rate of melanoma in Australia increased from 46 cases per 100,000 persons in 2000, to an estimated 55 cases per 100,000 persons in 2021. While the total number of deaths due to melanoma increased over this period, from 970 in 2000 to 1,300 in 2021, after adjusting for age, the rate of deaths decreased from 5.2 deaths per 100,000 persons to an estimated 4 deaths per 100,000 persons (AIHW 2021b).

Exposure to UV can be moderated by protective behaviours (for example, wearing a hat, sunscreen and protective clothing, and seeking shade). However, only 47% of adults and 33% of adolescents typically employ 2 or more of these protective behaviours (Cancer Australia 2019).

Biodiversity and nature

Globally, biodiversity is fundamentally important for human health because ‘it helps to regulate climate, filters air and water, enables soil formation and mitigates the impact of natural disasters. It also provides timber, fish, crops, pollination, ecotourism, medicines, and physical and mental health benefits’ (UN 2019).

International research has shown that contact with nature also has health benefits – increased attention, energy and tranquillity, and significantly decreased anxiety, anger, fatigue and sadness are all associated with exposure to natural environments (Bowler et al. 2010). Natural places such as parks provide opportunities for outdoor recreation, spiritual and cultural heritage connection, physical, mental, and social health benefits and neighbourhood amenity (Parks Victoria 2015). In Australia, biodiversity has been shown to correlate with respiratory health (Liddicoat et al. 2018) and subjective wellbeing (Mavoa et al. 2019), though more research on the effects of biodiversity on mental health is needed (Dean et al. 2011).

Planetary biodiversity (the range of living things) is declining rapidly (WWF and ZSL 2018) and the ‘status of biodiversity in Australia is generally considered poor and worsening’ (Cresswell and Murphy 2017), with about 1,950 species of plants and animals in Australia listed as threatened as a consequence of invasive species, habitat fragmentation and degradation, and the increasing impact of climate change (Cresswell and Murphy 2017; DAWE 2022a,b).

Access to urban biodiversity is also becoming increasingly important to human health and wellbeing as cities continue to grow and enriching cities and towns with nature is a focus for governments (Commonwealth of Australia 2019). See Built environment and health.

Air pollution

Air pollution, in particular fine airborne particles (particulate matter) known as PM2.5 (see Glossary) can have both long- and short-term adverse impacts on human health and can affect almost every organ in the body (AIHW 2011; Schraufnagel et al. 2018). Air pollution is recognised by the World Health Organization as a serious risk factor for non-communicable disease (Schwartz et al. 2021). PM2.5 sources can be man-made (for example, from industrial processes,vehicle emissions or wood heaters), or naturally occurring (such as pollen or smoke from bushfires). These particulates can decrease lung function, increase respiratory symptoms, chronic obstructive pulmonary disease, cardiovascular and cardiopulmonary disease and mortality (Pope and Dockery 2006), and decrease life expectancy (Pope et al. 2009). In 2013, the International Agency for Research on Cancer classified outdoor air pollution as a human carcinogen (Jackson et al. 2017).

In 2018, more than 3,200 (2.0%) deaths and 1.3% of the total burden of disease in Australia was attributed to PM2.5 air pollution (AIHW 2021a).

People with an underlying health condition, such as asthma, chronic obstructive pulmonary disease, or cardiovascular disease, are particularly at risk from poor air quality (Jackson et al. 2017).

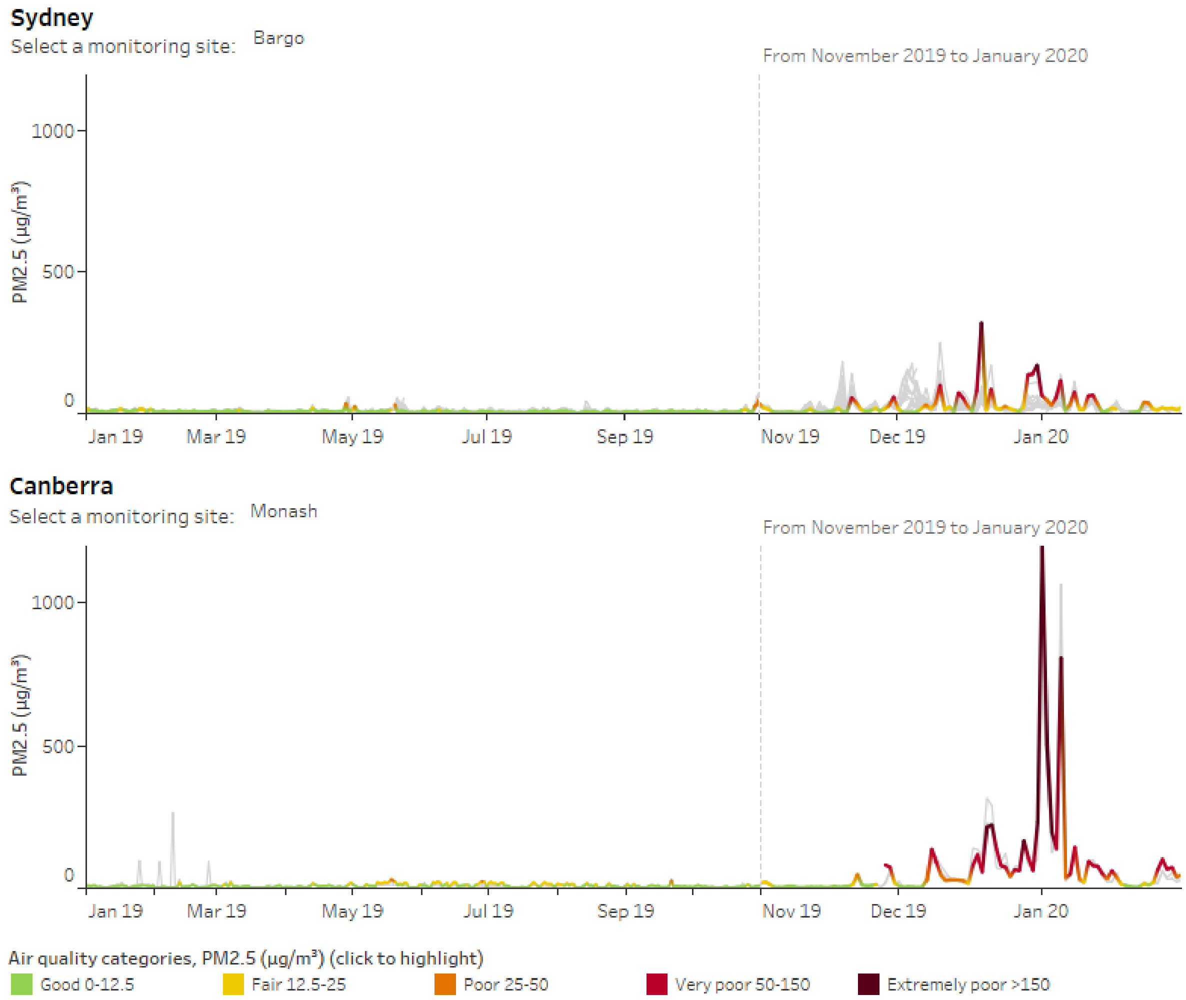
Thunderstorm asthma

Air pollution can sometimes result in major single health events. In 2016, a major thunderstorm asthma epidemic was triggered in Melbourne when very high pollen counts coincided with adverse meteorological conditions resulting in 3,365 people presenting at hospital emergency departments over 30 hours, and 10 deaths (Thien et al. 2018). See Chronic respiratory conditions.

Air quality is monitored across Australia and reported nationally (NEPC 2019). Air quality in Australian cities is generally good to very good in comparison with similar developed economies, but the majority of Australian capital cities exceeded the PM2.5 advisory standard (25µg/m^3) (see Glossary) on at least one day each year during 2008−2014 (Keywood et al. 2016), due to extreme localised events (for example, bushfires and dust storms).

The air quality, particularly in New South Wales, the Australian Capital Territory, Victoria and Queensland, was greatly affected by the widespread bushfires burning in 2019–20 (Johnston et al. 2021). Emergency department presentations and hospitalisations for respiratory conditions such as asthma increased during periods of poor air quality (AIHW 2020, 2021c). On January 1, 2020, the average hourly PM2.5 value at Monash in the ACT peaked at 1197 ug/m^3 − almost 48 times the PM2.5 advisory standard of 25µg/m^3 (Figure 1).

Figure 1: Daily average PM2.5 concentrations in Canberra and Sydney, January 2019 to January 2020



[Notes]

Sources: NSW Department of Planning, Industry and Environment 2020; ACT Health 2020.
http://www.aihw.gov.au

A 2022 study of New South Wales emergency department data estimated there were: 6177 additional presentations for respiratory diseases (a 6% increase) and 3120 additional presentations for cardiovascular diseases (a 10% increase) during the 2019–20 bushfire season (Wen et al. 2022).

See *Australian bushfires 2019–20: exploring the short-term health impacts* (AIHW 2020) and *Data update: Short-term health impacts of the 2019–20 bushfires* (AIHW 2021c) for more information on the health effects of bushfire smoke pollution.

Infectious diseases

Infectious diseases linked to the environment that are transmitted from animals to humans are called zoonotic diseases (see Glossary). These diseases can be transmitted by vectors (such as mosquitoes) or through contact with infected animals (such as livestock, mice, rats), or soil or water contaminated with the urine or faeces of infected animals. These diseases are caused by micro-organisms such as bacteria, viruses and parasites and are a natural part of the Australian environment.

While quite rare in Australia, exposure to flood waters poses a significant risk for transmission of leptospirosis (Mwachui et al. 2015; Naing et al. 2019). Leptospirosis is caused by bacteria which can survive in soil and infect both animals and humans. Following flooding in Queensland in 2011–2012, leptospirosis notifications for the period of 1 January to 3 April 2011 were 2.3 times greater than the average number of notifications for the previous 4 years (Queensland Government 2011, cited in Smith et al. 2013). Increased rat and mouse populations that occurred following wet weather in the eastern regions of Australia have also been linked to increased cases of leptosporisis (Department of Health 2021b). Between February and May 2021, there were 107 cases of leptosporis reported in Australia, approximately 3 times more than the quarterly rolling 5-year average number of notifications (35.2) (Department of Health 2021b). Despite current small case numbers, it is predicted that climate change will lead to an increase in flood-related outbreaks of leptospirosis (Department of Health 2021c; Lau et al. 2018).

Vector-borne diseases (see Glossary) in Australia include viral infections such as Ross River virus, Barmah Forest virus, Murray Valley encephalitis virus, Kunjin virus, Japanese encephalitis virus and dengue virus. In 2016, there were 2,227 notifications of dengue virus, 98% of which were overseas-acquired (Department of Health 2021a). This was equivalent to a 40% increase relative to the mean rate of the previous 5 years (2011–2015) and was likely linked to patterns of international travel and the global epidemiology of the virus (Department of Health 2021a). In 2022, there was an outbreak of Japanese encephalitis virus which led to 41 confirmed or probable human cases of the virus (as at 11 May 2022) (Department of Health 2022). Australian cases of the mosquito-borne parasitic infection, malaria, currently occur only as a result of international travel.

While it is likely that factors such as land use change and increased trade and travel are most influential in driving increases in infection and transmission of vector-borne diseases (Kilpatrick and Randolph 2012), changes in climate are likely to extend the geographic spread, and lengthen the transmission seasons, of important vector-borne diseases (Bambrick et al. 2011; Jackson et al. 2017; WHO 2018b).

Where do I go for more information?

For more information on the natural environment, adaptation and health, see:

- Health and the environment: a compilation of the evidence
- Bureau of Meteorology and CSIRO State of the climate 2020 Department of Agriculture, Water and the Environment Australia state of the environment 2016
- Department of Agriculture, Water and the Environment National Climate Resilience and Adaptation Strategy
- Department of Health Environmental health publications (enHealth)

- Medical Journal of Australia The 2021 report of the MJA–Lancet Countdown on health and climate change: Australia increasingly out on a limb
- United Nations (UN) Intergovernmental Panel on Climate Change (IPCC)
- UN Convention on Biological Diversity Biodiversity and Health'
- World Health Organisation and UN Convention on Biological Diversity Joint Work Programme on Biodiversity and Health.

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Overweight and obesity

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Overweight and obesity refer to excess body weight, which is a risk factor for many diseases and chronic conditions and is associated with higher rates of death. It mainly occurs because of an imbalance between energy intake (from the diet) and energy expenditure (through physical activities and bodily functions).

Genetic factors, schools, workplaces, homes and neighbourhoods, the media, availability of convenience foods, and portion sizes can all influence a person's body weight.

Measuring overweight and obesity

Body Mass Index (BMI)

- BMI is an internationally recognised standard for classifying overweight and obesity in adults.
- While BMI does not necessarily reflect body fat distribution or describe the same degree of fatness in different individuals, at a population level BMI, is a practical and useful measure for monitoring overweight and obesity.
- BMI is calculated by dividing a person's weight in kilograms by the square of their height in metres. A BMI of 25.0–29.9 is classified as overweight but not obese, while a BMI of 30.0 or over is classified as obese. A BMI of greater than 35.0 is classified as severely obese.
- To calculate your BMI and see how it compares with other Australian adults, enter your height and weight into the AIHW BMI calculator.
- Height and body composition are continually changing for children and adolescents, so a separate classification of overweight and obesity (based on age and sex) is used for people aged under 18 (Cole et al. 2000).

Waist circumference

- Waist circumference for adults is a good indicator of total body fat and is a better predictor of certain chronic conditions than BMI, such as cardiovascular risk and type 2 diabetes (NHMRC 2013). A waist circumference above 80 cm for women and above 94 cm for men is associated with an increased risk of chronic conditions. A waist circumference above 88 cm for women and above 102 cm for men is associated with a substantially increased risk of chronic conditions (WHO 2000). For information on measuring and understanding your waist circumference, see Heart Foundation.

How common is overweight and obesity?

Children and adolescents

In 2017–18, 1 in 4 (25%) children and adolescents aged 2–17 were overweight or obese (an estimated 1.2 million children and adolescents). Of all children and adolescents aged 2–17, 17% were overweight but not obese, and 8.2% were obese. Rates varied across age groups, but were similar for males and females (ABS 2018a).

Adults

In 2017–18, 2 in 3 (67%) Australians aged 18 and over were overweight or obese (36% were overweight but not obese, and 31% were obese). That's around 12.5 million adults.

Men had higher rates of overweight and obesity than women (75% of men and 60% of women), and higher rates of obesity (33% of men and 30% of women).

Obesity is more common in older age groups – 16% of adults aged 18–24 were obese, compared with 41% of adults aged 65–74.

See Overweight and obesity: an interactive insight for information on age differences in overweight and obesity.

The proportion of adults with a waist circumference associated with a substantially increased risk of chronic conditions was higher in women than men (46% of women and 36% of men). This risk increased with age (peaking at 57% of men aged 65–74, and 65% of women aged 75–84) (ABS 2018a).

Trends in overweight and obesity

Why is the most recent data from 2017–18?

Nationally representative estimates on measured overweight and obesity are derived from the Australian Bureau of Statistics (ABS) National Health Survey (NHS).

Due to the COVID-19 pandemic, physical measurements (including height, weight and waist circumference) were not taken at the time of the NHS 2020–21, the most recent NHS.

While self-reported height and weight were collected as part of the survey, self-reported data underestimates actual levels of overweight or obesity based on objective measurements (ABS 2018b).

As self-reported and measured rates of overweight and obesity should not be directly compared, the figures presented on this page reflect the latest nationally representative data based on measured height, weight and waist circumference.

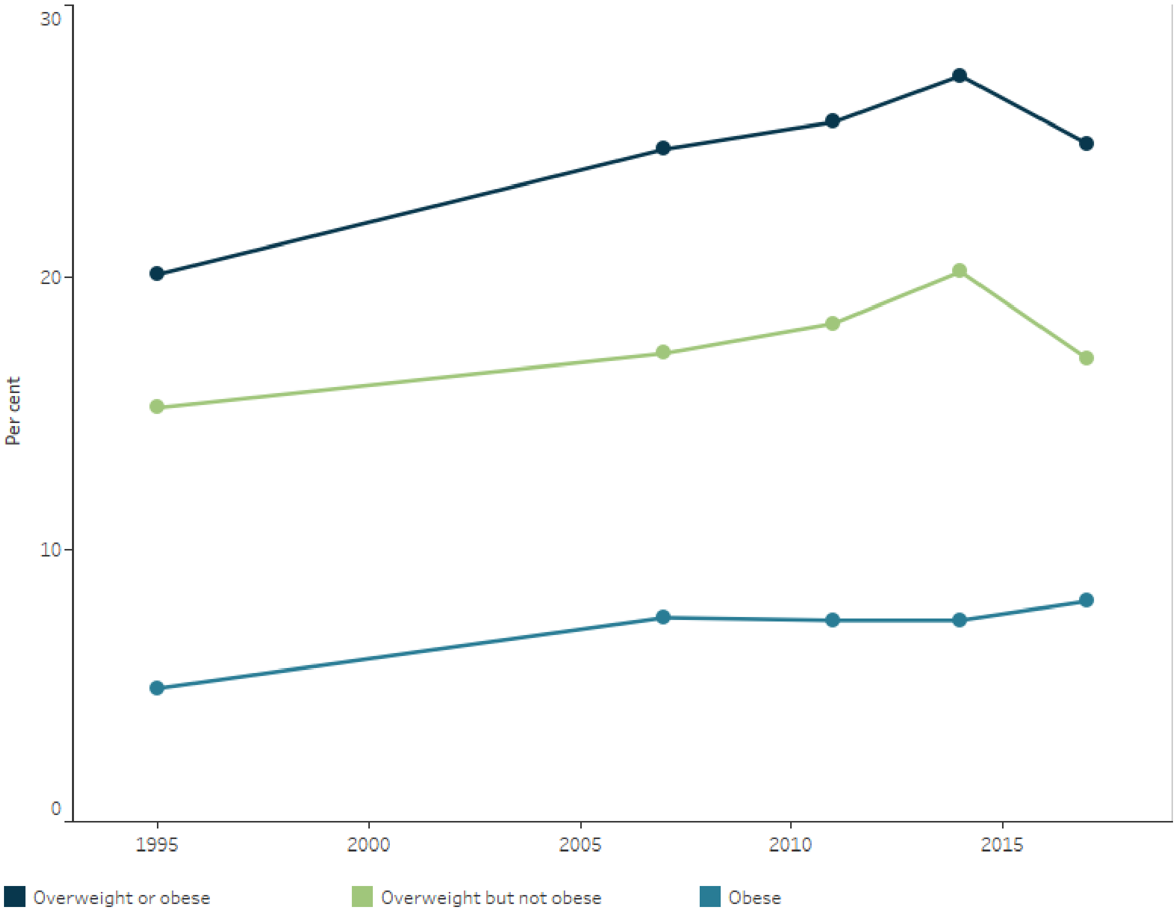
Children and adolescents

The prevalence of overweight and obesity in children and adolescents aged 5–17 rose from 20% in 1995 to 25% in 2007–08, then remained relatively stable to 2017–18 (25%) (Figure 1).

Similarly, the prevalence of obesity increased from 4.9% in 1995 to 7.5% in 2007–08 then remained relatively stable to 2017–18 (8.1%). Rates of overweight but not obese children and adolescents increased between 1995 and 2014–15 (from 15% to 20%), then declined to 17% in 2017–18 (ABS 2013a, 2015, 2019; AIHW analysis of ABS 2009, 2013b).

See Overweight and obesity among Australian children and adolescents for more information.

Figure 1: Proportion of overweight and obese children and adolescents aged 5–17, 1995 to 2017–18



Notes
1. Overweight and obesity classification is based on measured height and weight.
2. 95% CI = 95% confidence interval. We can be 95% confident that the true value is within this confidence interval.
3. In 2014—15 and 2017—18, imputation was used to obtain BMI for respondents aged 2–17 who did not have a measured BMI (38% of respondents for 2014—15 and 44% for 2017—18).

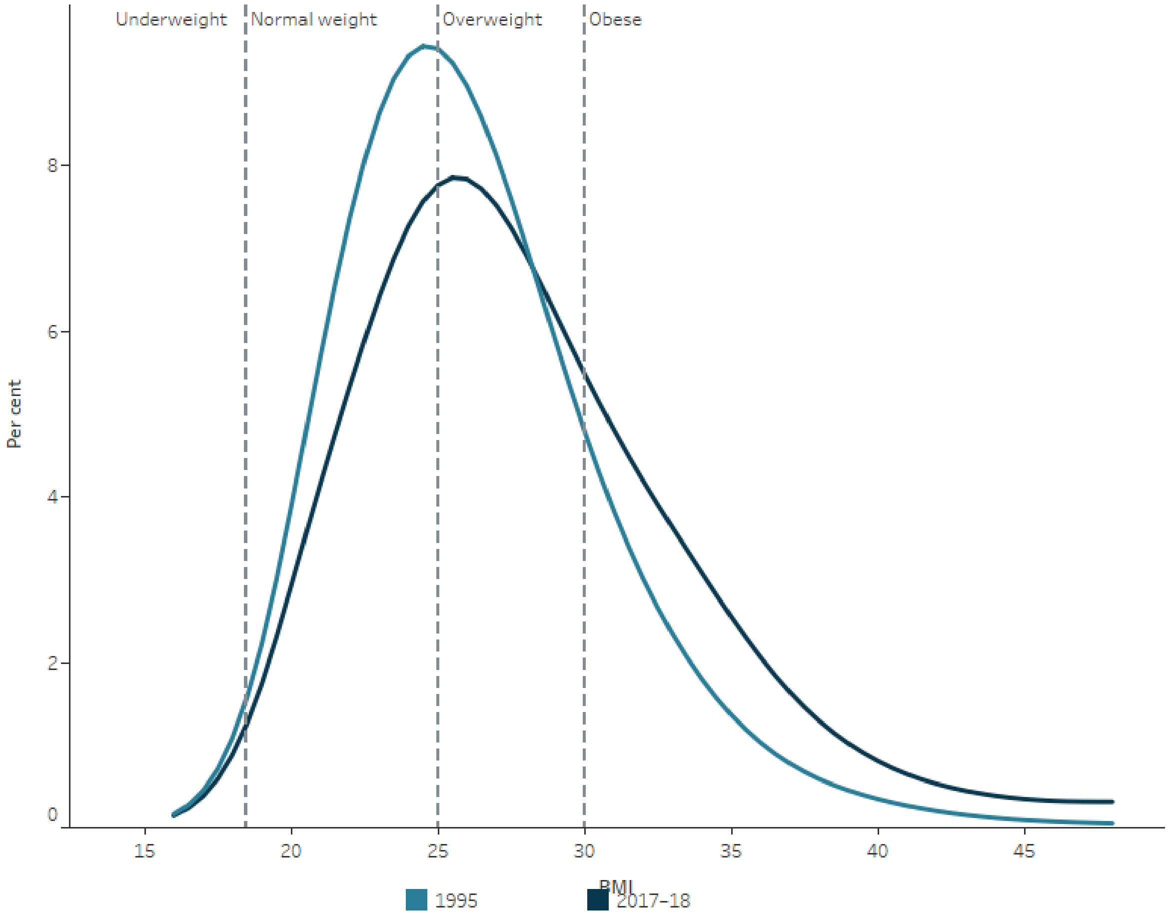
Sources: ABS 2013a, 2015, 2019; AIHW analysis of ABS 2009, 2013b.
http://www.aihw.gov.au/

Adults

After adjusting for different population age structures over time, the prevalence of overweight and obesity among Australians aged 18 and over increased from 57% in 1995 to 67% in 2017–18. This was largely due to an increase in obesity rates, from almost 1 in 5 (19%) in 1995 to just under 1 in 3 (31%) in 2017–18.

The distribution of BMI in adults shifted towards higher BMIs from 1995 to 2017–18, due to an increase in obesity in the population over time (Figure 2).

Figure 2: Distribution of BMI among persons aged 18 and over, 1995 and 2017–18



Notes
1. The distributions have been smoothed, including the minimum and maximum values which are based on aggregates of 16 or less and 48 or more.
2. BMI classification is based on measured height and weight.
3. In 2017—18, imputation was used to obtain BMI for respondents aged 18 years and over who did not have a measured BMI (34% of respondents).
Source: ABS 2019; AIHW analysis of ABS 2013b.
http://www.aihw.gov.au/

Health impact

Burden of disease refers to the quantified impact of living with and dying prematurely from a disease or injury.

In 2018, 8.4% of the total burden of disease in Australia was due to overweight and obesity. Overweight and obesity was the leading risk factor contributing to non-fatal burden (living with disease), and the second leading risk factor for total burden, behind tobacco use (AIHW 2021). See Burden of disease.

Overweight and obesity increases the likelihood of developing many chronic conditions, such as cardiovascular disease, asthma, back problems, chronic kidney disease, dementia, diabetes, and some cancers (AIHW 2017). It is also associated with a higher death rate when looking at all causes of death (The Global BMI Mortality Collaboration 2016).

Variation between population groups

See Determinants of health for Indigenous Australians for information on overweight and obesity among Aboriginal and Torres Strait Islander people.

Remoteness area

Overweight and obesity rates differ across remoteness areas, with the lowest rates in *Major cities.*

In 2017–18, a higher proportion of Australian children and adolescents aged 2–17 living in *Inner regional* areas were overweight or obese, compared with those living in *Major cities* (29% and 23% respectively). For children and adolescents living in *Outer regional and remote* areas, the proportion was 27% (ABS 2019).

For Australians aged 18 and over, after adjusting for age differences, 70% of adults living in *Outer regional and remote* areas and 71% in *Inner regional* areas were overweight or obese, compared with 65% in *Major cities* (Figure 3). See Rural and remote health.

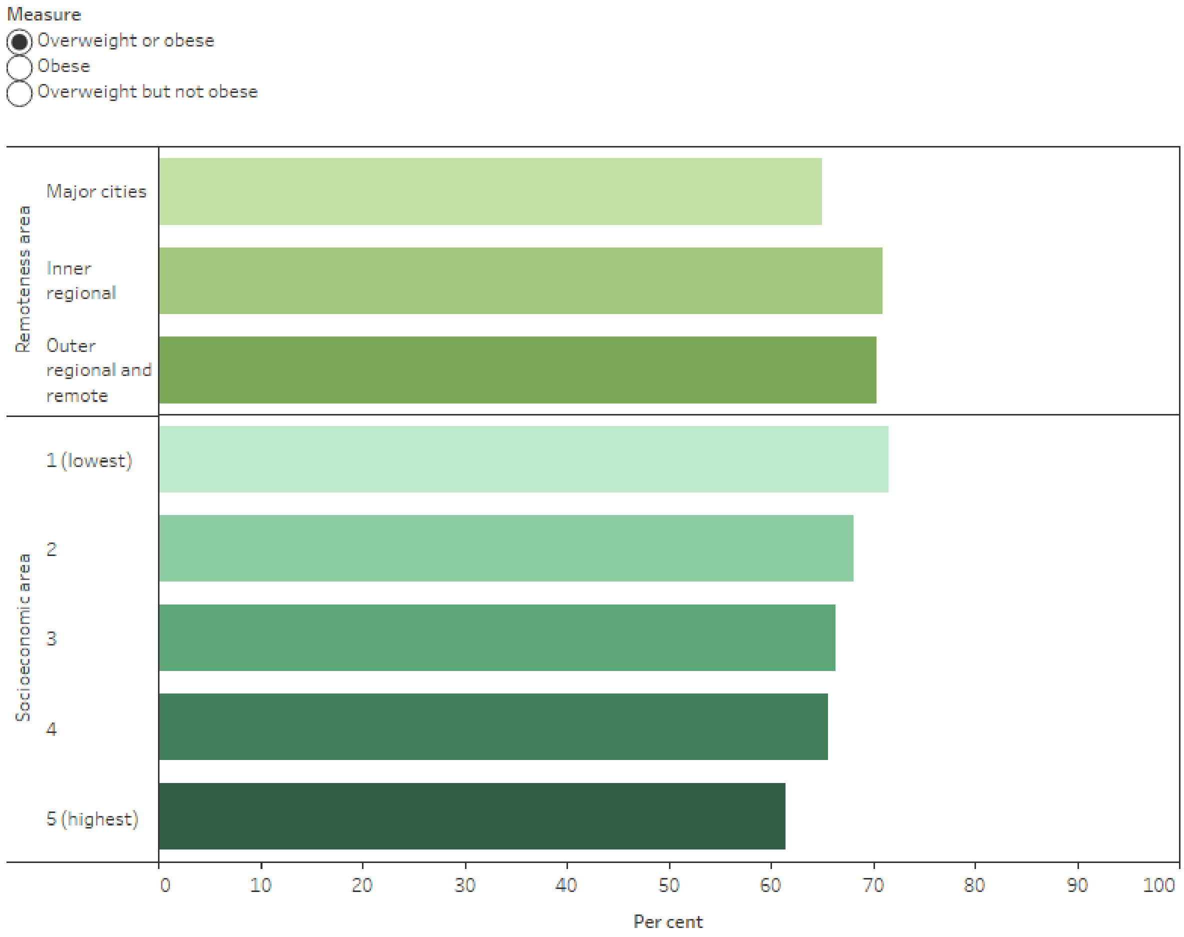
Socioeconomic area

Overweight and obesity rates differ across socioeconomic areas, with the highest rates in the lowest socioeconomic areas.

In 2017–18, obesity rates for children and adolescents aged 2–17 were 2.4 times as high in the lowest socioeconomic areas (11%) compared with the highest socioeconomic areas (4.4%). For overweight and obesity combined, rates were also higher in the lowest socioeconomic areas (28%) compared with the highest socioeconomic areas (21%) (ABS 2019).

In 2017–18, Australians aged 18 and over, after adjusting for age differences, in the lowest socioeconomic areas were more likely to be overweight or obese than those in the highest socioeconomic areas: 72% compared with 62%. Obesity rates were the underlying reason for this difference (38% compared with 24% respectively) (Figure 3). See Health across socioeconomic groups.

Figure 3: Prevalence of overweight and obesity among adults, by selected population characteristics, 2017–18



Note: Rates are age-standardised to the 2001 Australian population.
Source: ABS 2019.
http://www.aihw.gov.au/

Impacts of COVID-19 on overweight and obesity

The data presented are the latest national statistics available on measured overweight and obesity, based on the ABS NHS.

Nationally representative data on people's weight in Australia during COVID-19 are not currently available. However, emerging research suggests that COVID-19 might have had an impact on the weight of some Australians.

Data from SiSU health check stations across Australia have shown that non-seasonal spikes in measured BMI was evident in their users from March 2020, coinciding with the period that public health restrictions due to COVID-19 were starting to take place (SiSU Health 2020). However, it should be noted that users of SiSU health check stations tend to be younger, female and more socioeconomically advantaged than the general Australian population (Flitcroft et al. 2020).

For more information on how the pandemic has affected the population's health in the context of longer-term trends, please see 'Chapter 2 Changes in the health of Australians during the COVID-19 period' in Australia's health 2022: data insights.

Where do I go for more information?

For more information on overweight and obesity, see:

- Overweight and obesity: an interactive insight
- A picture of overweight and obesity in Australia
- Overweight and obesity among Australian children and adolescents
- Overweight and obesity in Australia: an updated birth cohort analysis
- Australian Burden of Disease Study 2018: interactive data on risk factor burden

Visit Overweight & obesity for more on this topic.

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Social determinants of health

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Evidence supports the close relationship between people's health and the living and working conditions which form their social environment (Baum 2018; Wilkinson and Marmot 2003). Factors such as socioeconomic position, conditions of employment, the distribution of wealth, empowerment and social support – known collectively as the social determinants of health – act together to strengthen or undermine the health of individuals and communities.

The World Health Organization (WHO) describes social determinants as 'the non-medical factors that influence health outcomes. They are the conditions in which people are born, grow, work, live, and age, and the wider set of forces and systems shaping the conditions of daily life. These forces and systems include economic policies and systems, development agendas, social norms, social policies and political systems' (Senate Standing Committees on Community Affairs 2013; WHO 2022).

Social determinants form part of the wider determinants of health which also include the environmental, structural, economic, cultural, biomedical, commercial and digital factors in our lives (Department of Health 2021).

According to the WHO, the social determinants of health have an important influence on health inequities – the unfair and avoidable differences in health status seen within and between countries. In countries at all levels of income – including Australia – health and illness follow a social gradient: the lower the socioeconomic position, the worse the health (WHO 2022). See Health across socioeconomic groups.

Future analysis of integrated (linked) data has the potential to provide further insights into the complex links between social determinants of health and outcomes, and greater evidence for causal pathways to good health.

This page provides selected data to monitor key social determinants of health in Australia.

What are the social determinants of health?

'Social determinants of health' has rapidly become a central concept in population and public health, leading to the emergence of new theoretical models and frameworks.

Although there is no single definition of the social determinants of health, there are common usages across government and non-government organisations.

The WHO lists the following as social determinants which can influence health equity in positive and negative ways:

- income and social protection
- education
- unemployment and job insecurity
- working life conditions
- food insecurity
- housing, basic amenities and the environment
- early childhood development
- social inclusion and non-discrimination
- structural conflict
- access to affordable health services of decent quality (WHO 2022).

Socioeconomic position

In general, every step up the socioeconomic ladder is accompanied by a benefit for health (see Health across socioeconomic groups). The relationship is two-way – poor health can be both a product of, and contribute to, lower socioeconomic position.

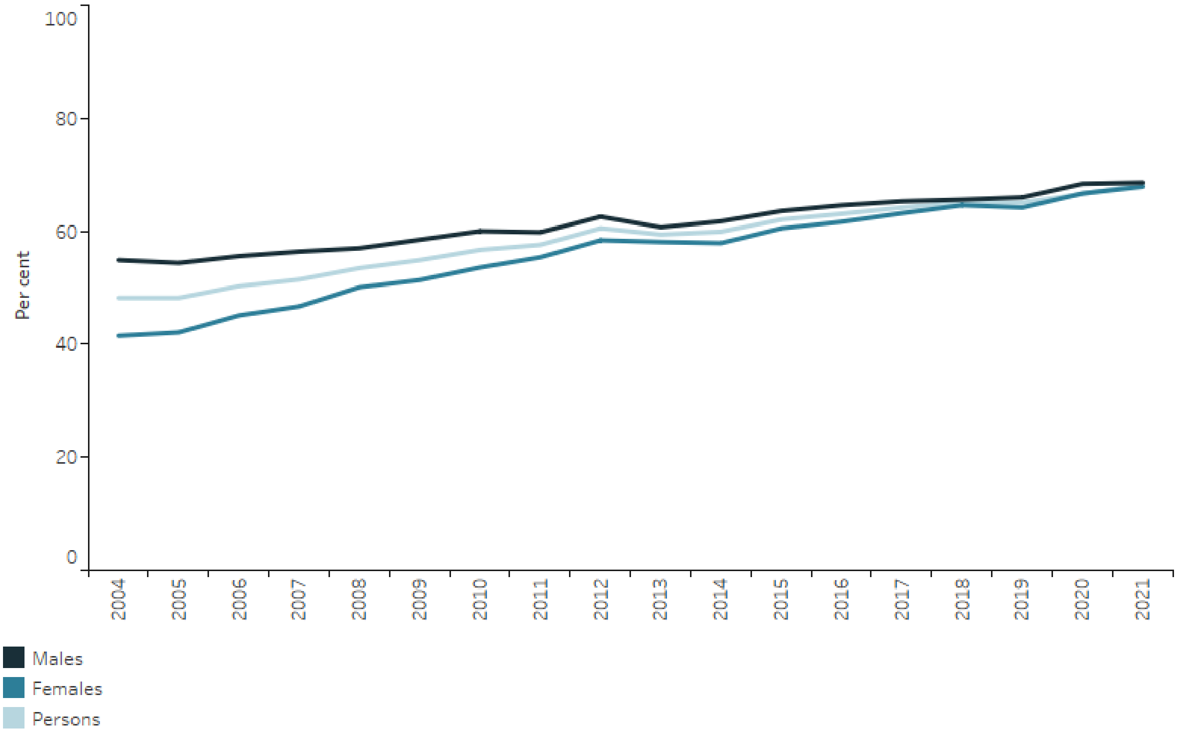
Socioeconomic position is often described through indicators such as educational attainment, income or level of occupation.

- In 2021, 68% of people aged 25–64 held a non-school qualification at Certificate III level or above, an increase of 20 percentage points since 2004 (ABS 2021a) (Figure 1).
- Around 10.5% of the population lived in low-income households (defined as less than half the median equivalised household income) in 2017–18. This rate has fluctuated between 9.3% and 13.6% since 2003–04 (ABS 2019a; AIHW 2018) (Figure 1).
- Among major occupation groups, *Managers* had the highest average weekly total cash earnings in 2021 ($2,596), and *Sales workers* the lowest ($761) (ABS 2022a). The average weekly total cash earnings for *Managers* was 3.4 times as high as for *Sales workers* in 2021, compared to 3.5 times as high in 2016 ($2,298 and $652), and 3.2 times as high in 2012 ($1,926 and $607).

Figure 1: Selected social determinants of health, by disaggregation and period

Select disaggregation
Education

Proportion of persons aged 25–64 with a non-school qualification at Certificate III or above, 2004 to 2021



Note: From 2013, persons permanently unable to work were included in the scope of the Survey of Education and Work, and re-based estimated resident population data were used from 2014. These factors may affect the comparison of data over time.
Source: ABS 2021a.

http://www.aihw.gov.au/

Early childhood

The foundations of adult health are laid in-utero and during the early childhood period. The different domains of early childhood development – physical, social/emotional and language/cognition – strongly influence school success, economic participation, social citizenship and health (van Eyck et al. 2021).

- In 2020, around 334,800 children aged 4–5 were enrolled in a preschool program (ABS 2021d). Those children who lived in the highest socioeconomic areas were more likely to be enrolled in a preschool program (95% aged 4 and 22% aged 5) than those who lived in the lowest socioeconomic areas (76% aged 4 and 17% aged 5) (ABS 2021c). See Childcare and early childhood education.
- Between 2009 and 2018, the proportion of children entering primary school who were developmentally vulnerable on one or more Australian Early Development

Census (AEDC) domains decreased slightly from 24% to 22%. In 2018, children living in the lowest socioeconomic areas were more vulnerable than children living in the highest socioeconomic areas (32% and 15% respectively) (AIHW 2020). See Transition to primary school.

- Some changes have taken place in the proportion of children considered to be developmentally vulnerable across the 5 AEDC domains. Between 2009 and 2018, the proportion of children developmentally vulnerable on emotional maturity decreased from 8.9% to 8.4%, language and cognitive skills decreased from 8.9% to 6.6%, and communication skills and general knowledge decreased from 9.2% to 8.2% (AIHW 2020).

Family relationships

An individual's family can influence physical and mental health in a number of ways, including through creating a safe and supportive emotional and learning environment, and through providing access to services, products and activities.

As with other health determinants, the effects follow a continuum from potential benefit in positively functioning and supportive families to potential disadvantage in families with abuse or neglect.

- 89% of all families with children aged 14–15 rated their family cohesion as good, very good or excellent in 2016–17 (91% for couple families, 81% for one-parent families) (AIHW 2021b).
- Children who have been abused or neglected often have poor social, behavioural and health outcomes in childhood and later life. In 2019–20, the rate of children and young people aged 0–17 who were the subject of a child protection substantiation was 8.7 per 1,000, an increase from 6.2 per 1,000 in 2009–10 (AIHW 2021b).
- In 2016, 1 in 6 women (17% or 1.6 million) and 1 in 16 men (6.1% or 548,000) had experienced physical or sexual violence by a current or previous partner since the age of 15 (AIHW 2019a). See Family, domestic and sexual violence

Social inclusion

Social connectedness and the degree to which individuals form close bonds with others outside the family has been linked in some studies to lower morbidity and increased life expectancy. Strong social networks may benefit physical and mental health through practical and emotional help and support, and through networks that help people find work or cope with economic and material hardship. See Social isolation and loneliness.

- Over the past 2 decades, around 1 in 5 people reported that they often felt very lonely (21% in 2001, 18% in 2010, 19% in 2019) (AIHW 2021a).
- In 2020, most people aged 18 and over (93%) reported being able to get support in times of crisis from people living outside their household, a similar prevalence to that in 2010 (94%) (AIHW 2021a).

Social exclusion is a term that describes social disadvantage and lack of resources, opportunity, participation and skills which are essential for full participation in society (See Glossary). Social exclusion through discrimination or stigmatisation can cause psychological damage and harm health through long-term stress and anxiety. Poor health can also lead to social exclusion.

- 1 in 4 Australians aged 15 and over (25%, or 5 million people) experienced some degree of social exclusion in 2018, with 6.0% (1.2 million) experiencing deep social exclusion, including 1.3% (260,000) who experienced very deep social exclusion (Brotherhood of St Laurence and MIAESR 2020). The prevalence of deep social exclusion has remained relatively steady since 2009, when it was 5.5%.
- 54% of Australians aged 15 and over who had a long-term health condition or disability experienced some level of social exclusion in 2018, with 16% experiencing deep social exclusion (Brotherhood of St Laurence and MIAESR 2020).

Employment and work

The psychosocial stress caused by unemployment has a strong impact on physical and mental health and wellbeing. Once employed, participating in quality work helps to protect health, instilling self-esteem and a positive sense of identity, while providing the opportunity for social interaction and personal development.

- The proportion of the Australian population aged 15–64 who are employed (employment-to-population ratio) has fluctuated over the last 15 years, from 72.4% in January 2007 to a low of 69.7% in May 2020 (reflecting the effects of COVID-19) to a current high of 77.0% in March 2022. Over the same period, the unemployment rate fluctuated between 4.0% in February 2008 to a high of 7.7% in July 2020 (reflecting the effects of COVID-19), with a current rate of 4.1% (March 2022) (ABS 2022b).
- In June 2021, there were 122,700 couple families with dependants where neither partner was employed (123,100 in June 2011), and 54,200 one-parent families where that parent was unemployed (48,200 in June 2011) (ABS 2021b) (Figure 1).
- In January 2022, 1 in 14 (7.0%) employed people aged 15–64 were underemployed (not working the hours they would like to, and available to work) – 5.8% and 8.3% of the male and female labour force, respectively (ABS 2022b).

See Employment and unemployment.

Housing and homelessness

Access to appropriate, affordable and secure housing can limit the physical and mental health risks presented by factors such as homelessness and overcrowding.

Evidence also supports a direct association between poor-quality housing and poor physical and mental health (Baker et al. 2016). Young people, Aboriginal and Torres Strait Islander people, people with long-term health conditions or disability, people living in low-income housing, or people who are unemployed or underemployed are at greater risk of living in poor-quality housing.

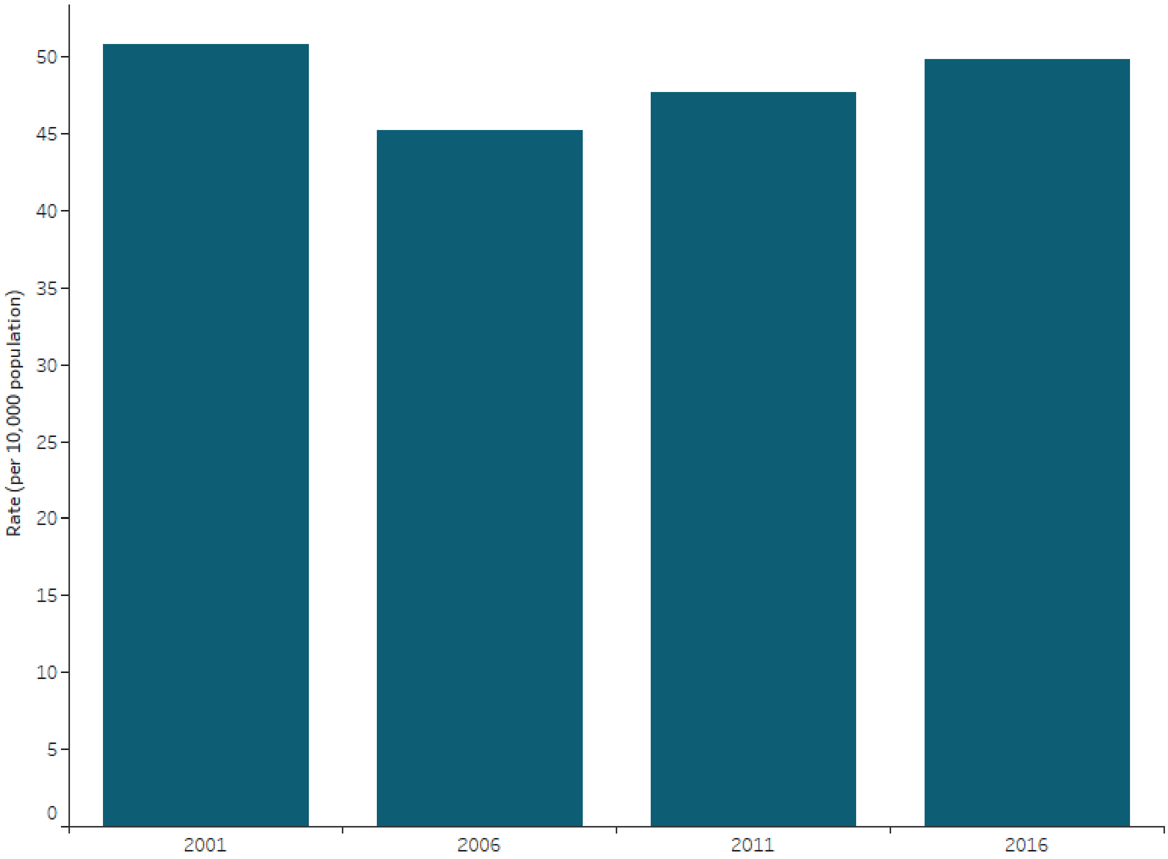
- More than 116,000 men, women and children, or 50 per 10,000 population, were estimated to be homeless on the night of the 2016 Census of Population and Housing, an increase of 10% from 45 per 10,000 population in 2006 (ABS 2018) (Figure 2.1). See Homelessness and homelessness services and Health of people experiencing homelessness.
- 43% of low-income households were in rental stress in 2017–18, spending more than 30% of their gross income on housing costs. In 2007–08, 35% of low-income households were in rental stress (ABS 2019b) (Figure 2.2). See Housing affordability.
- In 2018, overcrowding in social housing, based on those households needing one or more extra bedrooms, was 4.9%. Overcrowding was higher for Indigenous households at 14% (AIHW 2019b). See Indigenous housing.

Select disaggregation

● Figure 2.1 Homelessness

○ Figure 2.2 Housing

Figure 2.1: Rate of homelessness, people per 10,000 population, 2001 to 2016



Source: ABS 2018

http://www.aihw.gov.au/

Impact of COVID-19 on social determinants of health

Evidence has shown that infection, hospitalisation and mortality among some population groups have been disproportionally affected by the COVID-19 pandemic, making the impact one of inequality (WHO 2021). The impact extends to the social determinants of health, with adverse effects on income, education, employment, and housing more pronounced among lower socioeconomic groups. These effects can then act to worsen health inequities.

Evidence has also shown there has been an increase in psychological distress during the COVID-19 pandemic, which may be associated with social inclusion and loneliness (AIHW 2022).

See ‘Chapter 2 Changes in the health of Australians during the COVID-19 period ‘in Australia’s health 2022: data insights.

Where do I go for more information?

For more information on social determinants of health, see:

- Australia’s welfare snapshots
- World Health Organization Social determinants of health

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Stress and trauma

This topic summary is part of the Mental health services in Australia report.

Stress and trauma affect the physical and emotional wellbeing of millions of Australians. As the COVID-19 pandemic continues to unfold and there is a significant amount of uncertainty, it is normal for people to experience symptoms of emotional distress. From an analysis perspective, it is difficult to get accurate information about the prevalence of stress and trauma and associated impacts because of the complex events and variation in individual responses.

Difference between stress and trauma

According to Gomes (2014), 'Trauma is an experience of extreme stress or shock that is/or was, at some point, part of life'. Traumatic events are often life-threatening and include events such as natural disasters, motor vehicle accidents, sexual assault, difficult childbirth experiences or a pandemic. Stress is a response to challenging or new life events such as a job loss, exams, deadlines, finances, or divorce. While stress is not a diagnosis, persistent stress can lead to long term physical and psychological symptoms.

What is stress?

Stress is a common and normal physical response to challenging or new situations. Stress has both mental and physical aspects and can be triggered by different life experiences. Stressors can be external (from environment, psychological or social situations) or internal (for example, illness). Stress can initiate the 'fight or flight' response, a complex reaction of the neurologic and endocrine systems. Continuous stress without relief can result in a condition called distress – a negative stress reaction that can lead to physical symptoms such as headaches, loss of appetite, increased blood pressure, chest pain, sexual dysfunction, and problems sleeping. Stress can also cause or influence a broad range of physical health conditions such as heart disease, diabetes, poor healing, irritable bowel syndrome, and mental disorders such as depression or anxiety (Gouin and Kiecolt-Glaser 2011; NIMH 2019; Stöppler 2018).

What is trauma?

Any event that involves exposure to actual or threatened death, serious injury, or sexual violence has the potential to be traumatic. The trauma experienced can be physical and/or mental and not everyone will respond in the same way. A well-known trauma-related mental illness is post-traumatic stress disorder (PTSD). PTSD is a chronic condition that can be diagnosed when fear, anxiety and memories of a traumatic event persist. The feelings last for a long time and interfere with how people cope with everyday life.

Research suggests that the most common traumatic events experienced by Australians are:

- experiencing an unexpected death of a close loved one
- witnessing a person critically injured or killed, or finding a body
- being in a life-threatening car accident (Phoenix Australia 2019).

Traumatic injury survivors often suffer from physical, emotional, cognitive, and financial consequences that can affect their lives, their families, and society for prolonged periods of time (Herra-Escobar 2021).

Exceptional situations, such as the COVID-19 pandemic can lead to trauma. Emerging research propose that individuals affected are likely to experience traumatic stress reactions related to worry about the future, exposure to the virus and stressful events (for example, unemployment, isolation, non-sudden illness/death) (Bridgland et al. 2021).

Trauma and mental illness

Experience of trauma can contribute to development of many different forms of mental illness such as psychosis, schizophrenia, eating disorders, personality disorders, depressive and anxiety disorders, alcohol and substance use disorders, and self-harm and suicide-related behaviours (Heim et al. 2010; Phoenix Australia 2019). Childhood trauma experiences not only increase the risk of onset of mental illness but also affect clinical course and responses to treatment. See Mental health.

How common is stress?

Measuring stress is a challenge as people have varied stress responses when exposed to variants of stressors and health researchers across disciplines have varied practices for measuring stress.

The Australian Bureau of Statistics (ABS) measures stress in several of its national surveys: the National Health Survey (NHS) and the General Social Survey (GSS) and in 2020 began surveying stress in the Household Impacts of COVID-19 Survey.

In 2020, the ABS GSS was conducted over a 4 month period from 15 June to 5 September 2020. It is estimated that more than half of Australians (59%) experienced at least one personal stressor in the last 12 months. This was similar to the findings from 2019 (56%) and a decrease compared with 2014 (63%). (ABS 2014, 2020).

The GSS found that during 2020, people with a mental health condition were more likely to have experienced at least one personal stressor compared to those who do not have a mental health condition (83% and 56% respectively). People with a long-term health condition were also more likely to have experienced at least one personal stressor compared to those who did not (68% and 52% respectively) (ABS 2020).

Psychological distress

The Australian National University (ANU) Centre for Social Research and Methods COVID-19 Impact Monitoring Survey program has been monitoring psychological distress levels in Australia since the beginning of the COVID-19 pandemic and comparing the results to baseline data pre the pandemic in February 2017. This has been measured using the Kessler 6 (K6) measure of psychological distress.

Emerging research from the ANU Centre for Social Research and Methods, (Biddle and Gray 2022) state in February 2017, 8.4% of Australians were estimated to be experiencing severe psychological distress while in the initial stages of the COVID-19 pandemic (April 2020), this had increased to 10.6%. There was some fluctuation around this level between April 2020 and August 2021. Between August and October 2021, however, there was another large increase to 12.5% of Australians experiencing severe psychological distress. This increase was not only statistically significant, it represented the highest level of severe psychological distress observed since the start of the pandemic period. There appears to have been a slight reduction in severe psychological distress between October 2021 and January 2022 (to 11.0%), though this difference is not statistically significant and the January 2022 value is still above pre-pandemic levels (Nicholas and Gray 2022).

The ABS has also reported on psychological distress in the 2020–2021 Household Impacts of COVID-19 Survey and 2017–18 NHS. This is measured using the Kessler 10 (K10) psychological distress scale and not is directly comparable with the ANU study. Further information can be found by visiting the ABS National Health Survey page.

While there has been a rise in the use of mental health services and an increase in psychological distress during the pandemic, COVID-19 has not been associated with a rise in the number of suspected deaths by suicide. Further information can be found by visiting the Suspected deaths by suicide page.

For more information on Australians' experience of psychological distress during the pandemic see 'Chapter 2 Changes in the health of Australians during the COVID-19 period' in Australia's health 2022: data insights

How common is trauma?

It is estimated that 75% of Australian adults have experienced a traumatic event at some point in their life (Productivity Commission estimates using ABS 2009).

International studies estimate that 62–68% of young people will have been exposed to at least one traumatic event by the age of 17 (Copeland et al. 2007; McLaughlin et al. 2013).

According to the 2007 National Survey of Mental Health and Wellbeing, an estimated 12% of Australians experience PTSD in their life (lifetime prevalence), with women being at almost twice the risk of men (15.8% and 8.6% respectively) (ABS 2008). According to the 2017–18 National Health Survey, an estimated 1.7% of women and 1.3% of men reported that they had been told by a doctor, nurse, or health professional that they have PTSD (point prevalence estimate) (ABS 2019).

Exposure to trauma is more common among specific groups such as people who experience homelessness, young people in out-of-home care or under youth justice supervision, refugees, people experiencing family and domestic violence, LGBTIQ+ people and certain occupation groups such as emergency services, armed forces and veterans (Bendall et al. 2018; Phoenix Australia 2013).

Cumulative exposure to work-related traumatic events is associated with increased risk of PTSD. This is particularly the case for first responders, such as emergency service workers, where the rates of the disorder may be more likely among long-term employees than new recruits (Phoenix Australia 2013). This finding is also supported by a study of the mental health of current and retired Australian firefighters, where prevalence of PTSD was more than two times higher in retired than current firefighters (18% and 7.7%, respectively) (Harvey et al. 2016). Historical and current trauma experienced as a result of separation from family, land, and cultural identity has also had a serious impact on the social and emotional wellbeing of Aboriginal and Torres Strait Islander people (AIHW 2018; Bendall et al. 2018). For further information, see Indigenous health and wellbeing.

The long-term effects of the COVID-19 pandemic are still unknown and there could be longer-term negative impacts. Health care workers are vulnerable to developing trauma or stress-related disorders as a result of work-related stress during the pandemic due to the higher risk of infection and workload.

What is the cost of stress and trauma?

Stress and trauma impose considerable costs on society. The Economic Cost of the Social Impact of Natural Disasters study reviewed some of the intangible costs: the 2010–11 Queensland floods and the 2009 Black Saturday bushfires in Victoria. Queensland residents affected by floods were 5.3 times more likely to report poorer health than those not affected, and 2.3 times more likely to develop PTSD (Alderman et al. 2013). Mental health issues represented the largest financial impact of the floods, with a lifetime cost estimated at $5.9 billion. In addition to more than 170 deaths and 400 injuries caused by bushfires in Victoria, the lifetime cost of the mental health issues was estimated to be more than $1 billion (Deloitte Access Economics 2016).

Psychological distress increases absenteeism (unexpectedly absent) and presenteeism (present at work but not working) in the workplace (Holden et al. 2011). The 2020 Productivity Commission Inquiry on Mental Health estimated mental ill-health cost Australia from $13 billion to $17 billion per year. The typical compensation payment per claim for a mental condition was reported to be $25,650 (compared with $10,600 for all other claims) while the typical time off work was 16.2 weeks (compared with 5.7 weeks for all other claims) (Productivity Commission 2020).

Prevention and management

According to Howlett and Stein (2016), ‘Public policy and public health interventions to reduce violence, traumatic injuries, and other traumatic events have a major role to play in the primary prevention of acute stress disorders and PTSD’. Secondary prevention includes targeted interventions for individuals at the highest risk of developing PTSD after trauma, including those with pre-existing psychiatric disorders, a family history of disorders and/or childhood trauma, and psychosocial and somatic approaches such as cognitive behavioural therapy (Breslau 2002; Howlett and Stein 2016). The recommendations made in the Australian Guidelines for the Treatment of Acute Stress Disorder and Post-traumatic Stress Disorder (Phoenix Australia 2013) remain the recommended practice for Australian health providers; however, beyond PTSD, evidence for treatment of trauma is scarce (Bendall et al. 2018).

Stress management is recognised as an effective treatment modality and may include pharmaceuticals as well as non-pharmaceutical interventions such as psychological and relaxation methods including meditation, progressive muscle relaxation, yoga, and adopting a healthy lifestyle (Chen and Kottler 2012).

Where do I go for more information?

For more information on stress and trauma visit:

- Australian Bureau of Statistics (ABS) National Health Survey: first results, 2017–18
- ABS National Survey of Mental Health and Wellbeing: summary of results, 2007
- Orygen 2008 Trauma and young people: moving toward trauma-informed services and systems
- Phoenix Australia

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Tobacco

This topic summary is part of the Alcohol, tobacco & other drugs in Australia compendium.

Tobacco is made from the dried leaves of the tobacco plant and nicotine is the active ingredient responsible for its addictive properties. Tobacco is usually smoked in a cigarette, cigar or pipe, but it might also be snorted or chewed. Nicotine can now also be inhaled as a vapour through electronic nicotine delivery systems (refer to electronic cigarettes below).

Tobacco use in Australia is legal; however, its supply and consumption are subject to strict regulations. The advertising of tobacco is prohibited in Australia. In recent years, the restrictions have expanded to ban advertising at the point of sale and include the introduction of plain packaging.

Smoking is also banned inside restaurants, bars and clubs, in cars with children and around many public places such as near children's play equipment, swimming pools, public transport, and around public buildings.

Key Findings

- There has been a long-term downward trend in daily tobacco smoking since 1991 (24%), with a significant decline between 2016 (12.2%) and 2019 (11.0%)
- There has been an increase of the number of people choosing to never take up smoking (63% in 2019, up from 49% in 1991)
- In 2019, people who lived in Remote and very remote areas of Australia were more likely to smoke daily (19.6%) than people living in Inner regional areas (13.4%) and Major cities (9.7%)
- Liftetime use of e-cigarettes increased significantly between 2016 and 2019 – around 2 in 5 (39%) current smokers had used e-cigarettes in their lifetime, up from 31% in 2016
- Tobacco use is the leading cause of cancer in Australia (contributing 44% of cancer burden)
- Around 1in 10 (10.2%) mothers smoked at any time during their pregnancy in 2019

Availability

Retailing laws in each jurisdiction regulate the packaging, advertising and display of tobacco products, e-cigarettes and accessories, non-tobacco smoking products and ban the supply of these products to children.

Industry data indicates that while the value of retail sales of tobacco products has increased (Table S2.1), the number of cigarettes and cigars and the amount of tobacco sold between 2015 and 2016 has decreased (Table S2.2). The estimated number of cigarettes (ready-made and roll-your-own) cleared through customs declined from 22 billion sticks in 2011 to 16.9 billion in 2017 (a decrease of 23%) (Scollo 2019).

Data on the availability of illicit tobacco in Australia are limited. However, the level of illicit trade of tobacco in Australia is considered to be low (Scollo & Bayly 2019). The Australian Tax Office (ATO) estimated that the amount of lost excise revenue from illicit tobacco in 2017–18 ($647 million) was 5% of the amount of collectable tobacco excise (ATO 2019).

Consumption

For related content on tobacco consumption by region, see also:

- Data by region: Tobacco smoking
- Data by region: International comparisons

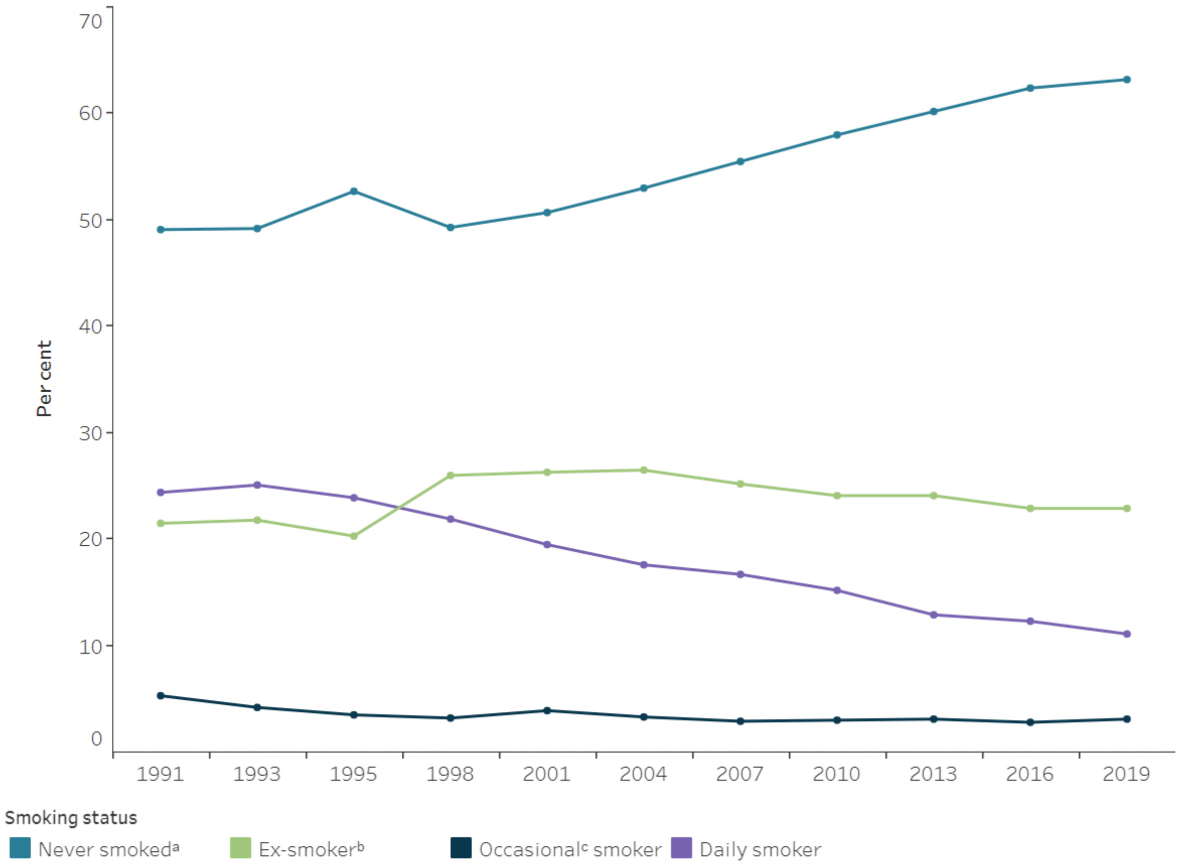
Daily smoking rates in Australia are around the lowest among Organisation for Economic Cooperation and Development (OECD) countries – 11.2% for Australians aged 15 and over in 2019 (Table S2.15) compared with the average of 16.4% in 2020 (or nearest year) for OECD countries.

There has been a long-term downward trend in tobacco smoking in Australia. The National Drug Strategy Household Survey (NDSHS) showed that between 1991 and 2019:

- the proportion of persons aged 14 and over smoking daily more than halved (from 24% to 11.0%)
- the proportion of ex-smokers aged 14 and over fluctuated from 21% in 1991, up to 26% in 2004 and has since declined to 23% in 2019
- the proportion of persons aged 14 and over who have never smoked has increased by 14 percentage points to the highest levels seen over the 25-year period (from 49% to 63%) (Table S2.14; Figure TOBACCO1).

The proportion of ex-smokers may be decreasing due to mortality among the generation born prior to 1930, who were young adult smokers but subsequently quit smoking. As such, when interpreting these findings, it is also useful to consider the proportion of people who had ever smoked that were ex-smokers (the ‘quit proportion’). This proportion increased from 42% in 1991 to 62% in 2019 (Greenhalgh et al. 2020).

Figure TOBACCO1: Tobacco smoking status, people aged 14 and over, 1991 to 2019 (per cent)



Title: Figure TOBACCO1: Tobacco smoking status, people aged 14 and over, 1991 to 2019 (per cent).
(a) Never smoked 100 cigarettes (manufactured and/or roll-your-own) or the equivalent amount of tobacco.
(b) Smoked at least 100 cigarettes (manufactured and/or roll-your-own) or the equivalent amount of tobacco in their life, and reported no longer smoking.
(c) Includes weekly and less than weekly smoking.
Notes:
1. In 1991, daily smoking included people who reported smoking daily, or most days.
2. In 1993, smoking status was only asked to people aged 20 years or over.
3. Smoking status in 2010 has been revised. Trend data may not match previously published results.
Source: AIHW. Supplementary Table S2.14.

http://www.aihw.gov.au

Between 2013 and 2016 the proportion of daily smokers aged 14 and over only decreased slightly from 12.8% to 12.2%. However, in 2019 the proportion of daily smokers declined significantly to 11.0% (Table S2.14). This long-term decline in daily smoking has largely been driven by people never taking up smoking rather than smokers quitting (Table S2.14). This trend is consistent for daily smokers aged 18 or older (Table S2.15).

While there are differences in the estimates derived for the proportion of daily smokers, data from the National Health Survey (NHS) show a similar pattern to the NDSHS data over time. The proportion of adult daily smokers (aged 18 or older) declined steadily over the nearly 3 decades to 2017–18, and after adjusting for age, has halved from 27.7% in 1989–90 to 14.0% in 2017–18. Over recent years the proportion of adult daily smokers only declined slightly from 14.7% in 2014–15 (Table S2.16; age standardised).

Refer to Box TOBACCO1 for more information about the differences between the NDSHS and the NHS.

The National Health Survey 2020–21 was collected online during the COVID-19 pandemic and is a break in time series. Data should be used for point-in-time analysis only and cannot be compared to previous years. Estimates using self-reported data show that in 2020–21:

- 1 in 10 people (10.7%) aged 18 years and over were current daily smokers.
- Men were more likely to smoke daily than women (12.6% compared to 8.8%).
- E-cigarettes or vaping use was also reported in 2020–21:
- Almost 1 in 10 (9.3%) people aged 18 years and over had used an e-cigarette or vaping device at least once. 2.2% reported currently using a device.
- Men were more likely than women to have used an e-cigarette or vaping device at least once (11.3% compared to 7.5%).
- Of people aged 18 years and over who currently smoke tobacco, 8.9% currently use an e-cigarette or vaping device (ABS 2022).

Refer to Box TOBACCO1 for more information about the differences between the NDSHS and the NHS.

The National Wastewater Drug Monitoring Program (NWDMP) measures the presence of substances in sewerage treatment plants across Australia. Nicotine (including cigarettes, e-cigarettes and replacement products such as gums and patches) is typically among the most commonly consumed substances monitored by the program (ACIC 2021b).

Using an estimated population-weighted average, nicotine use has remained relatively stable over time although some states and territories saw an increase over the current reporting period. Along with alcohol, nicotine remained consistently the highest consumed drug in all states and territories (ACIC 2022).

For state and territory data, see the National Wastewater Drug Monitoring Program reports

Box TOBACCO1: National data sources on smoking and alcohol consumption

A number of nationally representative data sources are available to analyse recent trends in tobacco smoking and alcohol consumption. The AIHW National Drug Strategy Household Survey (NDSHS) and the ABS National Health Survey (NHS) have large sample sizes and collect self-reported data on tobacco smoking and alcohol consumption.

Data from the NDSHS and NHS show variations in estimates, yet comparison of trends over time are consistent between the 2 surveys. Differences in scope, collection methodology and design may account for this variation and comparisons between collections should be made with caution. For example:

- Data are collected for people aged 14 years and over for the NDSHS and people aged 15 years and over for the NHS. Estimates are provided for people aged 18 years and over for both surveys.
- The NHS is collected via a face-to-face method whereas for the NDSHS respondents could choose to complete the survey via a self-complete drop and collect questionnaire, online survey or computer-assisted telephone interview (CATI).
- The questions asked in the surveys also differ and therefore results from the surveys are not directly comparable (ABS 2018b; AIHW 2020).

The National Health Survey 2020–21 was collected online during the COVID-19 pandemic and is a break in time series. Data should be used for point-in-time analysis only and cannot be compared to previous years.

For more information on the technical details of these surveys, please see the technical notes and data quality sections for the NDSHS and NHS.

Please also see Box INDIGENOUS2 for information about data sources examining tobacco, alcohol and other drug use by Aboriginal and Torres Strait Islander people.

Types of tobacco products consumed

Data from the NDSHS indicates that the proportion of current smokers who smoked manufactured cigarettes declined between 2007 and 2019 (from 93% to 85%). In contrast, smoking roll-your-own cigarettes increased from 26% in 2007 to 36% in 2016 and 45% in 2019. The rise was greatest among young adult smokers aged 18–24 (up from 28% in 2007 to 63% in 2019), the age group most likely to smoke these cigarettes (AIHW 2020; Table S2.17).

This is supported by 2017 Industry Sales Figures (Scollo & Bayly 2019), which indicate the volume of roll-your-own tobacco increased while the volume of cigarettes, cigars and pipe tobacco have all declined.

Volume of tobacco products consumed

In a pattern consistent with decreased consumption, the Household Expenditure Survey showed that the proportion of household costs spent on tobacco has decreased over time from 1.6% in 1984 to 0.9% in 2015–16 (ABS 2017). On average, Australians spend $13 per week on tobacco products and this remained stable between 2009–10 and 2015–16 (Table S2.4). This estimate however is for all Australians and is likely to be higher for people who are regular smokers.

Estimates of expenditure on tobacco published in National Accounts data (ABS 2018a) also suggest continuing declines in consumption. Adjusting for increasing prices of tobacco products (so that all prices are expressed in current-day terms), expenditure estimates have declined from $44 billion in 1990 to $32 billion in 2000 and $17.2 billion in 2018 (Bayly & Scollo 2019).

Tobacco smoking by age and sex

Findings from the 2019 NDSHS (Figure TOBACCO2; Table S2.15) showed that:

- people aged 40–49 (15.8%) and 50–59 (15.9%) were the most likely to smoke daily
- in people aged 14 and over, males (12.2%) were more likely to smoke daily than females (9.9%), however, the gap has narrowed slightly since 2016 due to a significant decrease in the proportion of males who were daily smokers (down from 13.8% in 2016; this compares with a non-significant decrease of 10.7% for females)
- significant decreases in the proportion of daily smokers aged 25–29 (11.3%, down from 15.5% in 2016), 30–39 (11.6%, down from 14%) and 70+ (4.6%, down from 6%) were largely driven by decreases in the proportion of male daily smokers in these age groups
- young adults aged 18–24 years were more likely to have never smoked than any other adult age group and this has increased since 2001
- there was a significant increase in the proportion of females who had never smoked in the age groups 25–29 (from 72% in 2016 to 77% in 2019) and 30–39 (from 62% in 2016 to 67% in 2019).

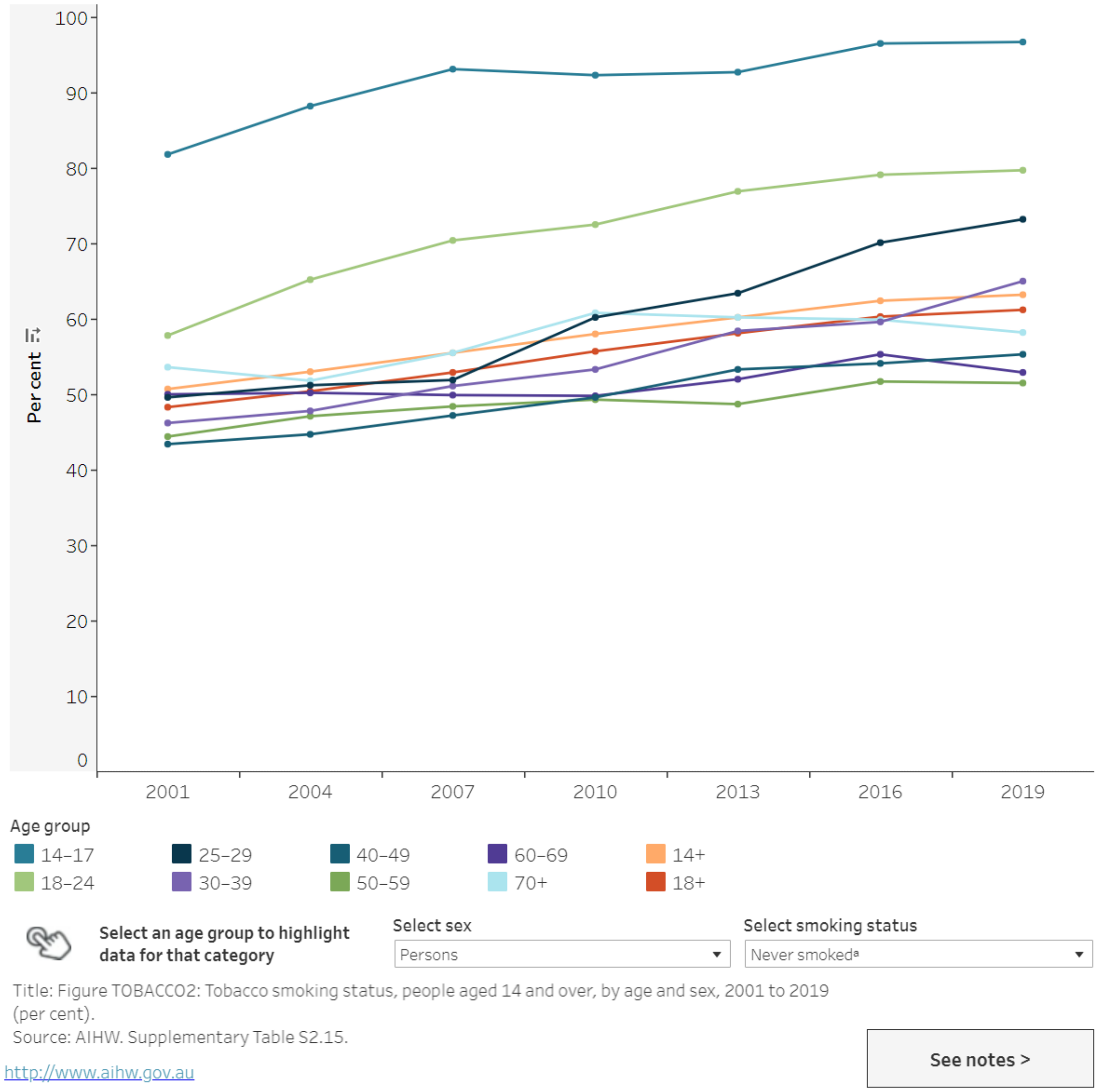
The average age at which younger people (aged 14–24 years) had their first full cigarette has increased from 14.3 years in 2001 to 16.6 years in 2019 (AIHW 2020). There was a significant increase in the age in which younger females first smoked a full cigarette between 2016 (16.0 years) and 2019 (16.6 years) (AIHW 2020).

People aged 40 and over smoked a greater number of cigarettes per day and were more likely to be pack-a-day (20 cigarettes or more) smokers when compared with those aged under 40 years (AIHW 2020).

These trends are consistent with the results from the 2017–18 NHS, for example:

- people aged 45–54 years (16.9%) had the highest proportion for daily smoking (Table S2.16)
- a higher proportion of men (16.5%) smoked than women (11.1%) and this was consistent across all age groups—the greatest difference between the sexes was among 25–34 year olds with almost twice as many males smoking than females (19.0% and 10.6%, respectively) (ABS 2018b; Table S2.16)
- 75% of 18–24 year olds reporting never smoking in 2017–18, up from 67% in 2011–12 (ABS 2012, ABS 2018b)
- the number of cigarettes smoked per day increased with age—30% of smokers aged 45 years and over smoked more than 20 cigarettes per day, compared to only 17.8% of smokers aged 18–44 years (ABS 2018b).

Figure TOBACCO2: Tobacco smoking status, people aged 14 and over, by age and sex, 2001 to 2019 (per cent)



Select sex: Persons

Select smoking status: Never smoked[a]

Title: Figure TOBACCO2: Tobacco smoking status, people aged 14 and over, by age and sex, 2001 to 2019 (per cent).
Source: AIHW. Supplementary Table S2.15.

http://www.aihw.gov.au

Geographic trends

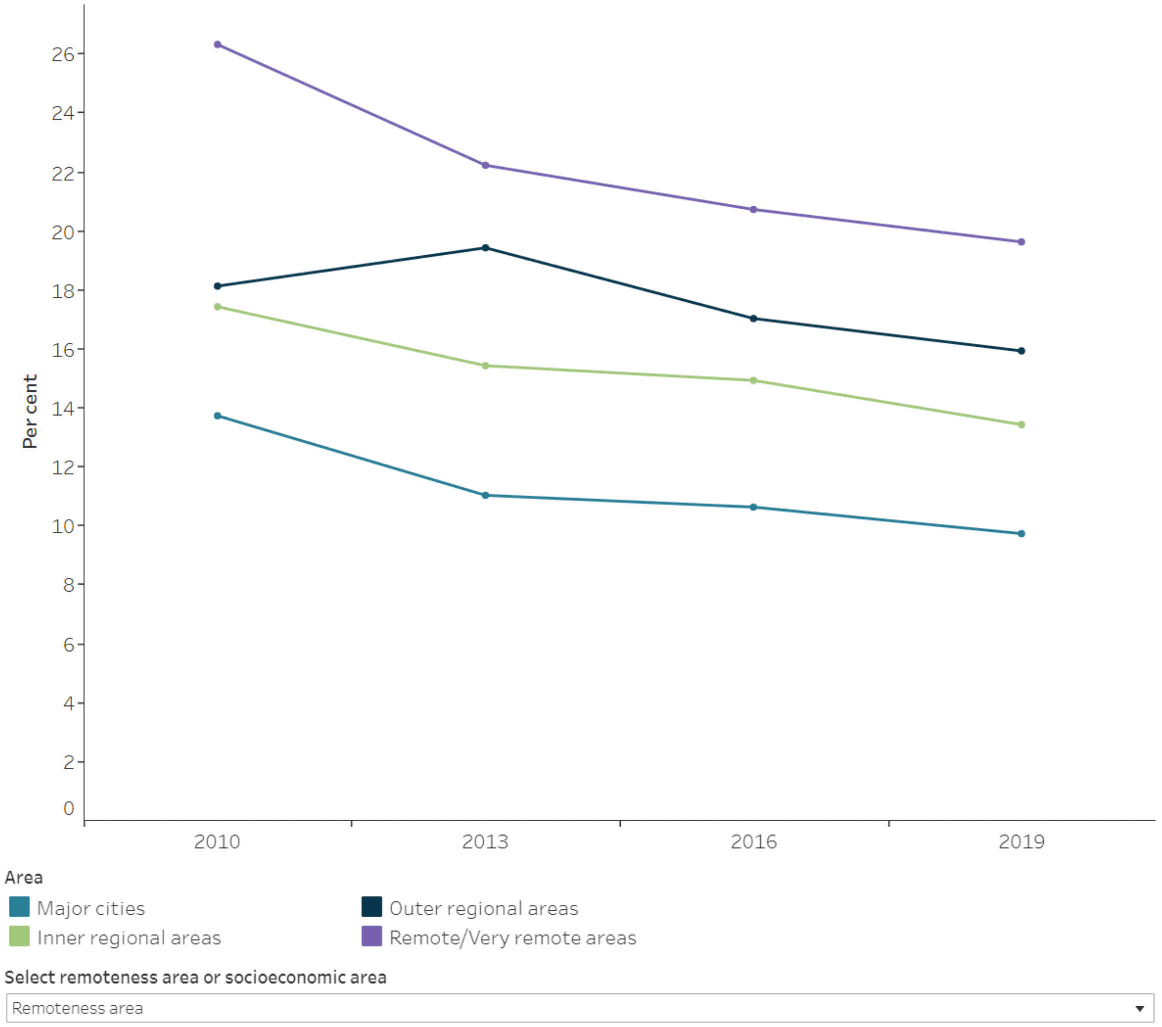
Since 2001, the proportion of people aged 14 and over who smoked daily has declined across all jurisdictions. Most jurisdictions reported declines in the proportion smoking daily between 2016 and 2019, with the change for New South Wales statistically significant (AIHW 2020).

The 2019 NDSHS shows that people aged 14 or older living in Remote and very remote areas of Australia (19.6%) are more likely to smoke daily than people living in Inner regional areas (13.4%) and Major cities (9.7%) (AIHW 2020; Table S2.12; Figure TOBACCO3). These findings were still apparent after adjusting for differences in age (AIHW 2020). Results from the 2017–18 NHS also found adults (aged 18 or older) in Outer regional and Remote areas were around 1.5 times as likely to be daily smokers as those in Major cities (19.6% compared with 12.8%; age standardised) (ABS 2019a).

In general, people who lived in disadvantaged areas were more likely to smoke daily than those living in the most advantaged areas. More specifically:

- 2019 NDSHS results indicated people aged 14 and over living in the most disadvantaged areas of Australia are over 3 times as likely to smoke daily as those who live in the most advantaged areas (18.1% compared with 5.0%) (Table S2.13). This finding was still apparent after adjusting for differences in age (AIHW 2020).
- 2017–18 NHS findings showed adults living in the most disadvantaged areas of the country were around 3.2 times as likely to smoke daily as those living in the highest socioeconomic group (22.8% compared with 7.0%; age standardised) (ABS 2019a; age standardised proportions; Table S2.16).

Figure TOBACCO3: Daily smoking, by remoteness area or socioeconomic area, people aged 14 and over, 2010 to 2019 (per cent)



Title: Figure TOBACCO3: Daily smoking, by remoteness area or socioeconomic area, people aged 14 and over, 2010 to 2019 (per cent).
Source: AIHW. Supplementary tables S2.12 and S2.13.

http://www.aihw.gov.au

The most recent data from the NWDMP show that the estimated population-weighted average consumption of nicotine (including tobacco products and nicotine replacement products, such as patches and gum) is typically higher in regional areas than capital cities (ACIC 2021b).

Smoking cessation

The addictive nature of nicotine means that successful cessation may take many attempts over several years. Between 2016 and 2019, the NDSHS showed that the proportion of smokers aged 14 and over who succeeded in giving up smoking for more than a month in the 12 months prior to completing the survey increased significantly from 17.2% to 21% (Table S2.21).

About 3 in 10 smokers reported they did not intend to quit. The main reasons were because they enjoyed it (61%) or because it relaxes them (40%). A further 1 in 5 (20%) do not intend to quit because they are addicted to nicotine, and 1 in 6 had tried to quit before but it had not worked (Table S3.29).

Smokers who smoked fewer than 20 cigarettes per day were more likely to succeed at making changes to their smoking behaviour than pack-a-day smokers. Pack-a-day smokers were more likely to attempt changes without success (AIHW 2020).

The main reasons smokers gave for trying to quit or change their smoking behaviour was due to cost (58%, a significant increase from 52% in 2016) or it was affecting their health (45%) (AIHW 2020).

Electronic cigarettes

Electronic cigarettes (also known as e-cigarettes, electronic nicotine delivery systems, or personal vaporisers) are devices designed to deliver nicotine and/or other chemicals via an aerosol vapour that the user inhales (Greenhalgh & Scollo 2018). Most e-cigarettes contain a battery, a liquid cartridge and a vaporisation system and are used in a manner that simulates smoking (ACT Health 2019). The liquid solution used in e-cigarettes usually contains propylene glycol, glycerol, and flavourings, and may or may not contain nicotine (Cancer Council 2017). It is currently illegal to sell e-cigarettes that contain nicotine in any form (Cancer Council 2017), however, it may be lawful for people to import up to 3 months' personal supply of nicotine for personal therapeutic use in e-cigarettes with a written authorisation from a doctor, subject to state and territory laws (TGA 2019).

- The 2019 NDSHS shows lifetime use of e-cigarettes increased significantly from 8.8% in 2016 to 11.3% in 2019 (Table S2.18). More specifically, for those people aged 14 and over, in 2019:
- Almost 2 in 5 (39%) smokers had tried e-cigarettes in their lifetime (Table S2.18), a significant increase since 2016 (31%).
- There was a significant increase in the proportion of non-smokers who had tried e-cigarettes in their lifetime (from 4.9% to 6.9%; Table S2.18).
- 3.2% of current smokers used e-cigarettes daily, a significant increase since 2016 (1.5%) (Table S2.19)
- 2.2% of ex-smokers used e-cigarettes daily, a significant increase since 2016 (0.8%) (Table S2.19).
- There were significant increases in the lifetime use of e-cigarettes across most age groups between 2016 and 2019, in particular for those aged 18–24 (from 19.2% to 26%) and 25–29 (from 14.8% to 20%) (Table S2.18).

More than two-thirds (69%) of e-cigarette users were current smokers when they first tried an e-cigarette. Nearly 1 in 4 (23%) considered themselves to be a 'never smoker' at that time. Higher proportions of younger people reported being a 'never smoker' (65% of 14–17 year olds and 39% of 18–24 year olds compared with proportions lower than 10% for people in age categories for those 40 and over (AIHW 2020).

The most common reason for trying e-cigarettes was curiosity (54%), but people's reasons varied by age (Table S2.20). People aged under 30 were more likely to nominate curiosity while people aged 50 or older were more likely to use e-cigarettes as a cessation device. Almost 1 in 4 (23%) used e-cigarettes because they thought they were less harmful than regular cigarettes (AIHW 2020; Table S2.20).

All Australian governments have agreed to the policy and regulatory approach to e-cigarettes in Australia. Further information about e-cigarettes can be found on the Department of Health's website.

Illicit tobacco

Illicit tobacco includes both unbranded tobacco and branded tobacco products on which no excise, customs duty or Goods and Services Tax (GST) was paid.

Unbranded illicit tobacco includes finely cut, unprocessed loose tobacco that has been grown, distributed and sold without government intervention or taxation (AIHW 2020). According to the 2019 NDSHS:

- About 1 in 3 smokers were aware of unbranded tobacco in 2019, a similar proportion to 2016 (34% and 33%, respectively).
- Between 2016 and 2019, there was little change in the proportion of smokers who smoked unbranded tobacco in their lifetime (16.5% and 17.7%, respectively) or who currently use it (3.8% in 2016 and 4.9% in 2019). However, lifetime and current use has declined since 2007 (27% and 6.1%, respectively) (Table S2.22).

Illicit branded tobacco includes tobacco products that are smuggled into Australia without payment of the applicable customs duty (AIHW 2020). The 2019 NDSHS showed that:

- More current smokers had seen tobacco products without plain packaging in the previous 3 months (15.2% compared with13.0% in 2016) and more smokers had purchased these products (6.2% compared with 5.5% in 2016) (Table S2.23).
- Of those smokers that had seen these products, less than half (42%) had purchased them and about 1 in 10 (13.4%) bought 15 or more of these packets (Table S2.24).
- Of smokers who purchased these products, 37% said they bought them from a supermarket, convenience or grocery store and one-quarter (25%) purchased them from a tobacconist; a further 23% did not know where they were purchased from (Table S2.23).

Harms

Burden of disease and injury

Tobacco is the leading preventable cause of morbidity and mortality in Australia. The Australian Burden of Disease Study 2018, found that tobacco smoking was responsible for 8.6% of the total burden of disease and injury. Estimates of the burden of disease attributable to tobacco use showed that cancers accounted for 44% of this burden (AIHW 2021c).

Tobacco use contributed to the burden for 8 disease groups including 39% of respiratory diseases, 22% of cancers, 11% of cardiovascular diseases, 6.2% of infections and 3.2% of endocrine disorders (AIHW 2021c) (Table S2.58).

The total burden attributable to tobacco use has been declining since 2003. There was a 32% decline in the age-standardised rate (from 2003 to 2018), and the proportion of total burden due to tobacco use fell from 10.4% in 2003, to 9.0% in 2015, to 8.6% in 2018 (AIHW 2021c).

Tobacco smoking in pregnancy

Tobacco smoking during pregnancy is the most common preventable risk factor for pregnancy complications and support to stop smoking is widely available through antenatal clinics. Smoking is associated with poorer perinatal outcomes, including low birthweight, being small for gestational age, pre-term birth and perinatal death (AIHW 2021b).

The AIHW's National Perinatal Data Collection indicates that the proportion of mothers who smoke during pregnancy has fallen over time in Australia. In 2019, 10.2% (or 30,224) of all mothers who gave birth smoked at any time during their pregnancy, down from 14.6% in 2009. The proportion of mothers who smoked during pregnancy declined for both Indigenous and non-Indigenous mothers (AIHW 2021b).

Exposure to second-hand smoke

The inhalation of other people's tobacco smoke can be harmful to health. Second-hand smoke causes coronary heart disease and lung cancer in non-smoking adults, and induces and exacerbates a range of mild to severe respiratory effects in infants, children and adults. Second-hand smoke is a cause of sudden infant death syndrome (SIDS) and a range of other serious health outcomes in young children. There is increasing evidence that second-hand smoke exposure is associated with psychological distress (Campbell, Ford & Winstanley 2017).

Results from the 2019 NDSHS show that parents and guardians are choosing to reduce their children's exposure to tobacco smoke at home. The proportion of households with dependent children where someone smoked inside the home has fallen from 31% in 1995 to just 2.1% in 2019. There was also a statistically significant decline from 2.8% in 2016 (Table S2.60).

Between 2016 and 2019, the proportion of adult non-smokers exposed to tobacco inside the home also declined significantly from 2.9% to 2.4% (Table S2.61).

Results from the 2014–15 NATSISS found over half (63% or 85,768) of young Indigenous people aged 15–24 reported there was a daily smoker in their household (AIHW 2018). Less than one-fifth (15% or 21,155) of young Indigenous people resided in a household where someone smoked indoors (AIHW 2018).

Treatment

The 2020–21 Alcohol and Other Drug Treatment Services National Minimum Data Set (AODTS NMDS) Early Insights report shows that nicotine was the principal drug of concern in 1.1% of treatment episodes provided for clients' own drug use (AIHW 2022).

This was the same proportion as 2019–20 (AIHW 2021a).

Data collected for the AODTS NMDS are released twice each year—an Early Insights report in April and a detailed report mid year. Detailed information about treatment episodes for nicotine will be updated in July 2022.

The Alcohol and Other Drug Treatment Services National Minimum Data Set (AODTS NMDS) provides information on treatment provided to clients by publicly funded AOD treatment services, including government and non-government organisations. Data from the 2019–20 AODTS NMDS showed that nicotine was the principal drug of concern in 1.1% of closed treatment episodes provided for clients' own drug use (Figure TOBACCO4). This has remained relatively stable in the 10 years from 2010–11 (1–2% of treatment episodes per collection period) (Table S2.76).

The low proportion of treatment episodes for nicotine likely relates to the widespread availability of support and treatment for nicotine use in the community. This includes general practitioners, pharmacies, helplines and web services (AIHW 2021a).

In 2019–20, where nicotine was the principal drug of concern:

- Most clients (57%) were male and over 1 in 7 (15%) were Indigenous Australians (tables S2.77 and S2.78).
- Almost two-thirds (63%) of clients were aged under 40.
- In 2 in 3 (65%) closed treatment episodes, the client was referred via either a health service (34% of closed treatment episodes) or a police or court diversion program (32%) (Table S2.79).
- Assessment only was the most common treatment type (43% of closed treatment episodes), followed by counselling (23%) (AIHW 2021a) (Table S2.80; Figure TOBACCO4).

Figure TOBACCO4: Treatment provided for own use of nicotine, 2019–20 (per cent)

Source: AIHW. Supplementary Tables S2.76, S2.78 and S2.80.

At-risk groups

For related content on at-risk groups, see:

- Aboriginal and Torres Strait Islander people: Tobacco smoking
- Older people: Tobacco smoking
- People with mental health conditions: Tobacco smoking

Despite large reductions in tobacco smoking over time, there are challenges associated with addressing the inequality of smoking rates between some populations and the broader community.

- The proportion of current smokers is disproportionately high among Aboriginal and Torres Strait Islander people.
- People aged 50–59 were one of the age groups most likely to smoke daily in 2019. The highest proportion of smokers who were not planning to quit smoking were aged 70 and over.
- People with mental health conditions or high psychological distress are twice as likely to smoke daily as people without mental health conditions and those with low distress.

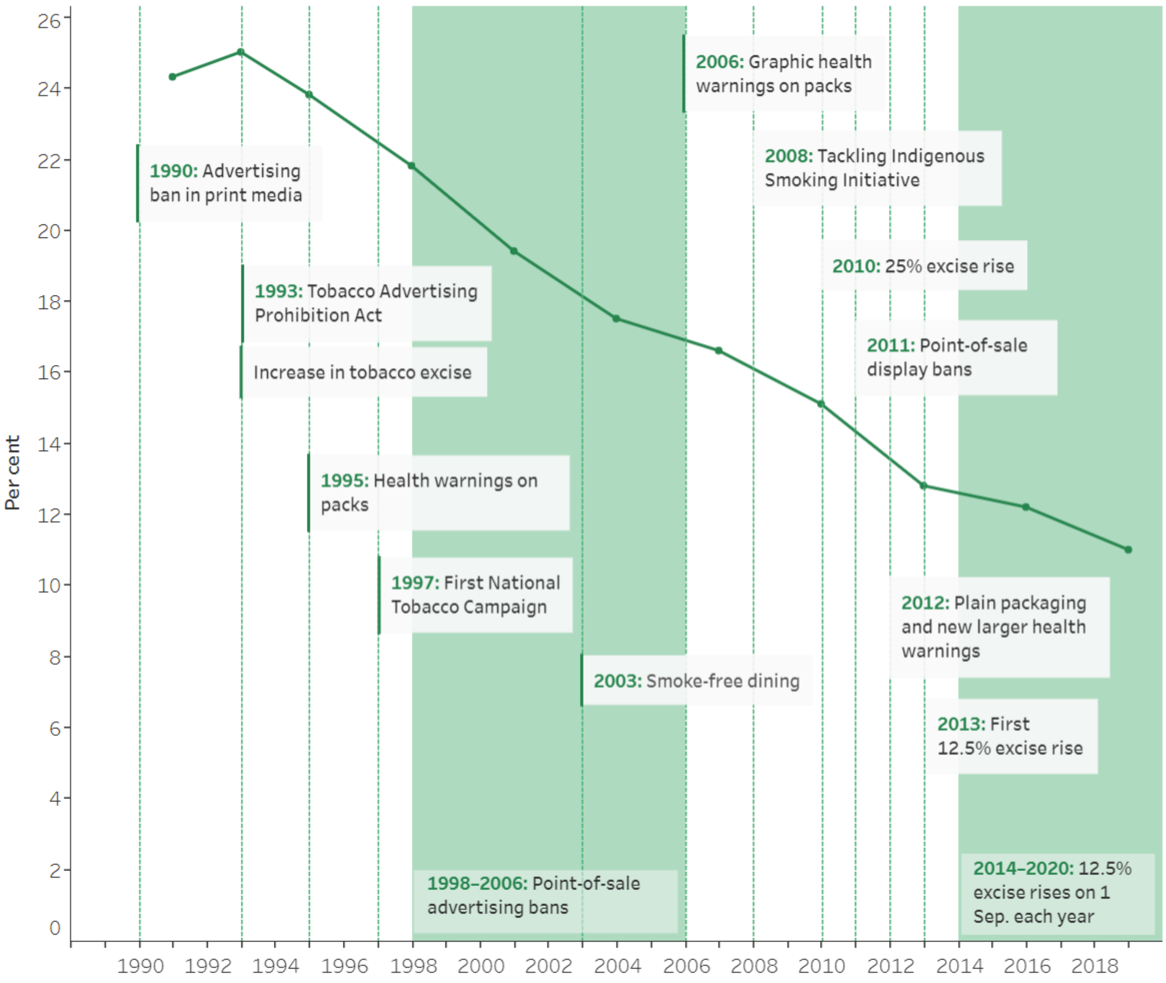
Policy context

There has been a long-term commitment to addressing the harms associated with tobacco smoking in Australia, through a range of measures such as taxation on tobacco products, restrictions on advertising, and the prohibition of smoking in certain locations.

There is a high level of support among the Australian general population for measures aimed at reducing tobacco-related harm. According to the 2019 NDSHS, stricter enforcement of the law against supplying minors and penalties for sale or supplying cigarettes to minors received the highest levels of support (85% and 83%, respectively) (AIHW 2020). However, the level of support for these measures has fallen since 2016 (86% and 84%, respectively). Conversely, there was increased support for restrictions on the use of e-cigarettes in public places (69% compared with 65% in 2016) and the sale of e-cigarettes to people under 18 years (79% compared with 77% in 2016) (AIHW 2020).

Figure TOBACCO5 shows the daily smoking rate and key national tobacco policy implementation points over time. In 1991, 24% of the population aged 14 years and over smoked daily, this rate halved to 11.0% in 2019.

Figure TOBACCO5: Daily smokers[ab] aged 14 and over and key tobacco control measures in Australia, 1990 to 2019 (per cent)



Title: Figure TOBACCO5: Daily smokers[ab] aged 14 and over and key tobacco control measures in Australia, 1990 to 2019 (per cent).
(a) In the 1991 NDSHS the question was daily/most days.
(b) The 1993 NDSHS only included smokers 20+ years.
Source: AIHW. Supplementary Table S2.14. Adapted from Department of Health 2017.

http://www.aihw.gov.au

National Tobacco Strategy 2012–2018

The National Tobacco Strategy 2012–2018, which is currently being updated, was developed as a sub-strategy under the previous National Drug Strategy 2010–2015. It sets out a national policy framework for the Australian Government and state and territory governments to work together with non-government organisations (NGOs) to improve the health of all Australians by reducing the prevalence of smoking and its associated health, social and economic costs, and the inequalities it causes.

The objectives of the strategy are to:

- prevent uptake of smoking
- encourage and assist as many smokers as possible to quit as soon as possible, and prevent relapse
- reduce smoking among Aboriginal and Torres Strait Islander people, groups at higher risk from smoking, and other populations with a high prevalence of smoking
- eliminate harmful exposure to tobacco smoke among non-smokers
- reduce harm associated with continuing use of tobacco and nicotine products
- ensure that tobacco control in Australia is supported by focused research and evaluation
- ensure that all of the above contribute to the continued de-normalisation of smoking (Commonwealth of Australia 2012).

Tobacco control will also be a key component of the Australian Government's 10-year National Preventive Health Strategy (NPHS). As part of the NPHS, the Australian Government has announced a new target of reducing smoking rates to below 10 per cent by 2025 (Hunt 2019).

Prescribing for nicotine vaping products

From 1 October 2021, a prescription is required to purchase nicotine vaping products (including nicotine e-cigarettes, nicotine pods and liquid nicotine) from Australia or overseas. For more information, see: Therapeutic Goods Administration website.

Resources and further information

- National Tobacco Strategy 2012 – 2018
- Department of Health - Policy and Programs
- Comprehensive resource on tobacco smoking in Australia – Cancer Council
- Department of Health - About e-cigarettes
- Department of Health - Illicit tobacco
- Inquiry to illicit tobacco

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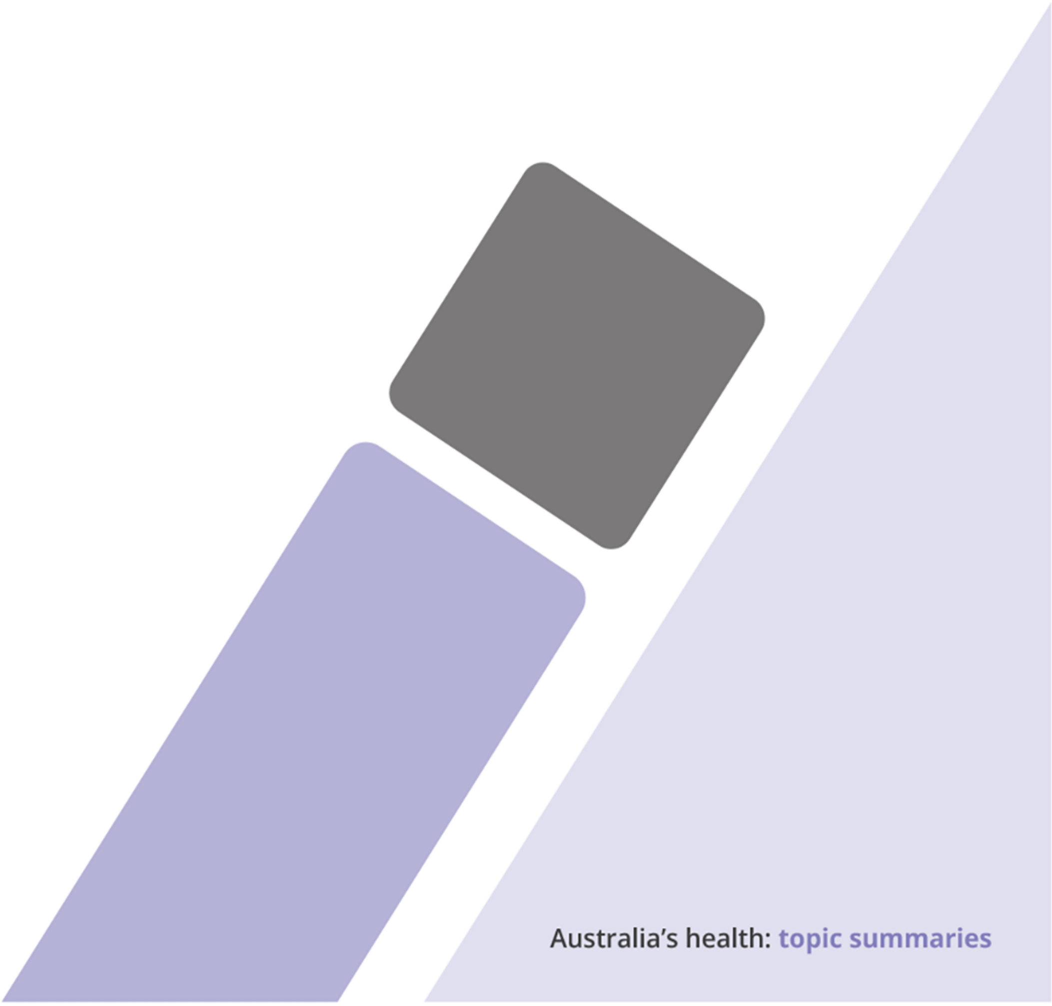
Health system

These topic summaries look at key aspects of Australia's health system – hot it works, who funds it, key services provided, and the composition of the workforce that delivers frontline services.



Alcohol and other drug treatment services

Find the most recent version of this information at:
https://www.aihw.gov.au/reports/australias-health/alcohol-and-other-drug-treatment-services

Alcohol and other drug (AOD) use is linked to increased risk of injury, mental illness, preventable disease, road trauma and death (AIHW 2021). AOD treatment agencies across Australia provide a range of services and support to people receiving treatment for their own drug use, as well as their families and friends.

Many types of treatment are available in Australia to assist people with their drug use. Most treatments aim to reduce the harm of drug use (for example, counselling). Some treatments help clients to develop skills that facilitate drug-free lifestyles and prevent relapse (for example, abstinence-oriented interventions in a structured, substance-free setting).

Opioid pharmacotherapy is a type of treatment that can reduce drug cravings and other withdrawal symptoms in people experiencing opioid drug dependence (such as codeine or heroin dependence).

See Alcohol and Illicit use of drugs for information on use of alcohol and other drugs.

Data sources

- **Alcohol and Other Drug Treatment Services National Minimum Data Set (AODTS NMDS):** provides information about publicly funded alcohol and other drug treatment services in Australia, the people they treat and the treatment provided.
- **National Opioid Pharmacotherapy Statistics Annual Data (NOPSAD) collection:** provides information about people receiving opioid pharmacotherapy for their opioid dependence in Australia, as well as health professionals who prescribe opioid pharmacotherapy and dosing points (such as pharmacies) where clients receive treatment.

Agencies whose sole function is to prescribe or provide dosing services for opioid pharmacotherapy are excluded from the AODTS NMDS, as data from these agencies are captured in the NOPSAD collection (AIHW 2022a, 2022b).

Who uses alcohol and other drug treatment services?

Data from the AODTS NMDS indicate that around 138,000 clients aged 10 and over received AOD treatment in 2020–21. These clients received just over 242,000 closed treatment episodes from 1,278 publicly funded AOD treatment agencies.

In 2020–21:

- Just over 6 in 10 clients of AOD treatment services were male (62% of clients), and around 5 in 10 were aged 20–39 years (52% of clients).
- Just under 2 in 10 clients (17%) identified as Aboriginal and/or Torres Strait Islander.
- Over 9 in 10 clients sought treatment for their own drug use (93% of clients).

Between 2013–14 and 2020–21, the estimated number of clients receiving AOD treatment rose by 21%. Across the same period, after adjusting for population growth, the rate of clients accessing AOD services increased from 564 to 616 per 100,000 population.

Who receives opioid pharmacotherapy treatment?

Data from the NOPSAD collection showed that around 47,600 clients received opioid pharmacotherapy treatment across Australia on a snapshot day in mid-2021 (excluding data for Queensland, which were not available in 2021). There were just under 2,500 dosing points nationally.

Opioid pharmacotherapy clients had broadly similar characteristics to clients of publicly funded AOD treatment agencies, but there was a higher proportion of people in older age groups. On a snapshot day in 2021:

- Almost 7 in 10 opioid pharmacotherapy clients were male (68% of clients), and 6 in 10 were aged 30–49 (60% of clients).
- Just over 1 in 10 clients (12%) identified as Aboriginal and/or Torres Strait Islander.

What drugs do people seek treatment for?

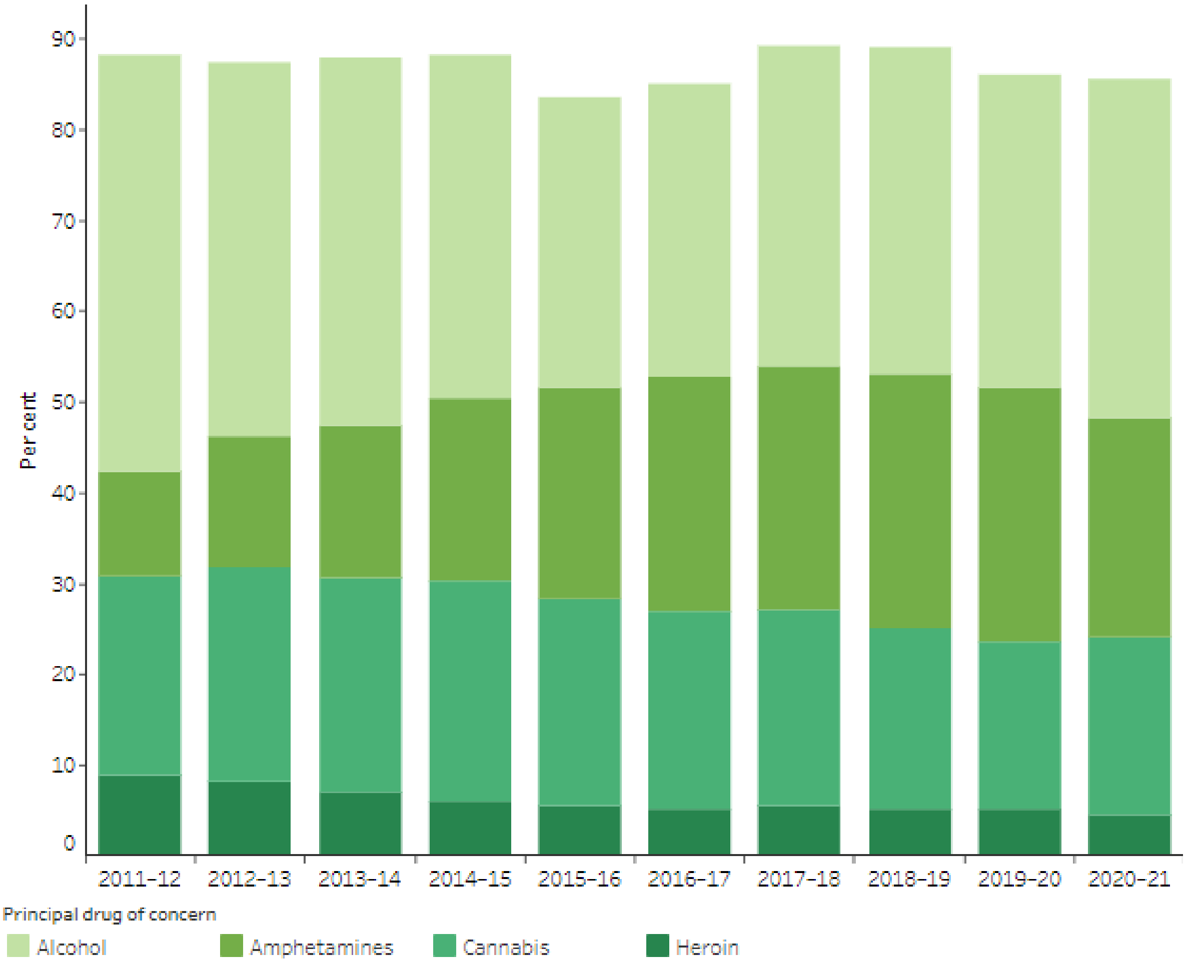
Data from the AODTS NMDS indicate that alcohol continued to be the most common principal drug of concern (PDOC) that led clients to seek treatment for their own drug use in 2020–21.

However, between 2011–12 and 2020–21:

- The proportion of closed treatment episodes provided for alcohol as a PDOC decreased from 46% to 37% (in relation to all principal drugs of concern).

- The proportion of episodes for amphetamines as a PDOC rose from 11% to 24% (Figure 1).

Figure 1: Proportion of closed treatment episodes for clients' own drug use, by selected principal drugs of concern, 2011-12 to 2020-21



[Notes]

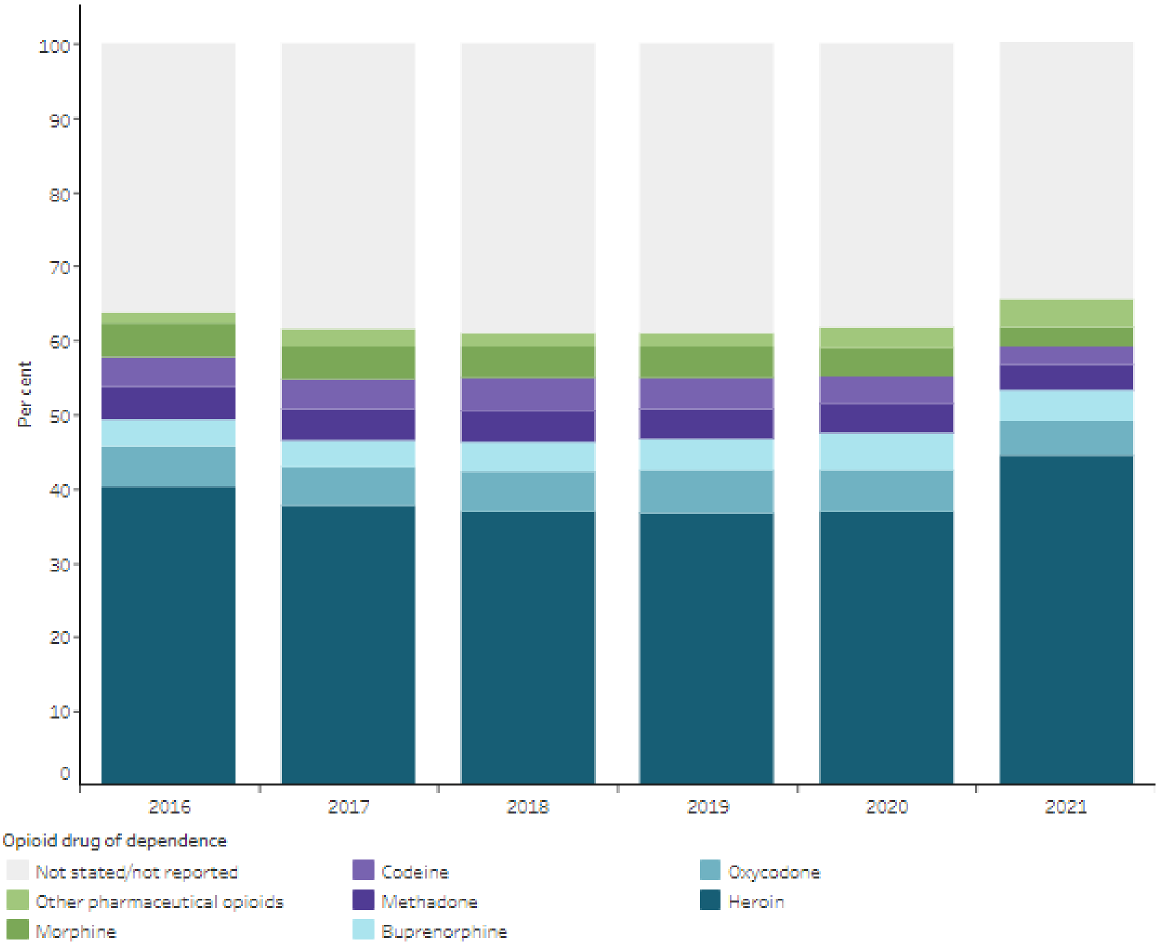
Source: AIHW 2022a.
http://www.aihw.gov.au

AODTS NMDS data indicate that there is variation across age groups in terms of the most common principal drugs of concern. In 2020–21:

- Cannabis was the most common PDOC for young people, accounting for 60% of closed treatment episodes provided to clients aged 10–19.
- Amphetamines were the most common PDOC for people aged 20–29 (27% of treatment episodes) and 30–39 (34% of episodes).
- Alcohol was the most common PDOC for older people, accounting for 46% of treatment episodes provided to clients aged 40–49, 59% of episodes for those aged 50–59, and 75% of episodes for those aged 60 and over.

Data from the NOPSAD collection showed that heroin remained the most common opioid drug of dependence among opioid pharmacotherapy clients in 2021 (44% of clients, excluding data for Queensland). Consistent with previous years, there was a high proportion of clients with ‘Not stated/not reported’ as the opioid drug of dependence (35% of clients) (Figure 2).

Figure 2: Proportion of clients receiving opioid pharmacotherapy treatment on a snapshot day, by opioid drug of dependence, 2016 to 2021



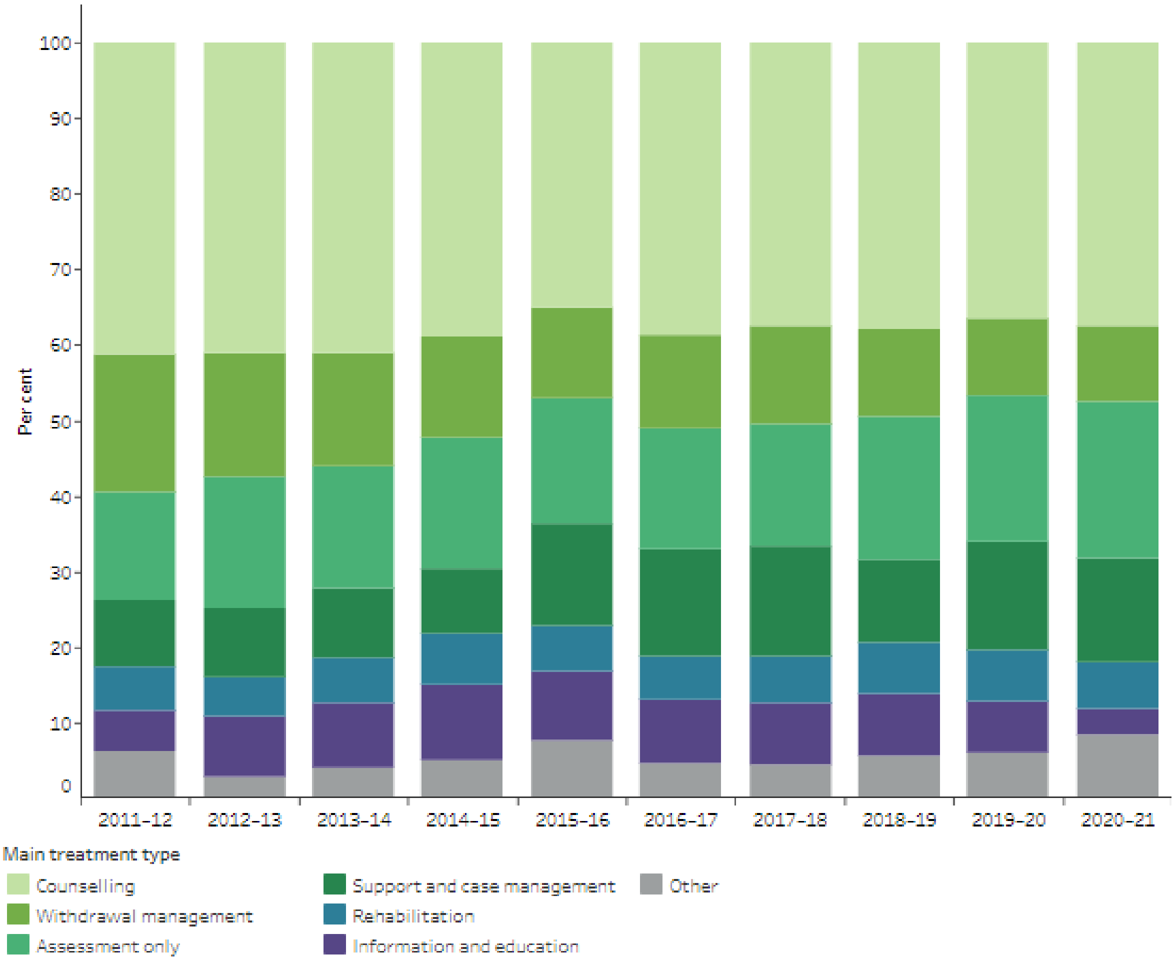
[Notes]

Source: AIHW 2022b.
http://www.aihw.gov.au/

What types of treatment do people receive?

Data from the AODTS NMDS indicate that counselling continues to be the most common main treatment type for clients accessing AOD treatment. Among clients seeking support for their own alcohol or drug use, 37% of treatment episodes in 2020–21 involved counselling as a main treatment and 21% involved an assessment only (Figure 3).

Figure 3: Proportion of closed treatment episodes for clients' own drug use, by main treatment type, 2011–12 to 2020–21



[Notes]

Source: AIHW 2022a.
http://www.aihw.gov.au

Data from the NOPSAD collection showed that methadone continues to be the most common pharmacotherapy drug provided to opioid pharmacotherapy clients. On a snapshot day in 2021, 58% of opioid pharmacotherapy clients received methadone as pharmacotherapy treatment, 23% received buprenorphine and 15% received buprenorphine-naloxone (excluding data for Queensland).

How has COVID-19 impacted alcohol and other drug treatment services?

Measures put in place to reduce the transmission of COVID-19 introduced new challenges for clinicians and clients accessing AOD treatment services and opioid pharmacotherapy. These challenges included:

- regulatory changes to support treatment delivery

- maintaining effective social distancing measures, particularly where people are required to visit a dosing site daily.

Impact of COVID-19 on alcohol and other drug treatment services

In response to COVID-19 restrictions, AOD treatment service providers across all jurisdictions have made changes to modes of treatment delivery. The aim is to support flexible treatment delivery and maintain the health and safety of clients and treatment service providers. While these changes varied across jurisdictions, changes included:

- decreased bed capacity at residential rehabilitation and withdrawal services, or closure of these services for a period of time
- ceased or reduced intake of new clients to residential rehabilitation and withdrawal services
- adoption of telehealth including using phone, online and video conferencing (to deliver services in the place of face-to-face contact)
- group sessions were cancelled, or moved to telehealth forums
- prescription review periods increased
- increased wait-time periods between referrals and admissions to AOD treatment due to reduced capacity.

Impact of COVID-19 on opioid pharmacotherapy

In response to COVID-19 restrictions, states and territories made temporary changes to opioid pharmacotherapy treatment guidelines and regulations. The aim was to support flexible treatment delivery and maintain the health and safety of patients and prescribers. While the implementation of these amended guidelines and regulations vary across jurisdictions, changes to pharmacotherapy treatment in the context of COVID-19 have included:

- extending prescription duration
- increasing the number of takeaway doses
- arranging home delivery of medication
- considering changing clients to buprenorphine LAI wherever appropriate
- a transition to online delivery modes for pharmacist training and education on administering opioid pharmacotherapy treatment
- the commencement of buprenorphine LAI under online supervision (with dosing administered in person at a pharmacy)
- introducing third-party collections for clients who may require self-isolation
- alleviating permit requirements for doctors taking over scripts from other doctors.

It is not yet known how COVID-19 will impact opioid pharmacotherapy treatment long-term.

Where do I go for more information?

For more information on alcohol and other drug treatment services and opioid pharmacotherapy in Australia, see:

- Alcohol and other drug treatment services in Australia: early insights
- National Opioid Pharmacotherapy Statistics Annual Data collection
- Alcohol, tobacco & other drugs in Australia

Visit Alcohol & other drug treatment services for more on this topic.

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AIHW (2022a) *Alcohol and other drug treatment services in Australia: Early insights*, AIHW, Australian Government, accessed 14 April 2022.

AIHW (2022b) *National Opioid Pharmacotherapy Statistics Annual Data collection*, AIHW, Australian Government, accessed 30 March 2022.

Cancer screening

Find the most recent version of this information at:
https://www.aihw.gov.au/reports/australias-health/cancer-screening-and-treatment

Cancer is a major cause of illness in Australia – there are over one million people alive in Australia who are either living with or have lived with cancer (AIHW 2021b). Latest data (2013–2017) show that 7 in 10 people diagnosed with cancer survive at least 5 years after diagnosis, up from 5 in 10 around 30 years ago (AIHW 2021b).

Understanding and avoiding the risk factors associated with cancer can help to reduce the chance of getting the disease. Cancer screening programs increase the likelihood of detecting cancer early, enabling better outcomes from treatments. Improvements in treatments and care are also important contributors to improvements in survival. This page focuses on cancer screening programs in Australia. See Cancer for information on cancer incidence, mortality, prevalence and survival.

Cancer screening

Population-based cancer screening is an organised, systematic and integrated process of testing for signs of cancer or pre-cancerous conditions in populations without obvious symptoms. In Australia, there are national population-based screening programs for breast, cervical and bowel cancers. They are run through partnerships between the Australian Government and state and territory governments. The programs target populations and age groups where evidence shows that screening helps to reduce ill health and deaths from cancer. This is achieved through the early detection of cancer, which allows for early intervention and treatment, thereby improving outcomes.

BreastScreen Australia

BreastScreen Australia provides free 2-yearly screening mammograms (see Glossary) to women aged 40 and over, and actively targets women aged 50–74.

Between 1 January 2018 and 31 December 2019:

- More than 1.8 million women aged 50–74 participated in BreastScreen Australia – around 55% of the target population (AIHW 2021a, 2021d).
- Just over 23,000 Aboriginal and Torres Strait Islander women participated in BreastScreen Australia, which was 38% of the target population. Following age-standardisation to aid in comparisons, participation in BreastScreen Australia for Aboriginal and Torres Strait Islander women was 30% lower than participation for non-Indigenous women.
- Participation in BreastScreen Australia varied across areas of Australia. Around 42% of women living in *Very remote* areas participated in BreastScreen Australia compared with 57% of those living in *Inner regional* and *Outer regional* areas, and

around 46% of women who spoke a language other than English at home participated in BreastScreen Australia compared with 56% of women who spoke only English at home (age-standardised rates) (AIHW 2021a).

In 2019, more than half (60%) of all breast cancers detected through BreastScreen Australia were small (≤15 mm); small breast cancers are associated with more treatment options and improved survival (AIHW 2021a).

National Cervical Screening Program

People with a cervix are at risk of cervical cancer and constitute the population eligible for cervical screening. People with a cervix may include women, transgender men, intersex people, and non-binary people, hereafter respectively referred to as 'people' in this section.

From its commencement in 1991 to 30 November 2017, the National Cervical Screening Program (NCSP) targeted people aged 20–69 for a 2-yearly Papanicolaou smear, or 'Pap test' (see Glossary).

A renewed NCSP which targets people aged 25–74 for a 5-yearly Cervical Screening Test was introduced on 1 December 2017. A Cervical Screening Test is a human papillomavirus (HPV) test, followed by a liquid-based cytology test if oncogenic (cancer-causing) HPV is found (see Glossary).

Participation in this renewed program cannot be properly reported until there are 5 years of data available. In the interim, preliminary estimates have been calculated; the most recent being a 3-year estimate of participation for 2018–2020.

- Over the 3 years 2018–2020, more than 3.8 million people aged 25–74 had a screening HPV test, which is an estimated 56% of the eligible population (AIHW 2021e, 2021d).
- Participation varied across areas of Australia. Participation was highest in *Major cities* (56%) and lowest in *Very remote* areas (46%), and participation ranged from 50% for people living in the lowest socioeconomic areas to 62% for people living in the highest socioeconomic areas (age-standardised rates) (AIHW 2021e).
- In 2020, for every 1,000 people screened, around 16 had a high-grade abnormality detected, providing an opportunity for treatment before possible progression to cervical cancer (AIHW 2021e).

National Bowel Cancer Screening Program

The National Bowel Cancer Screening Program (NBCSP) was established in 2006, offering screening to 2 target ages (55 and 65). In 2014, the Australian Government announced that the target ages would be expanded to offer 2-yearly screening to all Australians aged 50–74. This expansion was completed in 2020.

In 2019–2020 (the latest reportable period, for which preliminary data are available), the program invited men and women turning 50, 52, 54, 56, 58, 60, 62, 64, 66, 68, 70, 72 and

74 to screen for bowel cancer using a free immunochemical faecal occult blood test (iFOBT) (see Glossary).

- Since the expansion of the program from 2014, the NBCSP participation rate increased from 39% in 2014–2015 to 43.5% in 2018–2019. It then declined to 41.6% in 2019–2020 (preliminary rate) (AIHW analysis of NCSR 2021).
- Participation in the NBCSP varied between population groups (AIHW analysis of NCSR 2021):
  - Around 22.9% of invited people living in *Very remote* areas participated in the NBCSP compared with 45.3% of those living in *Inner regional* areas.
  - The participation rate was highest for people living in the highest socioeconomic areas (43.6%) and lowest for those living in the lowest socioeconomic areas (38.8%).
- Of the diagnostic assessment data available, for participants in 2020 who underwent a diagnostic assessment after a positive screen, 1 in 90 (1.1%) were diagnosed with a confirmed or suspected bowel cancer, and 1 in 20 (5.2%) were diagnosed with an adenoma (pre-cancerous tumour) (AIHW analysis of NCSR 2021). The return of NBCSP forms is not mandatory, and as a result these diagnostic assessment data (adenoma and cancer detection rates) are incomplete.
- Participants who identified as being Indigenous Australians, as well as participants who lived in *Very remote* areas and participants who lived in low socioeconomic areas all had higher rates of positive screens (warranting further assessment), but lower rates of follow-up diagnostic assessment, and a longer median time between a positive screen and assessment (AIHW analysis of NCSR 2021).

How effective are the cancer screening programs?

National cancer diagnosis data do not reveal if a new case of cancer was identified through a screening program. This information can currently only be determined using data linkage. Linkage work conducted by the AIHW examined the effectiveness of the 3 national cancer screening programs on cancer mortality (AIHW 2018).

- Women aged 50–69 who were diagnosed with a breast cancer through BreastScreen Australia between 2002 and 2012 had a 42% lower risk of dying from breast cancer by 2015 than women with breast cancers who had never been screened (AIHW 2018).
- Most cervical cancers diagnosed in women aged 20–69 between 2002 and 2012 (more than 70%) occurred in women who had never screened or who were lapsed screeners (AIHW 2018).
- People aged 50–69 who were diagnosed with a bowel cancer detected through the NBCSP between 2006 and 2012 had a 40% lower risk of dying from bowel cancer by 2015 than those with a bowel cancer who had not been invited to screen during the study period (AIHW 2018).

Further data linkage work is needed to continue to monitor cancer screening outcomes over time, and as more data become available. The AIHW is currently progressing a data linkage project that will examine adverse events after NBCSP-related colonoscopy; a data linkage project that will allow more complete monitoring of bowel and cervical screening programs as well as monitoring the impact of HPV vaccination; and another data linkage project that will provide more detailed analysis of breast screening behaviour and cancer outcomes, including among Aboriginal and Torres Strait Islander women.

How has the COVID-19 pandemic impacted the cancer screening programs?

The COVID-19 pandemic has affected many areas of people's lives, including their access to, and use of, health services such as cancer screening programs. The AIHW has examined the impact of the COVID-19 pandemic on the number of cancer screening tests performed from January 2020 to September 2020, during which period many health care services suspended or changed the way they delivered their services (AIHW 2021c).

BreastScreen Australia services were suspended from March 25th until late April or early May 2020 due to COVID-19 restrictions. After this time breast screening resumed in a staged approach, with longer appointments and precautionary measures to ensure the safety of women and staff. The COVID-19 pandemic and suspension of BreastScreen services had a clear impact on breast cancer screening, with fewer screening mammograms performed through BreastScreen Australia between April and August 2020 than the same period in 2018 (the latest comparable year) (AIHW 2021c).

There was no suspension of the NCSP due to COVID-19 at any time during 2020. However, the Cervical Screening Test is usually carried out by a person's general practitioner (GP). While GP services continued during the pandemic, there was an increased use of telehealth consultations, and cervical screening tests require in-person consultations. The impact of the COVID-19 pandemic on participation in the NCSP is unclear, but there is some indication that the number of screening HPV tests may have been reduced (AIHW 2021c).

There was no suspension of the NBCSP at any time during 2020. Eligible people are invited to participate with an at-home test kit, and people must leave their homes to mail their completed test kit to a pathology laboratory. Due to inconsistent weekly invitation volumes over this period, it was not possible to determine what impact the COVID-19 pandemic had on the NBCSP between January and September 2020 (AIHW 2021c).

Recent information about the volume of activities undertaken in each of the 3 population-based screening programs is published quarterly by the AIHW (AIHW 2021d). This includes the number of screening mammograms conducted, primary screening HPV tests completed, and bowel screening kits sent and returned each month. To better understand the impact of COVID-19 on cancer screening, activity data needs to be considered in the context of COVID-19 social restrictions and interruptions to services, as well as broader program-specific factors. These factors include seasonal variation in screening, changes in program methodology, and changes to data sources.

The full impact of the COVID-19 pandemic on cancer incidence and mortality requires additional data sources, and cannot be known until longer-term data are available.

For more information about how the pandemic impacted cancer screening, see 'Chapter 5 How the health of Australians changed during the COVID-19 period: a focus on changes in longer-term trends' in Australia's health 2022: data insights.

Where do I go for more information?

For more information on cancer screening, see:

- National Bowel Cancer Screening Program: monitoring report 2021
- BreastScreen Australia monitoring report 2021
- National Cervical Screening Program monitoring report 2021
- Analysis of cancer outcomes and screening behaviour for national cancer screening programs in Australia
- Cancer screening and COVID-19 in Australia
- National cancer screening programs: quarterly data
- Cancer in Australia 2021

Visit Cancer screening and Cancer for more on this topic.

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Digital health

Find the most recent version of this information at:
https://www.aihw.gov.au/reports/australias-health/digital-health

Australia’s health sector has a long history of using innovative technologies to improve health care delivery. Digital health technologies have been effective in improving the availability and accessibility of health care services and products, particularly during the COVID-19 pandemic. Digital health is important to empower health care users and providers to better manage health outcomes, as well as strengthen data systems across the health sector.

This page highlights why digital health is important, the progress of digital health in Australia, and the challenges and opportunities for the effective use of digital health.

What is digital health?

Digital health is an umbrella term referring to a range of technologies that can be used to treat patients and collect and share a person’s health information. In Australia, digital health has a broad scope, and includes:

- mobile health and applications (such as SMS reminders via mobile messaging, wellness apps, Medicare Online and COVID check-in apps)
- electronic prescribing
- electronic health records (including My Health Record)
- telehealth and telemedicine
- wearable devices (such as fitness trackers and monitors)
- robotics and artificial intelligence.

Why is digital health important?

Digital health, when used effectively, has the potential to lead to better health and health outcomes for health care users and better provision of services from health care providers. It can also increase quality and efficiency of information sharing across the health system, ranging from increased accessibility for health care users and health care providers to greater interconnectedness of health data across and between services.

Health care users

Digital health technology can assist health care users to be informed and empowered to participate in their own health and health care. For example, telehealth and telemedicine services can reduce some physical, distance and time barriers by enabling remote consultations. Wearable devices and online applications can assist users to monitor their own symptoms or vital signs, upload information for their health practitioner to assess, and make healthy life choices related to diet, activity and sleep.

Health care providers

Digital health supports improved communication between health care providers, health care services and health care users. Digital health technology can help health care providers to practice patient-centred care, ensure continuity of care and reduce waiting times by:

- streamlining and improving the timeliness of access to health care users' data and information
- providing real-time decision support for improved clinical decision making and patient safety
- providing digitally enabled patient screening and medication alerts.

Health systems

Digital health can improve the functioning and efficacy of the broader health system by ensuring individual platforms can speak to and understand each other (interoperability – see 'Interoperability and data development' for more information). Efficient and accurate sharing of health information within and between health services, enabled by digital health, allows the system as a whole to function more effectively, respond more quickly to emergencies and public health threats, and better understand service needs in real time. Digital health enabled reporting can also inform health system performance and quality indicators.

Case study: A health care user's journey using digital health (Part 1)

Chris* has some symptoms they are concerned about, so decides to look them up on the healthdirect Symptom Checker. Chris also makes an appointment with their local general practitioner (GP) through a smartphone booking application, and receives an appointment reminder by SMS beforehand. Chris attends their appointment, and following a discussion and assessment, Chris's GP provides an electronic prescription and uploads a shared health summary to their My Health Record to reflect the medication change. Chris attends their local pharmacy and provides an e-token to the pharmacist, who dispenses their medicine. Additionally, Chris's GP has suggested 30 minutes of light activity each day to support their wellbeing: Chris uses their smartwatch and a fitness application on their smartphone to keep track of their activities and heart rate.

Chris's digital health journey highlights the tools and technology that are available and accessible to both the health care user and providers, and the good health outcomes that can be achieved through the interconnectedness of health care data.

*Fictional person

Digital technology in the Australian health system

Australia has an important history with digital technology in the health system, from the pedal-powered radio in 1929 to electronic-prescribing and COVID-19 vaccine passports in 2021. These technical developments are supported by initiatives such as My Health Record and the establishment of the Australian Digital Health Agency (the Agency). Recent developments in digital health technology and services in Australia include:

- **Electronic prescribing**, an option for health care professionals, pharmacies and patients to use an electronic prescription as an alternative to paper prescriptions.
- **Medicare online**, a portal to claim, update, and access health statements through an online account.
- **COVID-19 Vaccine Clinic Finder**, a national portal providing a complete list of all clinics in Australia, which allows consumers to compare clinics, check availability and book an appointment in one place.
- **Secure messaging** of clinical information, which allows for the secure, encrypted exchange of information between health professionals.
- **COVID-19 digital certificates**, a digitally accessible proof of COVID-19 vaccination administered in Australia.
- **My Health Record**, a secure digital health record where key health information can be stored and accessed by an individual and their authorised health care providers. When kept up to date, it can provide a more complete picture of an individual's health, and is available when and where it is needed, including in an emergency.

Impact of COVID-19

In response to the COVID-19 pandemic, the Australian Government added a number of temporary Medicare-subsidised items to help health care practitioners deliver, and patients receive, telehealth services via phone or video conferencing (Department of Health 2020). Health care providers able to provide telehealth services to health care users include general practitioners (GPs), specialists, allied health providers, mental health professionals, nurse practitioners and participating midwives.

Digital health tools, such as the COVIDSafe app, check-in apps, online vaccine booking systems, messaging services relaying COVID test results and quarantine advice increased the accessibility and streamlined the delivery of information to the public during the COVID-19 pandemic.

Challenges and opportunities

Digital health technologies present many benefits to health care and service delivery in Australia and globally. However, there are some challenging areas that need further development to ensure the future of digital health. These are:

- **Access**, not everyone has the same opportunity or ability to use the technology required to utilise digital information.
- **Interoperability and data development**, to ensure seamless and accurate transfer of information with shared meaning between systems.
- **Data literacy and data citizenship**, relating to the understanding of personal data and its use, access, sharing and ownership.
- **Security and privacy**, to protect sensitive information from both unintentional and malicious disclosure.

Access

Health providers' and consumers' access to, and engagement with, digital health technology is heavily dependent on internet access, on devices that are up to date and secure, with the appropriate knowledge and confidence to utilise and understand information.

Health consumers who are inexperienced with technology, experience disadvantage due to socioeconomic factors, or those with a disability, cognitive impairment, dementia, or mental health issues, could find access and use of rapidly advancing technology even more challenging to navigate, and an additional barrier to accessing digital health services.

The National Digital Health Strategy notes that all health consumers should benefit from the advantages of engaging with the digital health system, and the strategic priorities are aimed at improving accessibility and utilisation for all population groups, regardless of status or ability.

Interoperability and data development

Advances in digital health technology have made it possible for Australians to better access, transmit and record health information (Services Australia 2021). Now and in the future, high quality digital information remains an important aspect of health care. In particular, improvements in standardising and transmitting health information could lead to better information sharing and use across the health care system. Interoperability and data development are key to these improvements.

Interoperability can be technical (the ability of two or more systems to communicate) or semantic (the ability for communication to be meaningful and accurate). Both are integral to the effective transfer of information between patients, practitioners, providers and services, and rely on robust and consistent underlying technical specifications and data standards. Interoperability features in the strategic priorities of the National Digital Health Strategy and National Healthcare Interoperability Plan, aim to increase the availability and exchange of health data and information, and improve the delivery of health care.

Data development encourages the use of standardised health data definitions, as an important foundation for shared understanding of health data and information, and achieving semantic interoperability. The AIHW has recently updated its Metadata Online Registry (METEOR), to improve the accessibility and utility of standardised health (and other sector) data definitions in an increasingly digitally enabled environment.

See also Chapter 10: Health information in Australia: an evolving landscape with an integrated future in Australia's health 2022: data insights.

Data literacy and data citizenship

In the digital health context, the ability for data and information to be more easily shared and used means that concepts of data literacy (the ability to interpret and understand health data), data citizenship for the health care user (engaging with and using own health data in a meaningful, informed, consented and empowered manner), and data citizenship for the health care provider (understanding the ethics, governance and legal requirements for health data management) are becoming increasingly important. Increased data literacy and citizenship encourages active participation in digital health applications, empowering individuals to share, access and engage with technologies as part of their own health care and wellbeing journey. See also Health literacy.

One area that challenges participation is the perceived risk to privacy associated with data sharing in a digital environment.

Security and privacy

Data privacy, protection and security are more important than ever. In an environment of heightened community awareness around data collection, new data sources, methods, and technologies, digital health systems must support safe storage and sharing of data to meet legislative requirements and encourage public trust.

Data containing identifiable information about a person must comply with the Commonwealth *Privacy Act 1988* and the Australian Privacy Principles, which applies to all health care providers in the private sector throughout Australia. For public health care providers, most states and territories have their own equivalent legislation. Data security and privacy guidelines provided by the National Health and Medical Research Council also ensure appropriate use of health information.

Case study: A health care user's journey using digital health (Part 2)

Chris*, like many Australians, experienced some health problems and chose to engage with several programs and applications within the digital health environment. Also like many others, Chris is interested in what happens to their personal health information once it enters the digital sphere.

By accessing My Health Record, Chris learns their information can be securely stored and transferred digitally (system interoperability), and understands their personal data could be accessed and used by health care providers who understand the ethics, governance and legal requirements for managing health data (data citizenship). Chris also learns their sensitive information is only collected or disclosed with their consent, or where collection is required or authorised by law, in accordance with the Australian Privacy Principles in the *Privacy Act 1988*.

In doing so, Chris has improved their own ability to interpret and understand their own health data (data literacy), and feels empowered to use this data in a meaningful and informed way (data citizenship). Chris also knows security and privacy are very important in the digital health environment, and understands how their sensitive information is protected from disclosure.

*Fictional person

Where do I go for more information?

For more information on digital health, see:

- Australian Digital Health Agency National Digital Health Strategy
- My Health Record
- Department of Health, Health technology
- Department of Health, Electronic Prescribing

References

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Services Australia (2021) *Getting started with digital health*, Services Australia website, accessed 7 February 2022.

General practice, allied health and other primary care services

Find the most recent version of this information at:
https://www.aihw.gov.au/reports/australias-health/primary-health-care

Primary care is the first contact a person has with the health system. It is often synonymous with general practice, however the sector covers a range of public, private and non-government health services and health service providers. These include nursing, midwifery, pharmacy, dentistry, Aboriginal health services, and allied health. Primary care may be delivered in a range of settings, including aged care, disability care and the community.

This page presents primary care service use, experience of care, expenditure, information gaps and emerging developments. It focuses on Medicare-subsidised general practitioner (GP), allied health, nursing, midwifery and Aboriginal Health Worker services. While these data are comprehensive and provide useful insights, outside of these sources data on primary health services are limited. For more information, see Data and information gaps and the future of primary health care.

For related primary care information, see Oral and dental health, Indigenous health and wellbeing, Pathology, imaging and other diagnostic services, Health expenditure and Health workforce.

What is the difference between primary health care and primary care?

The World Health Organization defines primary health care as ‘a whole-of-society approach to health that aims at ensuring the highest possible level of health and well-being and their equitable distribution by focusing on people’s needs and as early as possible along the continuum from health promotion and disease prevention to treatment, rehabilitation and palliative care, and as close as feasible to people’s everyday environment’ (WHO and UNICEF 2018).

Primary care describes the first point of contact an individual has with the health system (Department of Health 2021), and is a subset of primary health care. It relates to the treatment of non-admitted patients in the community.

This page focuses on primary care data and includes some information relating to the more holistic concept of primary health care, such as patient experience.

Primary care service use

In 2020–21, there were around 256 million Medicare-subsidised primary care services in Australia, including, but not limited to, GP attendances (171 million), allied health attendances (27 million) and services provided by nurses, midwives and Aboriginal health workers (4.3 million) (AIHW 2021b).

General practice

A GP is often the first point of contact in the health system.

In 2020–21, 85% of Australians received at least one Medicare-subsidised GP service, a decrease from 2019–20 (87%) (AIHW 2021b).

Across Australia in 2020–21:

- Females (88%) were more likely to see a GP than males (81%) and received more Medicare-subsidised GP services per person (7.6, compared with 5.7 for males).
- The number of GP Medicare-subsidised services per person increased with age and was highest for those aged 80 and over (17.8 services per person).
- A lower proportion of those living in metropolitan Primary Health Network (PHN) areas had a Medicare-subsidised GP attendance (84%), compared with regional PHN areas (87%). (AIHW 2021b).

Of the 171 million GP attendances in 2020–21:

- The most common type of attendance was a Level B consultation (a consultation that lasts less than 20 minutes) (108 million).
- A total of 58,000 were Medicare-subsided telehealth services (video conference consultations) (AIHW 2021b).

Allied health

The allied health sector represents a range of services provided by health practitioners who are generally university qualified and with specialised expertise in preventing, diagnosing and treating a range of conditions and illnesses. Allied health professions include psychologists, optometrists and physiotherapists.

In 2020–21, 39% of Australians received at least one Medicare-subsidised allied health service. This was an increase from 2019–20 (36%) (AIHW 2021b).

Across Australia in 2020–21:

- Females (44%) were more likely to see an allied health professional than males (33%), and received more Medicare-subsidised services per person (1.3, compared with 0.8 for males).
- The number of allied health Medicare-subsidised services per person increased with age, and was highest for those aged 80 and over (2.5 services per person).

- The number of allied health Medicare-subsidised services provided per person was similar in metropolitan and regional PHN areas (at around one service per person) (AIHW 2021b).

Of the 27 million Medicare-subsidised allied health services provided:

- The most common type of service was optometry (10.4 million).
- Psychology accounted for more than 6.5 million services, while Podiatry and Physiotherapy both had more than 3 million services each (AIHW 2021b).

Nursing, midwifery and Aboriginal health workers

This section includes information on Medicare-subsidised services provided in non-admitted patient settings by:

- nurse practitioners, registered nurses with experience in a clinical specialty
- midwives, registered health professionals who care for women's health and wellbeing during pregnancy and childbirth
- practice nurses/Aboriginal health workers, registered or enrolled nurses, Aboriginal and Torres Strait Islander health practitioners, or Aboriginal health workers employed in general practice.

In 2020–21, 8.3% of Australians received at least one Medicare-subsidised nursing, midwifery or practice nurse/Aboriginal health worker service. This was an increase from 2019–20 (7.8%) (AIHW 2021b).

Across Australia in 2020–21:

- Nurse practitioners provided almost 750,000 services subsidised by Medicare, up from around 660,000 services in 2019–20. This represents 2.9 services per 100 people in 2020–21, up from 2.6 in 2019–20.
- There were over 170,000 midwifery services subsidised by Medicare, a 43% increase from 2019–20 (over 120,000).
- There were 3.4 million practice nurse/Aboriginal health worker Medicare-subsidised services provided, up from 3.1 million services in 2019–20. This represents 13 services per 100 people in 2020–21, up from 12 in 2019–20 (AIHW 2021b).

COVID-19 and primary care service use

Primary care has played a central role in the health care response to COVID-19, and the pandemic has changed the way primary care services are delivered. In 2020–21:

- The proportion of people who reported that they delayed or did not use a GP service or an after-hours GP service when needed due to COVID-19 was 9.8% and 7.3%, respectively (ABS 2021).
- Females were more likely to delay or not use GP services when needed due to COVID-19 than males (13% and 7%, respectively). This was the same for after- hours GP services (8.5% and 5.4%, respectively) (ABS 2021).

- Following the introduction of telehealth Medicare-subsidised items in March 2020 in response to the pandemic, more than one-third (36%) of GP services were delivered via telephone or video-conference in April 2020, up from 8.0% in March 2020 (AIHW 2020).

As at 22 March 2022, 63% of COVID-19 vaccine doses in Australia were administered in primary care settings (Department of Health 2022).

Barriers to GP service use, and experience of care

For Australian health users, cost and waiting times are often a reason for delaying or not using a GP service.

In 2020–21:

- A total of 2.4% of people who needed to see a GP delayed or did not see a GP due to cost. This was a decrease from 2019–20 (3.7%).
- 3.1% of people with a long-term health condition who needed to see a GP delayed or did not see a GP due to cost. This was higher than for those without a long-term health condition (1.3%).
- 16.6% of people felt they waited longer than acceptable for a GP appointment (ABS 2021).

Expenditure on primary care services

In 2019–20, approximately one-third of all health spending in Australia was for primary care ($66.9 billion) (AIHW 2021a). Of this:

- $13.3 billion was for unreferred medical services (mainly general practice).
- $12.9 billion was for subsidised pharmaceuticals.
- $11.9 billion was for other medications.

In 2020–21, $17 billion were paid in Medicare benefits for primary care services, inclusive of GP, allied health and other primary care attendances (AIHW 2021b). The majority of this expenditure was for GP attendances ($8.8 billion, or 51%), followed by diagnostic imaging ($4.2 billion, or 24%), specialist attendances ($2.3 billion, or 14%) and allied health ($1.8 billion, or 10%).

Data and information gaps and the future of primary health care

Although primary health care is an important component of Australia’s health care system, the availability of primary health care data remains limited.

This page focuses on Medicare-subsidised primary care services and the ABS Patient Experience Survey as data sources with national coverage. However, it is not a complete nor comprehensive source of primary care or primary health care information in

Australia. For example, information from private health insurance sources, state and territory funded community health data Aboriginal health services are out of scope for this page. This information may be integrated in future years, as data development work conducted by the AIHW provides a robust platform for further insights into primary health care information in Australia.

Notably, the AIHW is leading the development of a Primary Health Care Information System, and the creation of a National Primary Health Care Data Collection (Data Collection) to improve primary health care data and address information gaps. The Data Collection will aim to fill data and information gaps relating to primary care and be an accessible and value-added source of information.

The AIHW also releases information from the newly established national Practice Incentives Program Eligible Data Set, bringing together data provided by Primary Health Networks from general practices across 10 Quality Improvement Measures.

Ongoing work to improve primary health care data including establishing linked primary health care, hospitals, disability and aged care sector data, will enhance the evidence base for policy, planning and research underpinning the critical role of primary care in a sustainable, effective and coordinated Australian health system.

Where do I go for more information?

For more information on primary health care, see:

- Primary health care data development, for updates on the development of AIHW's National Primary Health Care Data Collection under the National Primary Health Care Information System
- Department of Health 10 Year Primary Health Care Plan

Visit Primary health care for more on this topic.

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Health care safety and quality

Find the most recent version of this information at:
https://www.aihw.gov.au/reports/health-care-quality-performance/health-care-safety-and-quality

The safety and quality of the care provided in Australia's health system is of utmost importance to all patients, their families and carers. A safe and high-quality health system provides the most appropriate and best-value care, while keeping patients safe from preventable harm.

Definitions

Safety: the avoidance or reduction to acceptable limits of actual or potential harm from health care management or the environment in which health care is delivered (NHIPPC 2017).

Quality: the degree to which health services for individuals and populations increase the likelihood of desired health outcomes, and are consistent with current professional knowledge (ACSQHC 2019).

Improving safety and quality

Australia's health system is relatively safe and high performing when compared to other countries but with some ongoing challenges. Data collated by the Organisation for Economic Co-operation and Development (OECD) across a number of health care quality and outcome indicator areas found that Australia generally performed better than other OECD countries across most indicators, but with some areas for improvement (AIHW 2022).

Ensuring the safety and quality of health care in Australia involves many agencies, professional groups and regulatory frameworks and is a regular focus of government policies. For example, the Australian Commission on Safety and Quality in Health Care (ACSQHC) provides leadership to improve the safety and quality of health care at the national level, the Australian Health Practitioner Regulation Agency administers the national registration system for health professionals and there are dedicated teams in states and territories and in individual health services that work to ensure the safety and quality of the care being provided across the system.

Performance and safety reporting

It is a key role of the AIHW to report a wide range of information on the many different dimensions of the performance of our health system. Monitoring the performance of the health system in this way helps inform governments, service providers and the public about how effective, efficient and appropriate the system is and whether it is achieving good outcomes for patients and the wider community.

Information, data and resources made available by the AIHW includes:

- Australia's health – AIHW's biennial report on the health of Australians
- a national 'front door' to information on Australia's health performance
- maintaining a set of nationally agreed health system indicators based around the Australian Health Performance Framework
- the MyHospitals webpages, which include detailed information on the characteristics and performance of the hospital system at the national, state and local levels.

Some specific measures of hospital performance include:

- *Staphylococcus aureus* ('golden staph') bloodstream infections
- hand hygiene compliance
- unplanned readmissions
- hospital-acquired complications.

Data are also available for potentially preventable hospitalisations which can be used as a measure of the accessibility and effectiveness of primary and community healthcare services.

Impact of COVID-19 on the health system

Much of the data that is available to the AIHW is also able to be used to examine the impact that COVID-19 has had on sectors within the health system which is relevant to exploration of the performance of the system as a whole.

- In some cases these are *direct* effects, such as the role of hospitals in managing the additional caseload of patients diagnosed with COVID-19, or reductions in the delivery of elective surgeries that have been required at various times to manage the resources available within the healthcare system.
- In other cases the impacts are *indirect*, for example, the reduction in injury presentations to emergency departments associated with public health orders which restricted activities, and the introduction of telehealth arrangements for some medical consultations which enabled continuity of care for many patients.

See 'Changes in the health of Australians during the COVID-19 period' or explore the links below for more information.

Patient experiences

Other important measures of the performance of the health system come from the patients themselves in the form of feedback on their outcomes and experiences with a range of healthcare providers. It has been an expectation for many years, for example, that under health service accreditation standards set by the ACSQHC that health services routinely survey patients to obtain the patient's perspectives on the care provided and their experiences as a patient.

The Australian Bureau of Statistics also conducts an annual Patient Experience Survey (PEx) covering various aspects of the health system, including hospitals and dental professionals.

In 2020–21, most people reported positive experiences of health care provided by their health care practitioners. For example:

- Over three-quarters of those who saw a general practitioner (77%) felt that their GPs always listened carefully to them, 83.5% felt their GPs always showed respect, and 78% felt their GPs always spent enough time with them.
- In relation to medical specialists, 81% felt that their specialists always listened carefully to them, 85% felt their specialists always showed respect, and 82% felt their specialists always spent enough time with them.

Following the expansion of the availability of telehealth services as a strategy to prevent the spread of COVID-19 infection, the 2020–21 PEx also included questions about patients' experiences using telehealth services. For those who had had a telehealth consultation with a GP or medical specialist, 84% reported that their telehealth practitioners always listened carefully, 87% reported that their telehealth practitioners always showed respect, and 83% reported that their telehealth practitioners always spent enough time with them.

The AIHW also reports on patient experiences with mental health services specifically, through the Your Experience of Service (YES) survey. For patient experiences with mental health services, see Mental health services in Australia.

Where do I go for more information?

For more information on safety and quality of health care, see:

- MyHospitals
- Australia's health performance
- International comparisons
- Patient experiences in Australia by small geographic areas in 2019–20

Visit Health care quality & performance for more on this topic.

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Health expenditure

Find the most recent version of this information at:
https://www.aihw.gov.au/reports/health-welfare-expenditure/health-expenditure

Health expenditure is money spent on health goods and services. It includes money spent by all levels of governments as well as non-government entities such as individuals, private health insurers, and injury compensation insurers. Health spending on goods and services includes hospitals (both public and private); primary health care (unreferred medical services, dental services, other health practitioners, community health, public health, and medications); referred medical services; other services (patient transport services, aids and appliances, and administration); research; and capital expenditure.

Health expenditure in 2019–20

The AIHW has been reporting on estimates of health spending in Australia for more than 3 decades. The annual estimates are based on data from the AIHW health expenditure database, which is a collation of more than 50 data sources that capture health spending by governments, individuals, private health insurers, and other private sources in each financial year (AIHW 2021b). Since data from some of the sources could only be obtained with a significant time lag (especially data from state and territory governments, as well as some Government Finance Statistics data), it normally takes between 15 to 18 months after the end of the financial year to release the health expenditure report. The most up-to-date report was Health expenditure Australia 2019–20.

Government COVID-19 health response

The initial impact of COVID-19 on the whole health system was analysed in Health expenditure Australia 2019–20. In addition, data on spending by governments on specifically identifiable COVID-19 programs are available for 2019–20 and 2020–21. Government COVID-19 spending in 2019–20 and 2020–21 includes:

- spending on the National Partnership on COVID-19 Response (NPCR): data from the National Health Funding Body (NHFB)
- Australian Government spending through Department of Health programs (including Medicare Benefits Scheme (MBS) and Pharmaceutical Benefits Scheme (PBS)).

Data do not include state and territory governments' spending outside the scope of the NPCR.

International comparison of health spending

Data for comparison are sourced from the Organisation for Economic Co-operation and Development (OECD). The OECD is a forum where governments come together to discuss a range of issues, such as health, with the aim of improving economic and social wellbeing of communities (OECD 2021a). The OECD currently has 38 member countries including Australia, which has been a member since 1971. For more information on the OECD, see the OECD website.

The OECD uses the System of Health Accounts (SHA) 2011 framework to collect and report data on health expenditure. This framework looks at the consumption, provision, and financing of health care (OECD et al. 2017). The most updated comparable data used on this page are for 2019 (the 2019–20 financial year).

Health spending in 2019–20

Australia spent an estimated $202.5 billion on health goods and services in 2019–20 – this is an average of approximately $7,926 per person. The real growth (adjusted for inflation) in total health spending (recurrent and capital) was 1.8% more than in 2018–19 and lower than the average annual growth rate over the decade to 2019–20 (3.4%).

In 2019–20, health spending accounted for 10.2% of the gross domestic product (GDP) in Australia, 0.2 percentage points higher than in 2018–19.

See Overview of Health expenditure Australia 2019–20 for more information.

In 2019–20, governments funded $142.6 billion of the total health expenditure (70.4%) with non-government sources funding the remaining $59.9 billion (29.6%).

Spending by source of funds

Of the total government funding in 2019–20, the Australian Government contributed $86.4 billion, with state and territory governments contributing $56.2 billion. In 2019–20, health spending by non-government entities (including individuals, private health insurers, injury compensation insurers and other private sources) decreased by 5.2% in real terms compared with 2018–19. Individuals were the largest contributor to this decline, with spending of $29.8 billion being 7.6% less than in 2018–19. Of the estimated non-government health spending ($59.9 billion) in 2019–20, individuals spent $29.8 billion (49.7%), private health insurers $16.7 billion (27.8%) and other non-government sources $13.5 billion (22.5%).

See Spending trends by source in Health expenditure Australia 2019–20 for more information.

Areas of health spending

In 2019–20, total health spending was distributed across health services, with estimates of:

- $83.5 billion on hospitals (41.2%)
- $66.9 billion on primary health care (33.1%)

- $20.2 billion on referred medical services (10.0%).

The remaining $31.9 billion (15.7%) was spent on other services, research, and capital spending.

The greatest increases in recurrent spending in 2019–20 were for:

- hospitals, a $2.3 billion (2.9%) increase in real terms. This growth in hospital spending appears to have been more related to government COVID-19 measures to ensure that the system was prepared than with routine hospital activity. The actual activity in hospitals declined in 2019–20 from 2018–19 levels (AIHW 2021a, 2021c, 2021d).
- primary health care, a $0.4 billion (0.6%) increase in real terms. Of the $66.9 billion spent on primary health care, $13.3 billion was on unreferred (mainly general practice) medical services, $12.9 billion on subsidised pharmaceuticals, $11.9 billion on other medications, $10.1 billion on community health, $9.5 billion on dental services, $5.6 billion on other health practitioners and $3.6 billion on public health.

See Trends by area of spending in Health expenditure Australia 2019–20 for more information.

Government COVID-19 health response

The pandemic impacted health spending in many ways, often through increasing the cost and complexity of service delivery in ways that are difficult to quantify. There were, however, some large COVID-19–specific response programs, such as the National Partnership on COVID-19 Response (NPCR) and spending on COVID-19–related programs by the Australian Government Department of Health. Over the period 2019–20 to 2020–21, there was an estimated $20.0 billion spent through these programs ($12.1 billion on the NPCR and $7.9 billion on the Department of Health programs) in current prices.

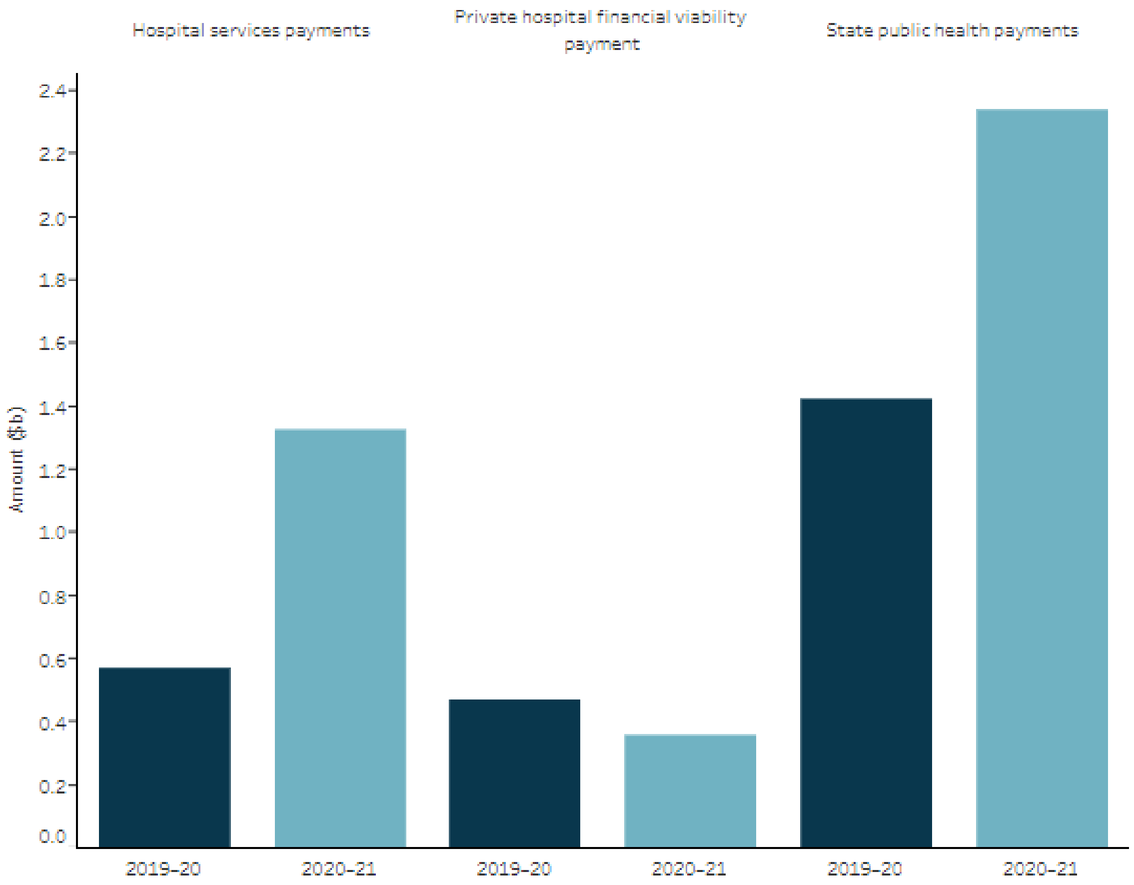
Spending on the National Partnership on COVID-19 Response

In 2019–20, spending on the NPCR was estimated to be $4.5 billion in current prices ($2.5 billion by the Australian Government and $2.0 billion by state and territory governments). Note that the pandemic only started about 4 months before the end of the 2019–20 financial year. During 2020–21, government spending through the NPCR was $7.7 billion ($4.0 billion by the Australian Government and $3.7 billion by state and territory governments) (Figure 1). The components of the Australian Government spending in 2020–21 were:

- hospital services payments ($1.3 billion, or 33.0%)
- state public health payments ($2.3 billion, or 58.1%)
- private hospital financial viability payment ($0.4 billion, or 8.9%).

As part of the NPCR, state and territory governments also funded $1.3 billion on hospital services payments and $2.3 billion on state public health payments.

Figure 1: Health spending on NPCR, current prices, 2019–20 to 2020–21



Source: Administrator's Jurisdictional Advisory Committee, NHFB (2022).
http://www.aihw.gov.au/

Australian Government spending through Department of Health programs

Total Australian Government spending through specific COVID-19 Department of Health programs (outside the NPCR) up to 2020–21 was estimated to be $7.9 billion in current prices ($1.7 billion in 2019–20 and $6.2 billion in 2020–21) (Figure 2).

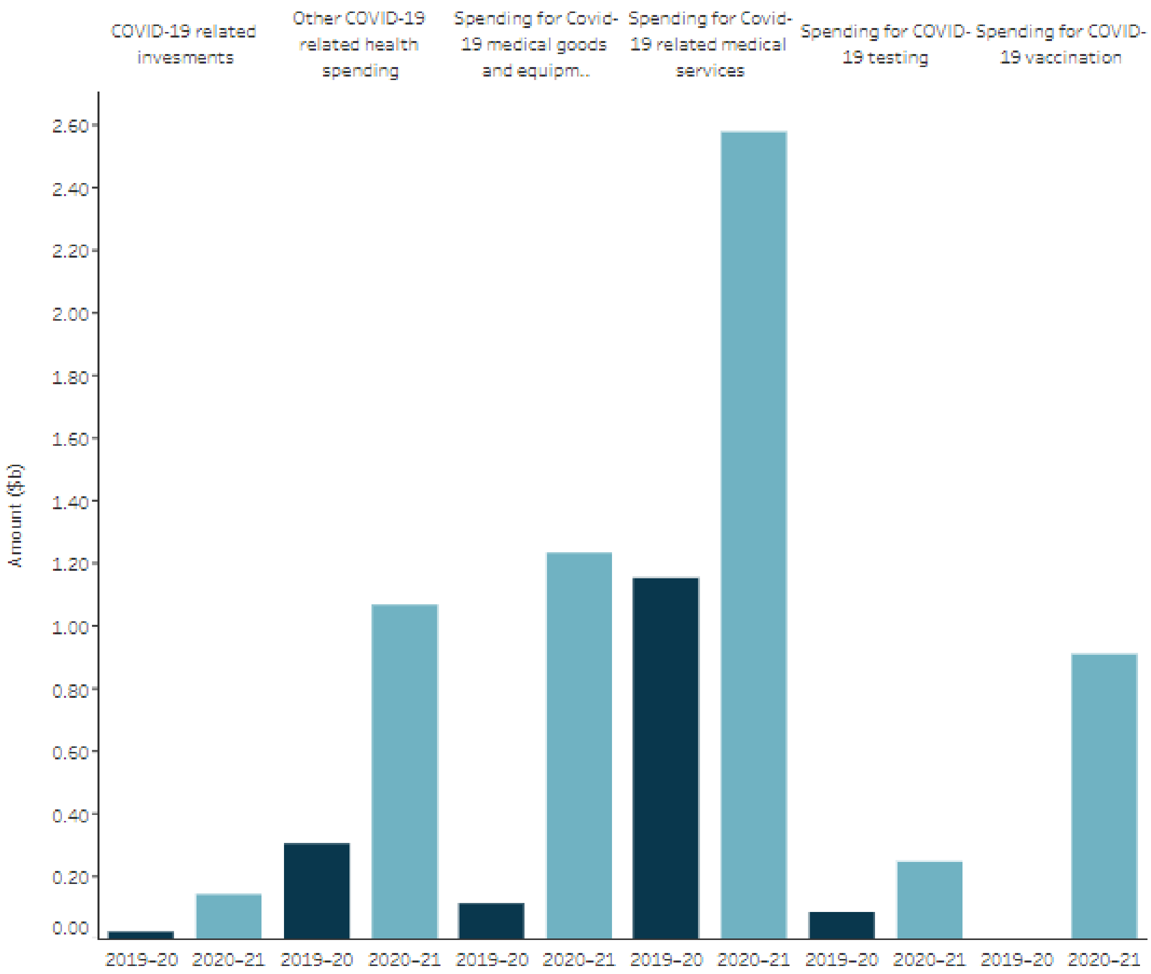
The distribution of the spending in 2020–21 included:

- 41.7% ($2.6 billion) on COVID-19–related medical services (mainly related to referred and unreferred medical services through MBS telehealth)
- 20% ($1.2 billion) on COVID-19 medical goods and equipment (mainly related to distributions of masks and personal protective equipment products for the national medical stockpile)

- 17.3% ($1.1 billion) on Other COVID-19–related health spending (largely related to mental health programs, public health mainly related to primary care respiratory clinics and a national communication campaign)
- 14.7% ($0.9 billion) on COVID-19 vaccinations (mainly provided access to, and delivery of, COVID-19 vaccines as part of the national rollout)
- 4% ($0.2 billion) on COVID-19 testing (mainly through MBS-funded COVID-19 testing)
- 2.3% ($0.1 billion) on COVID-19–related investments.

Note that COVID-19–related spending for aged care is outside the scope of this page. This also does not include COVID-19–related spending by other Australian Government agencies, which might fall into a broader scheme of economic response to COVID-19.

Figure 2: Australian Government spending through Department of Health programs, by areas of spending, current prices, 2019–20 to 2020–21



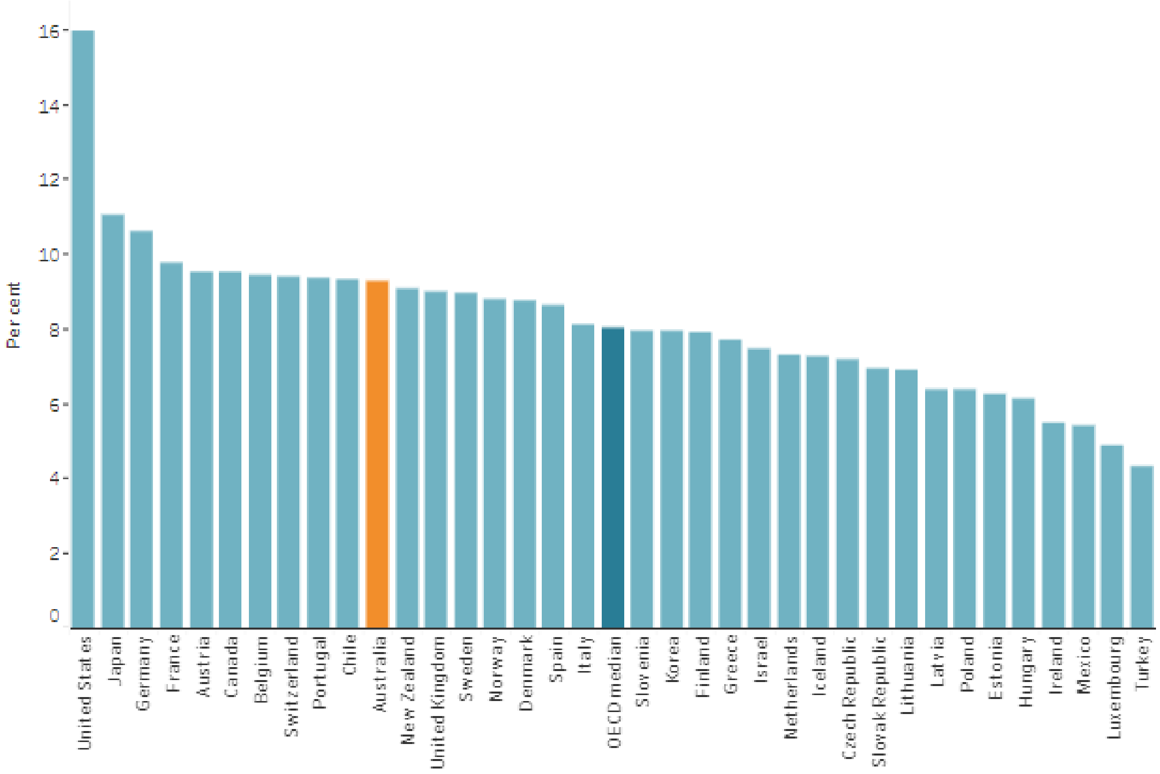
Source: AIHW Health Expenditure Database.
http://www.aihw.gov.au/

International comparisons

Using the OECD-SHA, Australia’s health spending to GDP ratio ranked 11th in 2019 and was between 17th and seventh among OECD countries from 2000 to 2019 (Figure 3). Note that comparable data are only available for 36 countries (excluding Columbia and Costa Rica) among 38 OECD member countries.

Figure 3: Health spending to GDP ratios and Australia’s rank among OECD countries, current prices and local currencies, 2000 to 2019

● Ratios (2019)
○ Ranking (2000 to 2019)



Notes
1. Comparable data are only available for 36 countries (excluding Columbia and Costa Rica) among 38 OECD member countries.
2. For comparison across OECD countries, health spending figures exclude spending by providers of long-term care facilities. Health spending figures in international comparisons are not comparable with data in other sections.
3. Due to the data revisions from some OECD countries, these ratios and rankings for OECD countries are not comparable to the previous reports.
4. Due to a difference in reference year and methodology, these ratios are not comparable to *Australia’s health expenditure: an international comparison (AIHW 2019).*
Sources: AIHW Health Expenditure Database; OECD 2021b
http://www.aihw.gov.au/

Where do I go for more information?

For more information on health expenditure, see:

- Health expenditure Australia 2019–20

- Australia’s health expenditure: an international comparison
- Disease expenditure in Australia 2018–19

Visit Health & welfare expenditure for more on this topic.

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Health promotion and health protection

Find the most recent version of this information at:
https://www.aihw.gov.au/reports/australias-health/health-promotion

A fundamental aim of any health system is to prevent disease and reduce ill health so that people remain as healthy as possible for as long as possible. The conditions in which we live, work and play influence our health behaviour and lifestyle choices.

Health promotion is a broad term. It focuses on preventive health – preventing the root causes of ill health – rather than on treatment and cure. Health promotion encompasses a 'combination of educational, organisational, economic and political actions' (Howat et al. 2003) to enable individuals and communities to increase control over and improve their health. This occurs with community participation through attitudinal, behavioural, social and environmental changes (Howat et al. 2003).

On this page, health protection is referred to as a subset of health promotion. Health protection is concerned with protecting individuals, groups and populations, using expert advice and collaboration to mitigate against emerging health threats related to infectious diseases, the environment as well as natural and 'human-made disasters' (Department of Health 2022a; Ghebrehewet et al. 2016). Health protection examples include banning smoking in public places and seatbelt legislation (McIntyre 2021).

Preventive health activities such as breast screening are also referred to. These types of activities may prioritise groups based on risk factors such as age or include all people in the population, such as vaccinations.

Priority populations

There are a number of different groups across society who experience social inequalities and disadvantage resulting in health inequity – the unfair and avoidable differences in health status (AIHW 2022). An important part of health promotion and health protection is to assess the needs of these groups and tailor programs, activities and policies accordingly to address these differences in health risk factors.

The National Preventive Health Strategy refers to these groups of people, as 'priority populations' which include, but are not limited to:

- Aboriginal and Torres Strait Islander people (see Indigenous health and wellbeing; Profile of Indigenous Australians; and Determinants of health for Indigenous Australians)
- Culturally and Linguistically Diverse (CALD) people (see Reporting on the health of CALD populations in Australia)
- Lesbian, gay, bisexual, queer, intersex and/or other gender diverse people

- People with mental health conditions (see Mental health)
- People in low socioeconomic groups (see Health across socioeconomic groups)
- People with disability (see Health of people with disability)
- People living in rural, regional and remote areas (see Rural and remote health).

What is the role of government?

All levels of government have an important role in overseeing health promotion and health protection, which can vary depending on the strategy or situation. For example, in health promotion, the Australian Government can impose fiscal measures such as taxes on items like cigarettes and alcohol to deter people from buying them – this is usually part of a broader strategy (see the tobacco control section). In late 2021, the Australian Government Department of Health launched the National Preventive Health Strategy 2021–2030, which provides a long-term approach to prevention in Australia.

Local government has responsibility for planning, building and designing new suburbs in their local area, which can harness urban design principles to promote opportunities for physical and mental wellbeing, such as through the provision of bike paths, or publicly available green space (see Built environment and health).

State governments have their own Public Health Acts, which aim to protect, promote and improve the health and wellbeing of the public in that jurisdiction, which are usually enforced by local government. State governments are also responsible for delivering preventive health services such as breast cancer screening, school-based immunisation programs and implementing settings-based measures for example, smoke-free laws.

Role of government in COVID-19

Under Australia's federal system, cooperative arrangements between governments are necessary to deal with emergencies (Department of Parliamentary Services 2020). In the event of an immediate threat to the health or welfare of Australians, such as the COVID-19 pandemic, the Australian Government has a role to provide national leadership, policy advice, analysis, coordination and communication, and will work in partnership with the state and territory governments to protect the health of Australians (Department of Health 2022b). At a Commonwealth level, the Biosecurity Act 2015 gives extensive powers to prevent and control the entry and spread of serious communicable disease in Australia. This was used as a mechanism to determine requirements for travel into and out of the country through international border closures (Twomey 2020).

In March 2020, the National Cabinet was established to respond to the evolving health crisis from the COVID-19 pandemic. It is chaired by the Prime Minister and comprises all state and territory premiers and chief ministers.

Multi-jurisdictional committees such as the Australian Health Protection Principal Committee (AHPPC) and associated committees such as the Communicable Disease Network Australia, the Public Health Laboratory Network and the Australian Technical Advisory Group on Immunisation have played a vital role in providing advice and expertise during the COVID-19 pandemic and supporting National Cabinet. These committees work with governments and a range of experts from across health disciplines and clinical institutions to adopt national health protection policies, guidelines and plans.

In addition to their Public Health Acts, the state and territories also use emergency legislation to respond to emergencies such as a pandemic (Twomey 2020).

Health promotion success stories

Australia has a long history of health promotion. Memorable campaigns such as 'Slip Slop Slap', 'Life. Be in It' and 'Every cigarette is doing you damage' are examples of population-targeted health promotion (AIHW 2018). The compulsory wearing of seatbelts in motor vehicles, random breath testing and 50 km/h residential street limits have been part of a more comprehensive road safety strategy, which uses both health promotion and health protection measures. Road deaths have reduced from 30 per 100,000 population in 1970 to 4.3 per 100,000 in 2020 (BITRE 2010, 2020).

Australia's response to Human Immunodeficiency Virus (HIV) is also an example of effective health promotion (Smith et al. 2016). Since the 1980s, health promotion and prevention principles have been integral to 8 National HIV Strategies (Department of Health 2018a), such as partnerships between government and non-government organisations, clinicians, researchers and political parties and 'active participation from affected communities' (Smith et al. 2016). This approach has helped Australia to achieve a relatively low HIV prevalence by international standards (Brown et al. 2014). In 2020, the estimated prevalence of HIV in Australia was 0.14% (Kirby Institute 2021).

Tobacco control

Burden of disease refers to the quantified impact of living with and dying prematurely from a disease or injury. In 2018, around 38 per cent of disease burden was preventable and due to modifiable risk factors, such as tobacco use, overweight and obesity, poor diet, high blood pressure or alcohol use (AIHW 2021). While tobacco use continues to contribute the greatest amount of fatal disease burden and deaths in Australia, with almost 20,500 attributable deaths in 2018, overweight and obesity contributed to the most non-fatal burden in both males and females (AIHW 2021).

Smoking remains a major risk factor in contributing to health inequalities experienced by certain population groups (see Tobacco; Rural and remote health and; Health across socioeconomic groups). A recent study estimating the smoking attributable mortality for Aboriginal and Torres Strait Islander people found that smoking causes half of deaths in older Indigenous populations (Thurber et al. 2021).

The tobacco control measures of all Australian governments and public health organisations have been key to Australia's success in tobacco control. Smoking rates have declined to historically low levels, particularly among children and youth. Between 1984 and 2017, the proportion of 16- and 17-year-olds smoking at least once in the previous week declined from 30% to 10%, and from 20% to just 3% among 12–15-year-olds (Guerin and White 2018; White and Williams 2016).

The latest data from the National Health Survey (NHS) 2020–21 estimates that 10.7% of Australians aged 18 and over are daily smokers (ABS 2021). Due to methodological issues these data cannot be compared with previous years, however rates have declined steadily over the last 30 years. The proportion of adults who are daily smokers has more than halved since 1989–90 from 28.4% to 13.8% in 2017–18 (NHS 2017–2018). For more information on Australia's smoking rates see Tobacco.

In recent decades, Australia has progressively implemented a comprehensive suite of tobacco control measures including (Figure 1):

- staged tobacco excise increases
- smoke-free laws and policies
- social marketing campaigns
- measures to minimise the illicit tobacco trade
- plain packaging of tobacco products
- labelling tobacco products with graphic health warnings
- prohibiting tobacco advertising, promotion and sponsorship
- providing support for smokers to quit (Department of Health 2018b).

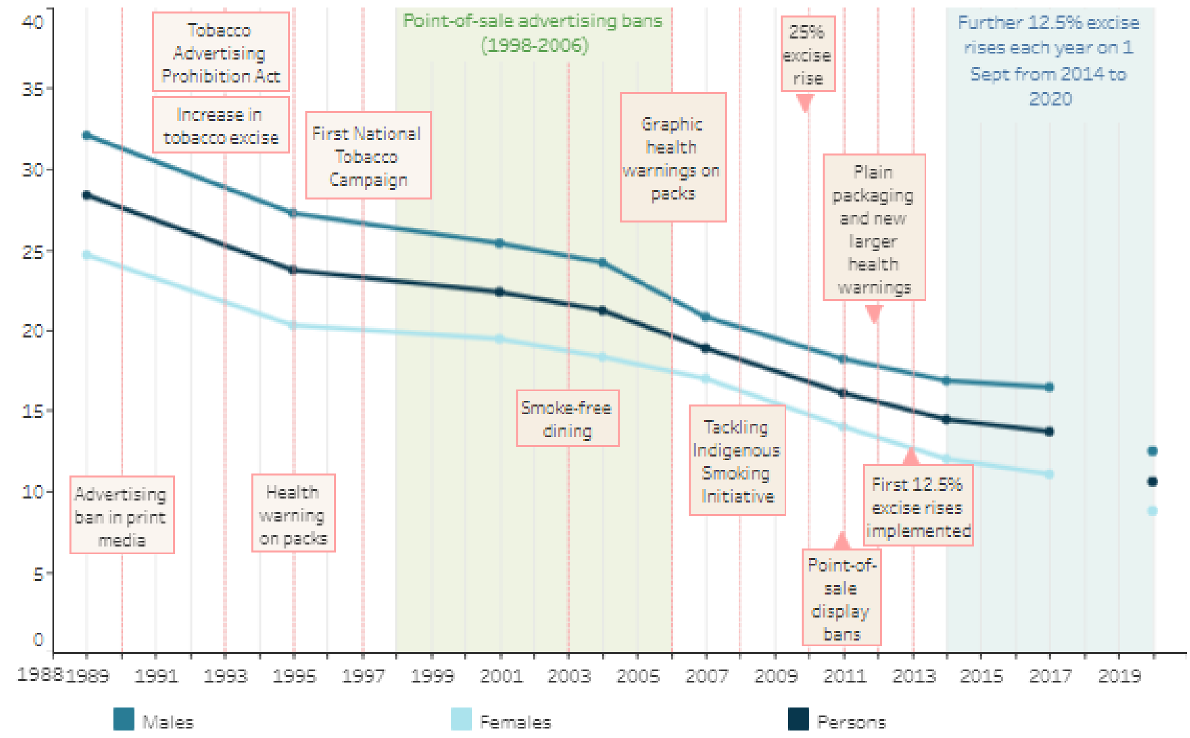
These measures form part of Australia's National Tobacco Strategy (NTS) 2012–2018. The NTS, which is currently being updated, provides a national framework for all Australian governments and non-government organisations to work together to improve the health of Australians by reducing tobacco use and its associated harms. These types of tobacco control measures can also be considered as health protection.

Novel and emerging products, such as e-cigarettes present new challenges to prevent and reduce nicotine addictions (Department of Health 2021). A recent systematic review of global evidence on the health effects of nicotine electronic cigarettes found that e-cigarettes increase the risk associated with a range of adverse health outcomes, particularly in younger people, including addiction and lung injury (Banks et al. 2022).

The National Preventive Health Strategy also highlights the Australian Government's commitment to reducing tobacco use and nicotine addiction as a priority and sets out targets to achieve a national daily smoking prevalence of less than 10% by 2025 and 5% or less for adults (aged 18 years and over) by 2030 as well as to reduce the daily smoking rate among Aboriginal and Torres Strait Islander people (≥15 years) to 27% or less by 2030.

Figure 1: Prevalence (crude and age-standardised) of daily smokers aged 18 and over, by sex and key tobacco control measures in Australia, 1989–90 to 2020–21

Filter
● Crude
○ Age-standardised



Notes:
1. For 1989–90 and 1995 'current daily smoker' has been reported using the category 'current smoker'. For those years, the definition of 'current smoker'—regularly smoking one or more cigarettes per day on average—aligns with the definition that has been used for the category 'current daily smoker' from 2001 onwards.
2. Proportions were age standardised to the 2001 Australian Standard Population.
3. The first National Tobacco Campaign was launched in June 1997 and aimed primarily to assist smokers aged 18-40 to quit.
4. Data for 2020–21 are not comparable with previous years due to methodological differences in data collection.
Sources: ABS 2019; Customised report: National Health Survey 1989-90, 1995, 2001, 2004-05, 2007-08, 2014-15, 2017-18; Australian Health Survey 2011-13; AIHW analysis of ABS 2021.
http://www.aihw.gov.au/

Health promotion and health protection measures and COVID-19

A range of immediate and tangible health promotion strategies were employed in response to the first wave of the COVID-19 pandemic in 2020 to minimise the spread of the disease, to ensure the health and wellbeing of all Australians during the pandemic and to reduce the strain on the health system.

These strategies have included the development of educational resources and social marketing campaigns to promote hand hygiene and social distancing (Smith and Judd 2020). The kind of messaging in a pandemic needs to instruct, inform and motivate individual self-protective behaviours and encourage behaviour change. Meeting the specific communication needs of sub-populations helps the quality of the societal response (Vaughan and Tinker 2009).

More broadly, wide-ranging policy, regulatory and legislative measures were introduced, and state-legislated Public Health Acts were also invoked, which provided Chief Health Officers with additional powers to obligate citizens' compliance with public health orders (ACT Health 2022) to prevent and contain the spread of the virus. There were also operational changes to settings where groups of people congregate, such as aged care, school classrooms and workplaces. Additionally individuals were expected to adhere to rules, such as wearing face masks in certain settings, staying at home during periods of lock down and using 'check-in' apps when entering a venue.

The public health protection measures have changed over time. A range of public health protection measures were implemented, adapted or eased at the discretion of jurisdictions in response to emerging evidence, new variants, and Australia's epidemiological situation (Department of Health 2022).

Australia's international borders were closed to all non-citizens and non-residents in March 2020 with exemptions only for immediate family (the international borders have since reopened). Under the Biosecurity Act 2015 requirements regarding air travel were introduced such as pre-flight COVID-19 testing for travellers entering Australia and requirements to wear face masks when flying internationally. The Department of Health publishes regular COVID-19 epidemiology reports which capture some of these point-in-time health protection measures.

COVID-19 vaccinations

As the pandemic progressed, safe and effective vaccines were developed and approved as another measure to protect the population against COVID-19 infection and to reduce transmission and severity of the virus. Under the Australian Government's phased approach, those in greatest need and/or at highest risk, such as health care and frontline workers, aged care residents, older Australians, Aboriginal and Torres Strait Islander people and other priority populations such as those with a disability or with existing chronic conditions were eligible for a vaccine in the first phases of the roll-out.

As the vaccines became more available to the general adult population, large public venues were reorientated to provide preventive health services for mass 'vaccination hubs' in places like the Brisbane Convention and Exhibition Centre, Sydney Olympic Park and Melbourne's Royal Exhibition Centre. This facilitated a more universal, equal and accessible approach for large-scale population vaccination. Commonwealth primary care providers, including General Practices and community pharmacies have delivered the majority of vaccinations in the program. Those people not eligible for Medicare were also included in the roll-out.

Since 8 November 2021, a third dose or 'booster' has become available to mitigate against waning immunity and the emergence of variants (Department of Health 2022). On 25 March 2022, a 'winter booster' became available to those at greatest risk of severe illness from COVID-19 (Department of Health 2022). For up-to-date information on COVID-19 vaccines, visit COVID-19 vaccines | Australian Government Department of Health (see Immunisation and vaccination).

Evaluating health promotion initiatives

Health promotion activities have been shown to be cost saving, whereby the cost of implementing the intervention is offset by savings associated with reductions in treating disease (Vos et al. 2010). Monitoring and evaluation are important to assess the performance of health promotion initiatives and provide the evidence that researchers, policy makers and service providers need on what works.

Evaluating the impact and cost of community and nationwide initiatives can be difficult. Directly attributing health outcomes to a specific initiative itself is a challenge, and this is further complicated when multiple strategies are being applied at once (for example, legislation, taxation and promotion campaigns). Evidence to support the effectiveness of health promotion initiatives may not be available for many years as health impacts and benefits may not manifest until years after the intervention has been implemented.

Where do I go for more information?

For more information on health promotion, see:

- Department of Health Preventive health
- World Health Organization Health promotion
- Australian Health Promotion Association
- Public Health Association of Australia

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Health system overview

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Every day, millions of Australians come into contact with the health system. It may be through health promotion and disease prevention programs such as school-based vaccinations; an appointment with a general practitioner (GP); a visit to the pharmacist to pick up a prescription; or a more complex interaction, such as being admitted to hospital for surgery. A key role of the health system is to respond to these individual needs by providing safe, effective, accessible and appropriate treatment and other services.

Australia's health system is a complex mix of service providers and other health professionals from a range of organisations – from Australian and state and territory governments and the non-government sector. Collectively, they work to meet the physical and mental health care needs of Australians.

The complex structure of Australia's health system is reflected in its funding arrangements. The health system is funded by Australian and state and territory governments as well as non-government funders such as private health insurers and individuals. See Health expenditure for more information.

Who is responsible for the health system?

The Australian and state and territory governments broadly share responsibility for funding, operating, managing and regulating the health system. The private for-profit and not-for-profit sectors also play a role in operating public and private hospitals, pharmacies and medical practices, as well as providing private health insurance products.

Health services are delivered by a range of health professionals working in a variety of settings, from large hospitals (in capital cities and regional centres) to small health clinics (such as those in remote areas). Australia's health workforce includes GPs, surgeons and other medical specialists, nurses and midwives, dentists, allied health practitioners including Indigenous health workers, paramedics and administrative and other support staff. See Health workforce for more information.

A variety of organisations support health services. Health departments and other agencies are responsible for policy and service planning. Research and statistical organisations collect and publish information on the performance of the health system, health conditions and issues. Universities and health services train health professionals. Consumer and advocacy groups have a role in public debates on policies and regulation. Voluntary and community organisations also provide support directly to individuals as well as through activities like fundraising for research and awareness raising through health advocacy programs.

Role of government

Through the Health Ministers' Meeting (HMM), Australian state and territory health ministers, together with the Australian Government Minister for Health, work together to shape Australia's health system with the aim of improving health outcomes and ensuring the sustainability of the health system (Department of Health 2022).

Australian Health Performance Framework

In 2017, the Australian Government with the states and territories agreed to the Australian Health Performance Framework – a vehicle to support system-wide reporting on Australia's health and health care performance (NHIPPC 2017).

In December 2019, the AIHW released the AHPF 'National front door' and indicator reporting platform, which serves as a navigation tool to access data on the health of Australians and the performance of the health system. AHPF indicators will be updated as new data become available. AIHW is leading a program of work to develop new indicators under the AHPF.

The main roles of each level of government in Australia's health system are described below (Biggs and Cook 2018; Department of Health 2019; Duckett and Willcox 2015).

The Australian Government:

- develops national health policy
- funds medical services through Medicare and medicines through the Pharmaceutical Benefits Scheme (PBS)
- provides funds to states and territories for public hospital services
- funds population-specific services, including community-controlled Aboriginal and Torres Strait Islander primary health care, health services for veterans, and residential aged care
- funds health and medical research
- regulates medicines and medical devices
- supports access to and regulates private health insurance.

State and territory governments:

- fund and manage public hospitals
- regulate and license private hospitals and other health premises, and regulate products with health impacts such as alcohol and tobacco
- deliver community-based and preventive services (for example, cancer screening and immunisation), ambulance services, and services to address complaints against any of these.

Local governments in some jurisdictions can be involved in:

- delivery of community and home-based health and support services
- environmental health services (for example, waste disposal, water fluoridation)
- public health activities.

Additionally, all levels of government have shared responsibilities, including education and training of health professionals, regulation of the health workforce, food standards and safety, improving the safety and quality of health care and funding of programs and services (Biggs and Cook 2018; Department of Health 2019; Duckett and Willcox 2015).

What services are available?

Many services are required to meet the health needs of Australians and deliver a high-quality health system. These include:

- Health promotion and health protection and disease prevention programs, which focus on improving health and preventing the root causes of ill health. This includes immunisation and vaccination, healthy lifestyle initiatives and cancer screening.
- Primary health care, which is often a person’s first contact with the health system. It comprises frequently accessed services including general practice, allied health, dispensing medicines, and community health.
- Specialist care, which provides services for those with specific or complex conditions or issues. This includes mental health services, cancer treatment, alcohol and other drug treatment services, palliative care, and clinical assessment for surgery, as well as diagnostic services such as pathology and imaging. Specialist care also includes pathology, imaging and other diagnostic services and referred medical specialist services, where the patient’s presentation to the specialist is recommended by another medical practitioner.
- Hospitals, which includes services provided to admitted and non-admitted patients (outpatient clinics and Emergency Department care).

Most people have exposure to preventive health measures across their life, from educational campaigns to free vaccines. People utilise health services as needed, dependent on their health needs and personal circumstances. Some may visit a pharmacy or GP infrequently; some may have regular appointments with a GP, specialists or other health practitioners; others may go to hospital for tests, treatments or emergencies.

Medicare

Australia’s health system is underpinned by Medicare – a universal health insurance scheme. Medicare pays rebates for medical services and procedures provided by private practitioners in the community such as GPs and other medical practitioners, and Medicare ensures Australians have access to free hospital services for public patients in public hospitals and a range of prescription pharmaceuticals subsidised under the PBS (Biggs 2016). Medicare is funded by the Australian Government through taxation revenue, including a Medicare Levy and a Medicare Levy Surcharge (ATO 2021). See Medicines in Australia, Referred medical specialist attendances, Pathology, imaging and other diagnostic services, General practice, allied health and other primary care services and Oral and dental health for more information.

Medicare is currently available to Australian and New Zealand citizens, permanent residents in Australia, and people from countries with reciprocal agreements (Department of Health 2019). Most people outside these categories have to pay full fees for health services or take out private health insurance (Private Health Insurance Ombudsman 2019).

Private health insurance

Some medical and allied health services are not subsidised through Medicare. For example, Medicare does not usually cover costs for ambulance services, most dental services and optical aids (such as glasses and contact lenses). For these services, private health insurance is one option for managing these health care costs (Lewis and Willis 2018). Private health insurance can also give people with cover the option to avoid waiting lists in the public system and the ability to choose their own doctor (Biggs and Cook 2018).

The Australian Government offers a means-tested rebate to people who hold private health insurance and imposes the Medicare Levy Surcharge on higher-income earners who do not have a particular form of private health insurance (ATO 2021).

Hospitals

Hospitals are an important part of the health system, providing a range of services to many people. Australians admitted to public hospitals are guaranteed access to fee-free treatment as public patients. Funding of public hospital services is managed through intergovernmental agreements between the Australian Government and state and territory governments (Boxall 2014). These agreements specify the arrangements by which the Australian Government transfers funds to the states and territories to support public hospitals as well as how public hospital funding is managed more broadly. The current National Health Reform Agreement outlines an ‘activity based’ system whereby Australian Government funding is based on the estimated cost of the activities performed in each hospital.

See Hospitals for more information.

Impact of COVID-19

The COVID-19 pandemic impacted all levels of the health system. For example, the national health system governance arrangements have been disbanded and reformed under National Cabinet (which replaced the previous Commonwealth of Australian Government committees). Health care professionals have adjusted to many changes in the daily practices and requirements of their work, including increased risks to their own health, forced isolation following exposure and new mandatory arrangements for such things as protective equipment, vaccination and COVID-19 testing. And, for patients, even the common experience of seeing a GP or mental health professional changed, particularly with the introduction of telehealth options to replace the need for face-to-face contact. Some of these issues are canvassed in more detail (see 'Chapter 2: Changes in the health of Australians during the COVID-19 period' in Australia's health 2022: data insights).

Where do I go for more information?

For more information on the health system, see:

- Australia’s Health Performance Framework
- Department of Health The Australian health system

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Health workforce

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The health workforce in Australia is large and diverse, covering many occupations. These include health practitioners registered with the Australian Health Practitioner Regulation Agency (Ahpra) as well as other health professionals and health support workers. Due to data limitations regarding the other professional groups, this page presents information on the health practitioners who were registered with Ahpra.

The Australian Health Practitioner Regulation Agency

Ahpra is the statutory authority responsible for administering the National Registration and Accreditation Scheme (Ahpra 2021c).

The current list of registered health professions includes Aboriginal and Torres Strait Islander health practitioners, chiropractors, Chinese medicine practitioners, medical radiation practitioners, occupational therapists, optometrists, osteopaths, paramedicine practitioners, pharmacists, physiotherapists, podiatrists, psychologists, oral health therapists, dental hygienists, dental therapists, dental prosthetists, dentists, nurses, midwives, and medical practitioners.

The AIHW derives estimates of the Australian health workforce using the categories of 15 health professions from the Health Workforce Data Tool of the Australian Department of Health (Department of Health 2021b). Health professionals may be registered in more than one profession with Ahpra. All Ahpra numbers reported refer to registered health professionals who are employed in Australia and working in their registered profession, Ahpra-registered professionals who are not in the labour force are excluded.

Overview of registered health professionals

There were more than 642,000 health practitioners working in their registered professions in Australia in 2020, which includes 105,300 medical practitioners, 350,000 nurses and midwives, 21,500 dental practitioners, and 166,000 allied health professionals (Table 1).

Trends

On this page, health professions are categorised into 4 profession groups: allied health, dental practitioners, medical practitioners, and nurses and midwives. Between 2015 and 2020 the Australian registered health workforce increased by more than 110,500 professionals. The number of full-time equivalent (FTE) health professionals per 100,000 population (FTE rate) rose steadily for each profession group between 2015 and 2020 (Figure 1).

Nurses and midwives continued to be the largest group of registered health professionals in Australia, at about 350,000 registered in 2020 (54% of all registered health professionals).

Relative to the Australian population, allied health workers showed the greatest growth in FTE rate from 2015 to 2020 (an increase of 147 FTE per 100,000 people). Note that the inclusion of paramedicine practitioners as a new registered health profession (since 2019) has contributed to this increase, accounting for 78 FTE per 100,000 people in 2020.

Table 1: Key workforce statistics by health profession, 2015 and 2020.

Profession	Measure	2015	2020	% change
Allied health (a)	**Number of practitioners**	118,418	166,048	40.2
	FTE total	106,500	152,559	43.2
	FTE per 100,000 population	447	594	32.9
Dental practitioners (b)	**Number of practitioners**	19,051	21,549	13.1
	FTE total	17,613	19,450	10.4
	FTE per 100,000 population	74	76	2.7
Medical practitioners	**Number of practitioners**	87,999	105,293	19.7
	FTE total	93,356	107,777	15.4
	FTE per 100,000 population	392	420	7.0
Nurses and midwives	**Number of practitioners**	306,487	349,589	14.1
	FTE total	270,368	305,855	13.1
	FTE per 100,000 population	1,135	1,191	4.9
All professions	**Number of practitioners**	531,955	642,479	20.8
	FTE total	487,837	585,642	20.0
	FTE per 100,000 population	2,048	2,280	11.3

Notes:

(c) For the purpose of this page, allied health professions include Aboriginal and Torres Strait Islander health practitioners, chiropractors, Chinese medicine practitioners, medical radiation practitioners, occupational therapists, optometrists, osteopaths, pharmacists, physiotherapists, podiatrists, psychologists, and paramedicine practitioners. In 2019, paramedicine practitioners emerged as a new career path of registered health professionals in Australia.

(d) Dental practitioners registered with Ahpra include oral health therapists, dental hygienists, dental therapists, dental prosthetists, and dentists.

(e) Under the *Health Practitioner Regulation National Law 2009*, a medical practitioner is a person who holds registration with the Medical Board of Australia.

Source: ABS 2021a; APHRA 2021; Department of Health 2021b.

Demographics

On average, Australia's health workforce is predominantly female (except for medical and dental practitioners), and aged 20−34. However, there have been some notable changes between 2015 and 2020. There are more young health professionals in the health workforce, and the proportion of female medical and dental practitioners has risen (Figure 1).

Age

Between 2015 and 2020:

- The FTE rate of all health professionals aged 20–34 and 35–44 increased by 24% (from 626 to 775 FTE per 100,000 people) and 14% (from 471 to 535 FTE per 100,000 people), respectively, compared to the FTE rates of health professionals aged 45–54 and 55–64 which were almost unchanged over the same period.
- The FTE rate of nurses and midwives and allied health practitioners aged 20−34 increased by 24% (from 310 to 383 FTE per 100,000 people) and 31% (from 192 to 252 FTE per 100,000 people), respectively.

Sex

Between 2015 and 2020:

- The FTE rate of health professionals that are women remains at around 2.4 times that of men in 2020.
- While there are more men than women among medical and dental practitioners, the FTE rate of female medical and dental practitioners increased by 18% (from 143 to 169 FTE per 100,000 people) and 12% (from 32 to 36 FTE per 100,000 people) respectively, compared to the FTE rate for male medical practitioners which increased slightly by 1% (from 249 to 251 FTE per 100,000 people) and the FTE rate for dental practitioners which decreased by 5% (from 41 to 39 FTE per 100,000 people).

In 2020:

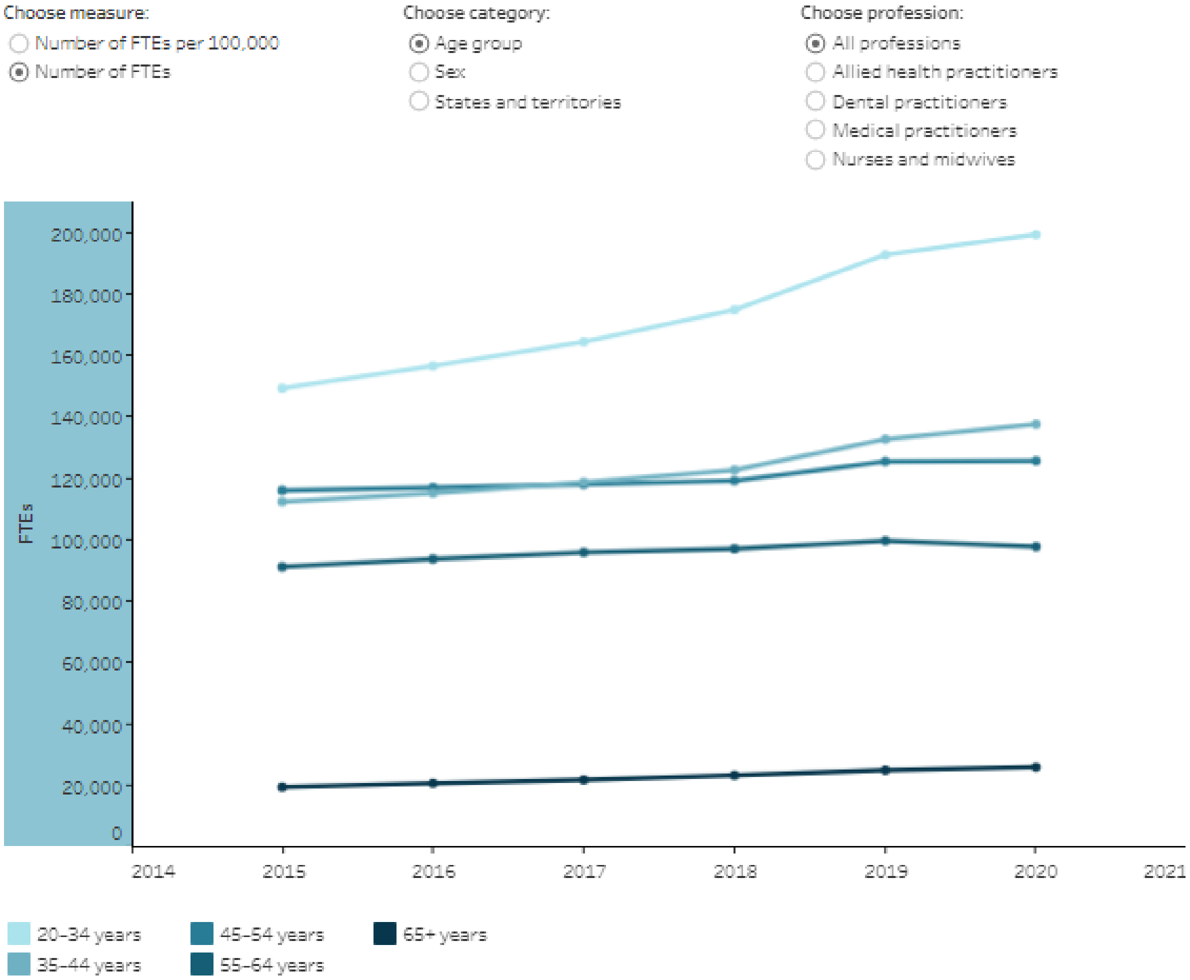
- The female/male ratio of the overall number of health professionals was 2.9, with a total of 476,500 women and 166,000 men registered and employed in Australia’s health workforce.
- The FTE rate of females was 6.8 times that of males for nurses and midwives, and 1.7 times for allied health practitioners.

Jurisdiction

Between 2015 and 2020:

- Northern Territory had the highest number of registered health professionals relative to its population (2,898 FTE per 100,000 people in 2020) thanks to its high rate of nurses and midwives, and medical practitioners.
- Northern Territory also had the lowest dental practitioner FTE rate over this period (48 FTE per 100,000 people compared with 76 per 100,000 in South Australia).
- New South Wales had the lowest FTE rate for all professions (2,132 FTE per 100,000 people in 2020).

Figure 1: Total FTE and FTE rates, by profession, state and territory, age, and sex, 2015 to 2020



Choose measure:
○ Number of FTEs per 100,000
● Number of FTEs

Choose category:
● Age group
○ Sex
○ States and territories

Choose profession:
● All professions
○ Allied health practitioners
○ Dental practitioners
○ Medical practitioners
○ Nurses and midwives

Notes
1. Allied health professions include Aboriginal and Torres Strait Islander health practitioners, chiropractors, Chinese medicine practitioners, medical radiation practitioners, occupational therapists, optometrists, osteopaths, pharmacists, physiotherapists, podiatrists and psychologists.
2. Dental practitioners registered with AHPRA include oral health therapists, dental hygienists, dental therapists, dental prosthetists, and dentists.
Source: ABS 2021b, Department of Health 2021a.

Rural and remote areas

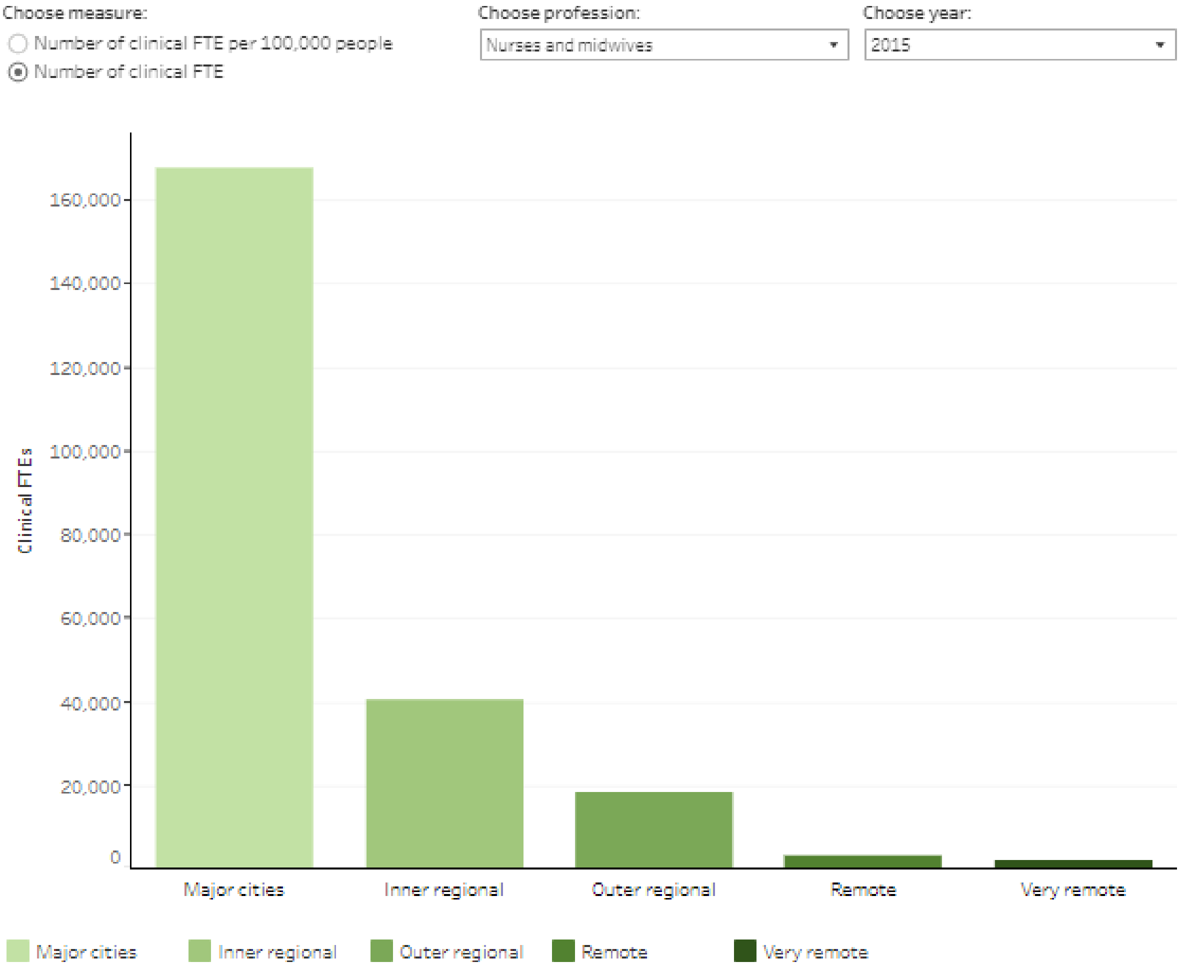
The accessibility of Australia’s health workforce is highly dependent on the distribution of its members in areas where they are most needed. In this section, the clinical FTE rate is used, in contrast with the FTE rates discussed above. The clinical FTE rate indicates the full-time equivalent number of health professionals working clinical hours relative to the population.

For all registered professions, the number of employed FTE clinicians working in their registered professions decreased with increasing remoteness, a trend seen each year since 2015 (Figure 2). There were also more registered clinical FTE health professionals in *Major cities* than in all regional and remote areas of Australia combined. In 2020, there were more than 386,000 FTE clinicians working in *Major cities* compared with 132,000 in all other remoteness areas.

Relative to the populations in these areas, *Major cities* had a greater number of working FTE clinicians (2,077 clinical FTE per 100,000 people in 2020) than each of the other remoteness areas. For the other remoteness areas:

- *Inner regional* areas had 1,890 FTE per 100,000 people.
- *Outer regional* areas had 1,761 FTE per 100,000 people.
- *Remote* areas had 1,959 FTE per 100,000 people.
- *Very remote* areas had 1,833 FTE per 100,000 people.

Figure 2: Total clinical FTEs and clinical FTE rate, by profession and remoteness, 2015 to 2020



Choose measure:
○ Number of clinical FTE per 100,000 people
● Number of clinical FTE

Choose profession: Nurses and midwives

Choose year: 2015

Notes
1. Allied health professions include Aboriginal and Torres Strait Islander health practitioners, chiropractors, Chinese medicine practitioners, medical radiation practitioners, occupational therapists, optometrists, osteopaths, pharmacists, physiotherapists, podiatrists and psychologists.
2. Dental practitioners registered with AHPRA include oral health therapists, dental hygienists, dental therapists, dental prosthetists, and dentists.
3. Numbers represent not all in the labour force, but those employed and working in their registered profession.
Source: ABS 2021b, Department of Health 2021a.

This trend is also seen when looking at each of the health profession groups, except for nurses and midwives. Both *Remote* and *Very remote* areas have a greater number of registered and working clinical FTE nurses and midwives relative to the population in these areas. In 2020, there were 1,202 FTE clinical nurses and midwives per 100,000 people in *Very remote* areas compared with 1,069 in *Major cities*.

Despite having relatively high clinical FTE rate, people living in remote areas and very remote areas generally have poorer access to health service than people in regional areas and *Major cities* (AIHW 2018). Australian people living in remote areas may need to travel long distances or relocate to attend health services or receive specialised treatment. Medicare claims data from 2017–18 also indicated that rural and remote populations rely more on general practitioners to provide health care services, due to less availability of local specialist services (AIHW 2019). Also, in the early stages of COVID-19 pandemic, the capacity of remote health services to maintain workforce was curtailed due to border restrictions imposed by state/territory, and Australian government in order to reduce domestic and international travel. Many remote health services were unable to source previously used interstate and international trained nurses and doctors who possess remote health service knowledge and experience and have established relationships with remote communities (Fitts et al. 2020).

According to reports published by Medical Deans Australia and New Zealand (MDANZ), using the Medical Schools Outcomes Database, graduating medical students have shown consistent preference for practising in capital cities. In 2020, 65% of surveyed medical students indicated a preference to work in capital cities (Table 2). In contrast, only 17% of students indicated a preference to work in regional cities, small towns, or small communities (MDANZ 2021).

Table 2: First preference region of future practice, by region, 2015–2020.

First preference region of future practice		Capital city	Major urban centre	Regional city or large town	Smaller town	Small community	Total
2015	**Number**	1,240	367	231	84	36	1,958
	Per cent	63.3	18.7	11.8	4.3	1.8	100
2016	**Number**	1,330	352	260	94	32	2,068
	Per cent	64.3	17.0	12.6	4.5	1.5	100
2017	**Number**	1,271	347	252	83	34	1,987
	Per cent	64.0	17.5	12.7	4.2	1.7	100
2018	**Number**	1,328	374	271	85	27	2,085
	Per cent	64.2	17.5	12.9	4.1	1.3	100
2019	**Number**	1,286	364	226	65	26	1,967

First preference region of future practice		Capital city	Major urban centre	Regional city or large town	Smaller town	Small community	Total
	Per cent	65.4	18.5	11.5	3.3	1.3	100
2020	**Number**	1,084	288	197	68	23	1,660
	Per cent	65.3	17.3	11.9	4.1	1.4	100

Source: MDANZ 2021.

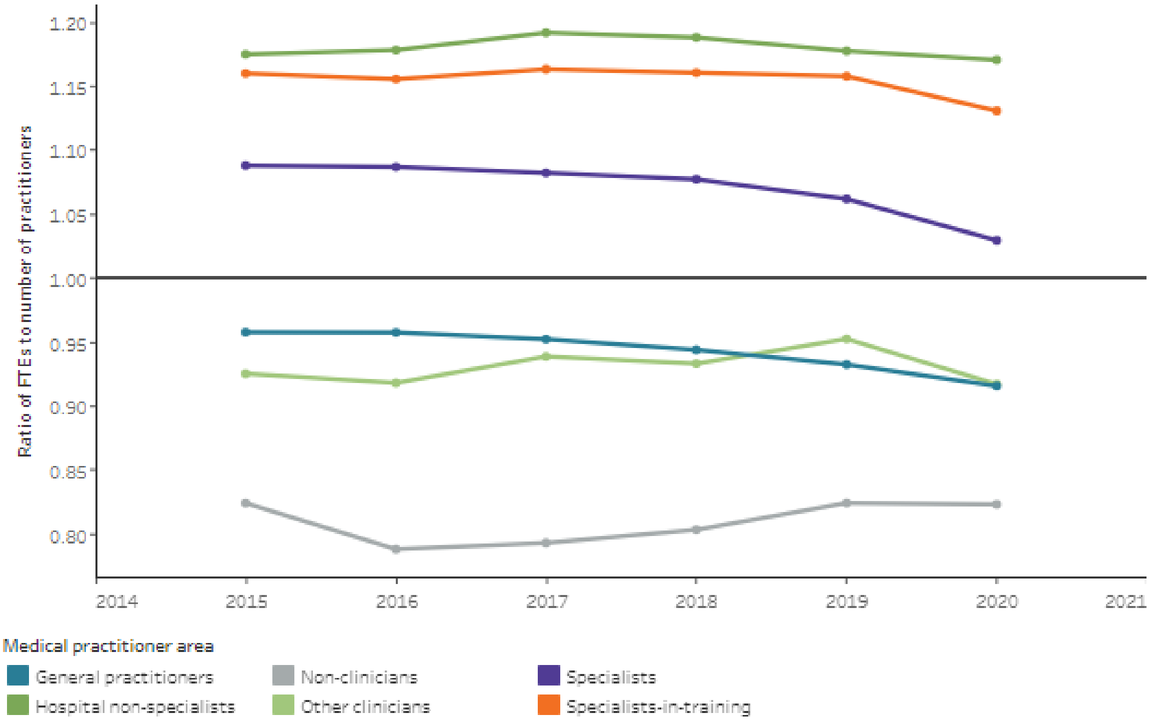
Occupations working the most hours

The FTE number is calculated based on the total hours worked in a ‘standard working week’, which may change depending on occupation. For example, a standard working week for medical practitioners is considered to be 40 hours, and 38 hours for nurses and midwives, dental practitioners and allied health professionals. The ratio of FTEs relative to the number of health professionals therefore provides an overall indication of whether occupational groups worked longer or less than their standard hours.

Between 2015 and 2020, medical practitioners were the only occupational group whose total FTE was greater than the number of practitioners, indicating that medical practitioners overall worked more than their FTE of 40 hours a week (Table 1). This contrasts with allied health practitioners, nurses and midwives, and dental practitioners, where the total number of practitioners exceeded total FTEs over the same period. This may indicate increasingly part-time arrangements for these practitioners.

Overall, medical practitioners, specialists, specialists-in-training, and hospital non-specialists worked longer hours (ratio was greater than 1) than their full-time equivalent (Figure 3).

Figure 3: Ratio of FTE total to number of practitioners among medical practitioners, by job area, 2015 to 2020



Source: AIHW analysis of Department of Health (2021a) data.

Non-registered health professions

Many people employed in the health sector work in occupations that are not registered by Ahpra and there are fewer available data for these groups. These members of the health workforce still play an important role in delivering health services to Australians and include, for example, dieticians, clerical workers, health information managers, welfare professionals, service workers, cleaners, and gardeners. Also, some health professionals (such as dietician, audiologist, speech pathologist, etc.) are self-regulated by their professional association to ensure that high safety and quality standards are maintained.

According to the Australian Bureau of Statistics (ABS) 2016 Census of Population and Housing – more than 820,000 people reported working in the health services industry (ABS 2021a). Outside of the Ahpra-registered professions, this included around 13,200 ambulance officers and paramedics; 21,000 medical technicians; 21,000 dental assistants; and 26,100 nursing support and personal care workers. The ABS will complete the 2021 Census of Population and Housing in June 2022 (ABS 2021b).

Impact of the COVID-19 pandemic on the health workforce

At the time of writing, the COVID-19 pandemic continues. Many of Australia's healthcare workforce are on the frontline and continue to be impacted by the pandemic in different ways. However, as data related to COVID-19 impacts are limited and obtained from small-sized surveys, the following results should be interpreted with caution.

The pandemic has affected the physical health of workers. A report of 2,163 healthcare workers during January and September 2020 indicated that in the second wave of the pandemic, when there was heightened community transmission, health care workers were more likely to be infected in the workplace and nurses were more likely to be infected than staff in other roles (Rafferty et al. 2021). Quigley et al. (2021) using data from January to July 2020 of 36 hospital outbreaks concluded that the infection rate of health workers was 2.7 times higher than community infection.

In terms of mental health, healthcare workers exhibit higher rates of anxiety, depression and suicidal ideation when compared to the general population (Beyondblue 2019). During emergencies like we have experienced during COVID-19, increased posttraumatic stress disorder (PTSD), anxiety and depression could be observed in healthcare workers (Shah et al. 2020). Some pandemic-related stress on healthcare workers is also evident (Aggar et al. 2021; Dobson et al. 2020; Holton et al. 2021; Pascoe et al. 2021; Smallwood et al. 2021a).

Some evidence suggested that the pandemic had increased the workload of health workers. An online survey of 7,846 frontline health workers conducted by Smallwood et al. (2021b) between August and October 2020 indicated that 21.5% increased their unpaid work hours, 20.8% of respondents increased their paid work hours, 16.8% were redeployed to a new work area, and 27.3% changed their work role.

Between 2015 and 2019, the share of foreign-trained doctors and nurses were almost unchanged (32% and 18% respectively, see OECD 2022). However, the international travel restrictions due to the pandemic might affect these shares. This is to be confirmed when updated data become available.

Some of the measures used to cope with COVID-19 in the healthcare sector

Pandemic response sub-register

At the onset of COVID-19, the Ahpra and the relevant National Boards established a temporary pandemic response sub-register up to 12 months in April 2020 (the 2020 sub-register) to help fast track the return to the workforce of experienced and qualified health practitioners. In early April 2021, the Commonwealth Health Minister requested that medical practitioners, nurses, midwives, and pharmacists be extended to stay on the sub-register for up to 12 months (to 5 April 2022) to help with the COVID-19 vaccination program only. This was also the case for Aboriginal and Torres Strait Islander Health Practitioners. On 8 September 2021, the registration of practitioners on the 2020 sub-register was changed so they could work in any area supporting the COVID-19 response. On 22 September 2021, Ahpra and the relevant National Boards established a new sub-register (the 2021 sub-register), for practitioners in 12 regulated health professions to return to practice for up to 12 months, working to the full scope of their registration. As of 22 December 2021, there were 23,307 health professionals on the 2020 pandemic response sub-register and 20,860 health professionals on the 2021 pandemic response sub-register (Ahpra 2021b).

Inclusion of Telehealth in Medicare Benefits Schedule

In March 2020, the Australian Government introduced new Medicare Benefits Schedule (MBS) funding so that specialists (and other clinicians) could provide telehealth consultations. Compared to the pre-existing funding, access to COVID-19 MBS telehealth funding was not geographically restricted. MBS reimbursement of specialist telehealth consultations was further extended to include telephone consultations in addition to video consultations. The temporary MBS telehealth items are available to general practitioners, medical practitioners, specialists, consultant physicians, nurse practitioners, participating midwives, allied health providers and dental practitioners in the practice of oral and maxillofacial surgery (Department of Health 2021a). From 1 January 2022, patient access to telehealth services has been supported by ongoing MBS arrangements which enable all Medicare eligible Australians to access telehealth (video and phone) services for a range of (out of hospital) consultations that can also be provided in person (Department of Health 2021c). Between March 2020 and December 2021, 87 million telehealth services were delivered to 16.2 million patients, with more than $4.4 billion in benefits paid and 89,180 practitioners having now used telehealth services (Australian Digital Health Agency 2021).

Mental Health support for healthcare workers

The Australian Government also funds tailored mental health supports for the health workforce. This includes implementing *Every Doctor, Every Setting*, a national framework to deliver a coordinated approach to support the mental health of doctors and medical students; *The Essential Network* (TEN) project, a multifaceted e-health hub, delivered by the Black Dog Institute for healthcare professionals by healthcare professionals; and DRS4DRS service which provides mental health consultations for doctors and medical students.

Elective surgery restrictions

Following a decision by National Cabinet, in the context of ensuring the health system maintained adequate capacity to deal with the COVID-19 pandemic, restrictions were applied to selected elective surgeries from 26 March 2020.

Under these restrictions, only Category 1 and exceptional Category 2 procedures could be undertaken. These restrictions were eased (but not fully lifted) from 29 April 2020, allowing all Category 2 and some important Category 3 procedures to be performed. In early January 2022, to help hospitals respond to the increasing number of patients with Omicron strain COVID-19, some states and territories such as New South Wales, Victoria, Queensland, South Australia reapplied temporary elective surgery suspensions (New South Wales Government 2022; Victoria Department of Health 2022; Queensland Government 2022; South Australia 2022). These restrictions resulted in delays to many types of elective surgery, waiting times for most intended procedures increased. The proportion of patients waiting more than 365 days for their elective surgery rose between 2019–20 and 2020–21 overall from 2.8% to 7.6% (AIHW 2021).

Where do I go for more information?

For more information on the health workforce, see:

- Department of Health’s Health workforce data tool
- MDANZ’s Medical schools outcomes database reports
- Australian Bureau of Statistics (ABS) 2016 Census of Population and Housing (need to register, “Employment, Income and Education/Health Care and Social Assistance” section)

Visit Workforce for more on this topic.

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Hospitals

This topic summary is part of the Australia's hospitals at a glance report.

Hospitals play an important role in Australia's health care system, providing care to many Australians each year. Services are provided both to admitted patients (including for emergency and non-urgent – or what is known as 'elective' care) and non-admitted patients (through outpatient clinics and emergency departments).

This report provides an overview of national data available about Australia's hospitals and the care they provide.

In Australia, hospital care can be provided by both public and private hospitals. Public hospitals are largely owned and managed by state and territory governments, with funding also provided by the Commonwealth government. Private hospitals are owned and managed by private for-profit and not-for-profit organisations funded through charges to individuals that are often subsidised through a combination of government and private health insurance payments.

Hospitals are very diverse in location, size and the services provided. In 2019–20, there were 695 public hospitals in Australia, while the most recent data for private hospitals (for 2016–17) show that there were 657 private hospitals (including day hospital facilities) (ABS 2018).

A day in the life of Australian hospitals

On an average day in Australia's hospitals:

$227 million was spent on public and private hospital services.

166,000 nurses and 50,000 doctors were employed in public hospitals.

There were 30,500 hospitalisations in public and private hospitals.

24,100 people presented for care at Australia's public hospital emergency departments.

105,000 services were provided to non-admitted patients.

There were 2,100 admissions to public hospitals from elective surgery.

Waiting lists and around double that number of elective surgeries performed in private hospitals.

A hospital-acquired complication occurred in 411 hospitalisations.

4 cases of *Staphylococcus aureus* blood stream infection were detected in public hospitals.

(Source NPHED 2019–20, NNAPEDCD 2020–21, NESWTD 2020–21, NAPCD 2019–20, NSABDC 2019–20).

Immunisation and vaccination

Find the most recent version of this information at:
https://www.aihw.gov.au/reports/australias-health/immunisation-and-vaccination

Immunisation is a safe and effective way to protect against harmful communicable diseases and, at the population level, prevent the spread of these diseases among the community. Several vaccine-preventable diseases, such as measles, rubella and diphtheria, are now rare in Australia as a result of Australia's high immunisation rates. See Infectious and communicable diseases.

The Australian Government provides free vaccines to eligible people, including young children, older Australians, Aboriginal and Torres Strait Islander people, and others who are at greater risk of serious harm from vaccine-preventable diseases, such as pregnant women. Additional vaccines may also be funded through state and territory programs, through the workplace or bought privately by prescription.

It is important to maintain high immunisation coverage rates to ensure that these diseases cannot spread through the community.

The impact of vaccination in Australia

The Burden of Vaccine Preventable Diseases in Australia study estimated the immediate and future burden (including premature death) of newly diagnosed cases of diseases for which vaccines are provided under the National Immunisation Program. It found that the rate of burden had decreased by nearly one-third between 2005 and 2015. The decrease was driven by falls for diseases for which vaccines had been introduced in the previous 20 years, such as human papillomavirus (HPV), pneumococcal disease and rotavirus. The rate of burden decreased considerably among infants, children, and adolescents and young adults – age groups which are the focus of national and state and territory vaccination programs (AIHW 2019).

Childhood immunisation coverage

All Australian children are recommended to have received specific immunisations by a certain age according to the National Immunisation Program Schedule. Fully immunised status is measured at ages 1, 2 and 5 and means that a child has received all the scheduled vaccinations appropriate for their age.

What is meant by 'fully immunised'?

All Australian children are expected to have received specific immunisations by a certain age according to recommendations in the National Immunisation Program Schedule to ensure that children have maximum protection if they come into contact with harmful viruses and bacteria.

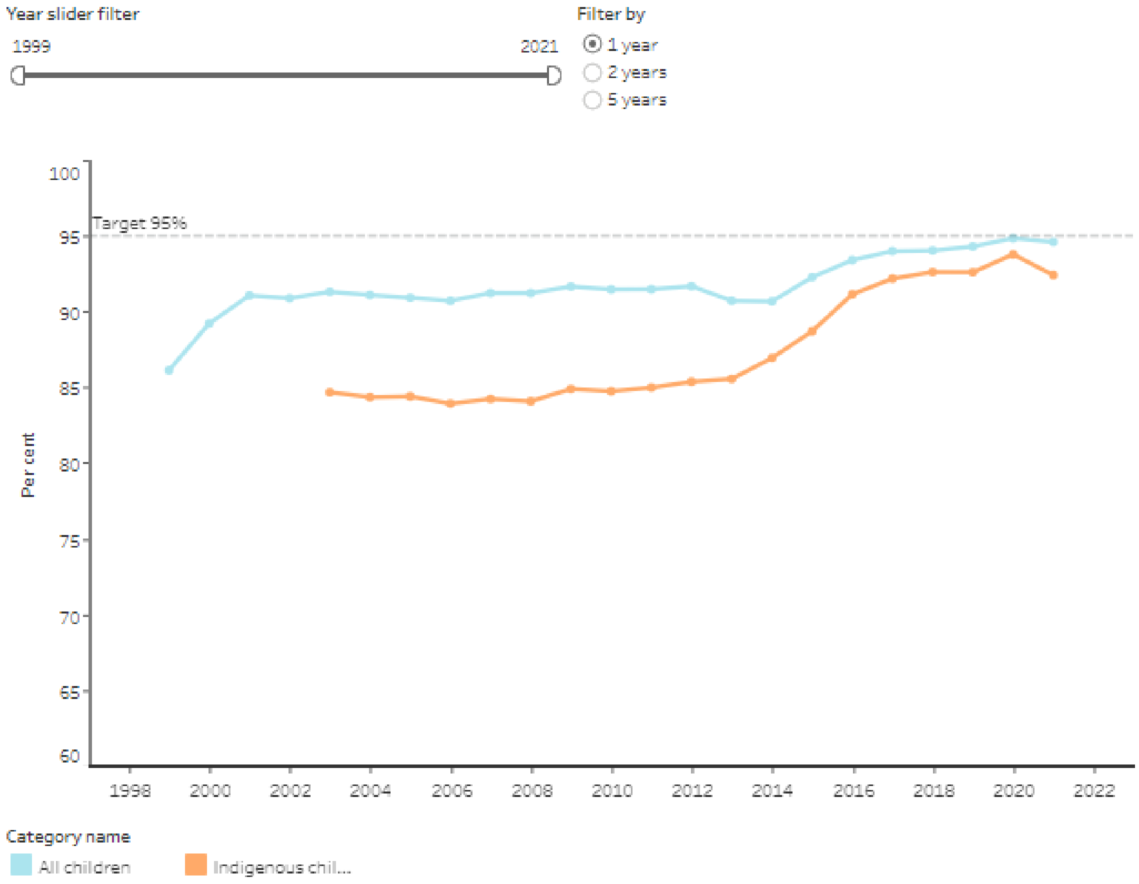
The specific vaccines included in the definition of ‘fully immunised’ may change from time to time as the recommendations under the National Immunisation Program change, or new vaccines are introduced. In 2021, the following definitions applied:

- At 1 year, ‘fully immunised’ included vaccinations for hepatitis B, diphtheria, tetanus, whooping cough, polio, *Haemophilus influenzae* type b (Hib) and pneumococcal disease.
- At 2 years, it included vaccinations for meningococcal disease, measles, mumps, rubella, pneumococcal disease, Hib, chickenpox, diphtheria, tetanus and whooping cough.
- At 5 years, it included vaccinations for diphtheria, tetanus, whooping cough and polio.

Details of how coverage rates are calculated are provided in O’Brien et al. (1998).

In 2021, the immunisation coverage rate for all children aged 1 was 94.6%; it was 92.6% for 2-year-olds and 95.0% for 5-year-olds (Figure 1). For Indigenous children in 2021, the national immunisation coverage rates for children aged 1 and 2 were lower than the coverage rates for all children, at 92.4% and 91.4%, respectively. In contrast, the coverage rate for 5-year-old Indigenous children (96.8%) was higher than the coverage rate for all children.

Figure 1: Immunisation coverage rates for all children and Aboriginal and Torres Strait Islander children aged 1, 2 and 5, 1999 to 2021



Source: Department of Health 2022a.
http://www.aihw.gov.au/

The immunisation coverage rate for:

- 1-year-olds remained relatively stable between 2001 and 2012. The slight fall in the rate for 2013 and 2014 may have been due to a change in the definition of ‘fully immunised’. The coverage rate has since increased to almost 95%.
- 2-year-olds increased markedly from 1999 to 2004 and remained relatively stable above 90% until 2013. Changes in the definition of ‘fully immunised’, made in 2014, may have contributed to the drop in 2015, which has now recovered.
- 5-year-olds increased from 74.4% in 2005 to 95.0% in 2021. Children who have had catch-up immunisations are included as ‘fully immunised’ even if they were not fully immunised when they were aged 1 or 2.

The available data suggest that the COVID-19 pandemic had little impact on routine childhood vaccination in 2020 and 2021 (NCIRS 2020).

See Health of children.

Adolescent immunisation coverage

A national HPV vaccination program (using the quadrivalent HPV vaccine, which protects against 4 types of HPV) was introduced for school-aged girls in 2007 and extended to boys in 2013. A new vaccine was introduced in 2018, protecting against 9 types of HPV. Among young people turning 15 in 2020, 80.5% of girls and 77.6% of boys were fully immunised against HPV. Coverage rates among Indigenous adolescents were lower at 75.0% of girls and 68.0% of boys in 2020 (NCIRS 2021).

Adolescent HPV vaccination is administered by state and territory health services through school vaccination programs, which also include vaccinations for diphtheria, tetanus and whooping cough (dTpa) and meningococcal disease (types ACWY). Among young people turning 15 in 2020, 77% had received their dTpa booster dose and 68% had received the meningococcal vaccine (NCIRS 2021). Coverage rates were lower in 2020 than in 2019, likely due to COVID-19 pandemic-related disruption to school-based programs (NCIRS 2021).

See Health of young people.

Adult vaccination

Until recently there has been no regular and nationally consistent source of data with which to estimate vaccination coverage in adolescents and adults. Population surveys have previously been used to estimate vaccination coverage in the adult population or in selected population groups. In 2009, the Adult Vaccination Survey estimated that 3 in 4 (75%) Australians aged 65 and over were vaccinated against influenza. The same survey showed that pneumococcal vaccine coverage among people aged 65 and over was 54% (AIHW 2011).

The Australian Immunisation Register (AIR) is a national register that details all funded vaccinations and most privately purchased vaccines given to individuals of all ages who live in Australia. It was set up in 1996 as the Australian Childhood Immunisation Register and renamed following its expansion in 2016. Data on adult vaccination coverage from the AIR were reported for the first time in 2021. The results showed that, in 2020:

- Zoster (shingles) vaccine coverage among adults aged 70 was 30%.
- Influenza vaccine coverage was 23% in adults aged 20–49 years, 36% in adults aged 50–64, 64% in adults aged 65–74 and 70% in adults aged 75 and over (NCIRS 2021).

The National Centre for Immunisation Research and Surveillance (NCIRS) suggests that the true coverage rates for the zoster vaccine and for the influenza vaccine in younger adults are likely to be higher than this, due to under-reporting. Although the AIR was expanded in 2016 to allow inclusion of information on adult vaccinations, reporting of these data by vaccination providers was not made mandatory until 2021.

The COVID-19 vaccination program

On 22 February 2021, Australia began a staged rollout of COVID-19 vaccines, beginning with priority groups at greatest risk of exposure to COVID-19 (quarantine and border workers, frontline health care workers, and aged care and disability staff and residents). This was extended on 22 March 2021 to other adults at high risk of exposure and/or severe disease, including other health care workers, critical and high-risk workers (such as police, emergency services and meat processing workers), people aged 70 and over, Aboriginal and Torres Strait Islander people aged 55 and over, and people aged 18 and over with disability or an underlying high-risk medical condition. The rollout was extended to include other adults and then teenagers. Children aged 5–11 became eligible for a smaller dose of the vaccine on 10 January 2022.

The primary course is for 2 doses, with a third dose in people who are severely immunocompromised. A booster dose is recommended for people aged 16 and over. For older people, residents of disability or aged care facilities, and people aged 16 and over who are severely immunocompromised, a second booster dose delivered 4 months after the first is now recommended to increase vaccine protection over winter (ATAGI 2022). COVID-19 vaccination status for individuals aged 16 and over is considered 'up to date' if they have received a booster dose between 3 and 6 months after completing their primary course.

By the end of April 2022, almost 58 million doses of COVID-19 vaccines had been administered, with 95.5% of Australians aged 16 and over and 80.4% of those aged 12–15 having received 2 doses. Over two-thirds (69.3%) of eligible people had received a third dose. Among children aged 5–11, 52.8% had received their first dose and 36.9% had received 2 doses (Department of Health 2022b).

See also 'Chapter 1 The impact of a new disease: COVID-19 from 2020, 2021and into 2022' in Australia's health 2022 data insights.

Where do I go for more information?

For more information on immunisation and vaccination, see:

- The burden of vaccine preventable diseases in Australia
- Vaccine-preventable diseases
- Department of Health National Immunisation Program
- Department of Health COVID_19 vaccines
- Department of Human Services Australian Immunisation Register
- National Centre for Immunisation Research and Surveillance website

Visit Immunisation for more on this topic.

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Medicines in the health system

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Medicines can contribute to the quality of life of Australians by curing or relieving the symptoms of illness. They can also prevent complications in existing health conditions or delay the onset of disease.

The Australian Government Department of Health implements Australia’s National Medicines Policy in partnership with state and territory governments, medicines industry, healthcare professionals and consumers. The objectives of the policy are:

- timely access to the medicines that Australians need, at a cost that individuals and the community can afford
- medicines meeting appropriate standards of quality, safety and efficacy
- quality use of medicines
- maintaining a responsible and viable medicines industry.

How are medicines regulated?

The Therapeutic Goods Administration (TGA) plays a key role in the implementation of the National Medicines Policy by maintaining the Australian Register of Therapeutic Goods (ARTG). Therapeutic goods must be entered in the ARTG before they can be lawfully supplied in, imported into, or exported from Australia, unless exempt. Medicines, including prescription, over-the-counter (OTC) and complementary medicines, are defined as therapeutic goods and hence must be included in the ARTG.

As part of the National Medicines Policy, the Pharmaceutical Benefits Scheme (PBS) is the key mechanism for providing Australians with reliable, timely and affordable access to a wide range of medicines. Under the PBS, the government subsidises the cost of medicines for most medical conditions where medications must meet the criteria for PBS listing, such as clinical and cost effectiveness. Most of the listed medicines are dispensed by pharmacists and used by patients at home. Some medicines, because of their clinical use and other special features, need medical supervision (such as chemotherapy drugs) and are only accessible at specialised medical services, usually hospitals.

Medicines can be obtained in a number of ways including:

- via a prescription provided by a general practitioner (GP), medical specialist or other health practitioner
- to admitted patients in hospital

- purchased over the counter from community pharmacies or other outlets (such as supermarkets).

Presently a complete data source for all medicines dispensed is not available.

The information presented on this page focuses on medicines provided under the PBS and the Repatriation Pharmaceutical Benefits Scheme (RPBS); information on expenditure for non-PBS/RPBS medicines is also included. Typically, PBS and RPBS listed medicines are dispensed through community pharmacies, but are also available through private hospitals, and public hospitals participating in Pharmaceutical Reform Arrangements (enabling the supply of PBS medicines to patients on discharge from hospital, and non-admitted or day-admitted patients in all jurisdictions except New South Wales and the Australian Capital Territory), or through other arrangements such as the Remote Area Aboriginal Health Services.

In 2020–21, 314.8 million prescriptions were dispensed under the PBS and RPBS – an increase of 0.6% on 2019–20.

What is the PBS and the RPBS?

The PBS and the RPBS are Australian Government Health programs that subsidise the cost of a wide range of medicines in Australia. The PBS is available to current Medicare card holders as well as to overseas visitors from countries with Reciprocal Health Care Agreements with Australia and the RPBS is only available for Department of Veterans' Affairs Health card holders.

The PBS began in 1948 and has expanded over time. As at 30 June 2021, 906 different medicines in 5,380 brands, used to treat a wide range of health conditions, are listed on the Schedule of Pharmaceutical Benefits. The RPBS subsidises pharmaceuticals available under the PBS and additional medicines and items (for example, wound dressings) for eligible veterans, war widows and widowers, and their dependants.

Spending on prescription medicines

In 2020–21, the Australian Government recorded $13.9 billion in spending on all PBS and RPBS medicines (PBS accounting for 98% of the total) or $541 per person. This was an increase of 8.4% in spending compared with 2019–20. After adjusting for inflation, Australian Government spending increased 5.1% between 2019–20 and 2020–21, which was higher than the average yearly growth between 2015–16 and 2020–21 of 2.0%.

For all prescriptions dispensed in 2020–21, 70% were above the co-payment threshold, indicating the patient paid the relevant co-payment and the remaining cost was subsidised by the Australian Government (see Figure 1). The remaining 30% of medications were under the co-payment threshold meaning the patient paid the full cost of the medicine with no government subsidy attracted.

In total, consumers paid $3.2 billion towards PBS and RPBS prescriptions (for both above and under co-payment prescriptions), which was 19% of the total expenditure on PBS and RPBS medicines in 2020–21. The Australian Government contributed the remaining 81% of total expenditure.

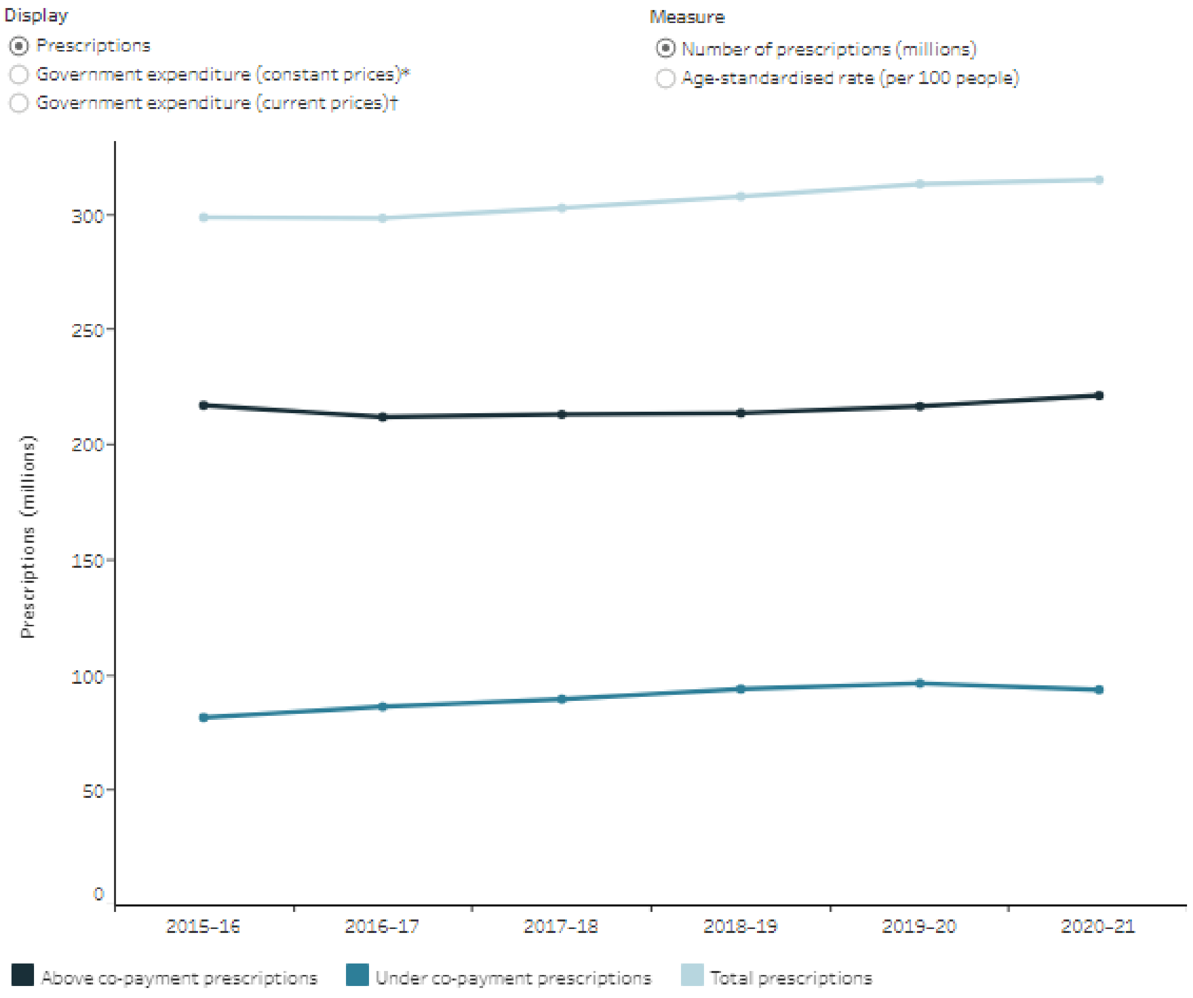
What is the ‘co-payment’?

Under the PBS and the RPBS, the Australian Government sets a maximum ‘co-payment’ amount that people pay towards the cost of their medicines. The Australian Government pays pharmacies the difference between a consumer’s co-payment and the PBS price of a medicine, as listed on the Schedule of Pharmaceutical Benefits. Some prescriptions are priced below the co-payment threshold for a patient, so the consumer pays the total cost, and the government does not contribute.

Prescriptions priced above the maximum co-payment threshold for a patient are referred to as ‘above co-payment’ prescriptions and attract a subsidy from the Australian Government. Those priced below are referred to as ‘under co-payment’ prescriptions, and do not receive a subsidy.

The maximum co-payment a patient pays depends on their level of entitlement, which is determined by the patient’s concessional status and whether they have qualified for the PBS safety net. Current and historical co-payments can be found on the PBS website.

Figure 1: PBS and RPBS prescriptions and benefits, 2015–16 to 2020–21



Display
● Prescriptions
○ Government expenditure (constant prices)*
○ Government expenditure (current prices)†

Measure
● Number of prescriptions (millions)
○ Age-standardised rate (per 100 people)

■ Above co-payment prescriptions ■ Under co-payment prescriptions ■ Total prescriptions

[Notes]

Source: AIHW analysis of PBS and RPBS data maintained by the Australian Government Department of Health; ABS 2011; ABS 2021.
http://www.aihw.gov.au/

Types of prescribed medicines dispensed

In 2020–21, medicines used to treat cardiovascular conditions were the most commonly dispensed. These medicines accounted for 103.3 million PBS and RPBS prescriptions (33% of all PBS and RPBS prescriptions in 2020–21), and 8.0% of government expenditure (Figure 2). Cardiovascular medicines include cholesterol-lowering medicines (such as statins), as high cholesterol is considered as a major risk factor for developing cardiovascular disease. See Biomedical risk factors for more information.

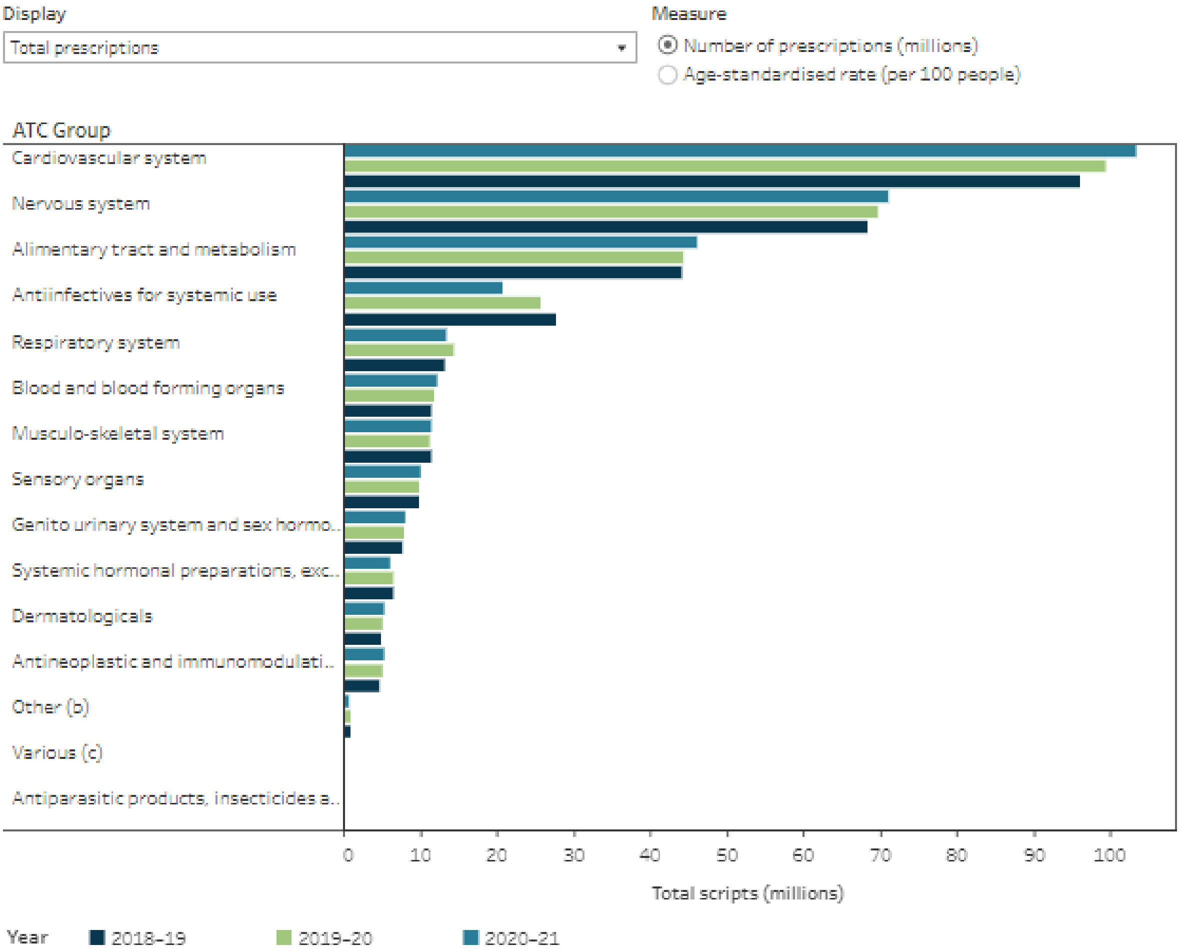
How are medicines grouped?

Medicines are organised into Anatomical Therapeutic Chemical (ATC) classification groups according to the body system or organ on which they act (see the World Health Organization

Collaborating Centre for Drug Statistics Methodology for further information on the ATC classification system).

Also dispensed in high volumes were nervous system medications (23% of all PBS and RPBS prescriptions), which include analgesics (painkillers), antipsychotics and antidepressants. While antineoplastic and immunomodulating agents accounted for only 1.7% of all prescriptions, they had the highest government expenditure (41%), and the highest increase in expenditure among ATC groups between 2019–20 and 2020–21. These medicines are commonly used to treat cancer and other conditions such as multiple sclerosis, arthritis, dermatological conditions and inflammatory bowel diseases (such as Crohn's disease and ulcerative colitis).

Figure 2: Number of prescriptions dispensed by Anatomical Therapeutic Chemical(a) (ATC) group, 2018–19 to 2020–21



Display: Total prescriptions

Measure:
● Number of prescriptions (millions)
○ Age-standardised rate (per 100 people)

[Notes]

Source: AIHW analysis of PBS and RPBS data maintained by the Australian Government Department of Health; ABS 2011; ABS 2021.
http://www.aihw.gov.au/

Top 10 prescribed medicines

As noted, medicines used to treat cardiovascular conditions account for the highest volume of PBS and RPBS prescriptions compared with other ATC groups between 2015–16 and 2020–21. Consistent with this, the medicines with the most prescriptions are the cholesterol-lowering medicines rosuvastatin and atorvastatin. After these medicines, pantoprazole and esomeprazole (medicines used to treat gastro-oesophageal reflux and ulcers) have the highest number of prescriptions; these fall under the alimentary tract and metabolism ATC group.

The top 10 medicines accounting for the most government expenditure have varied over time since 2015–16, mainly because of the listing of new drugs used to treat hepatitis C in March 2016. These medicines experienced an initially high uptake, but their use began to decline from 2018–19, after which aflibercept, a biologic medicine used to treat a number of degenerative eye conditions, became the medicine accounting for the highest government expenditure. Figure 3 shows the top 10 medicines between 2015–16 and 2020–21 by selected measures.

Biologic medicines accounted for 8 out of 10 of the most expensive drugs on the PBS in 2020–21.

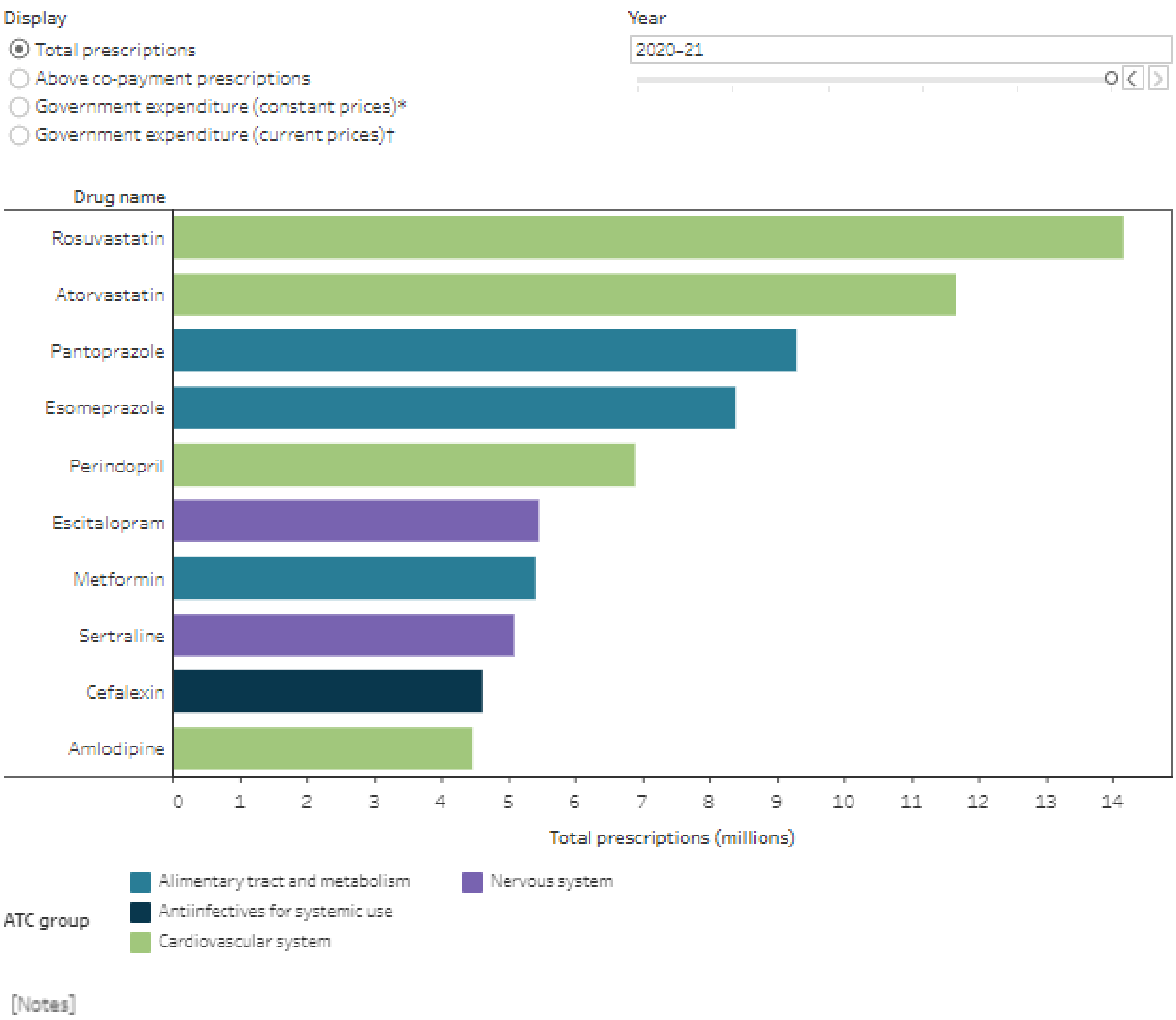
What are biologic medicines?

Biologic medicines contain substances that are made by living cells or organisms. They are different from medicines made via chemical process. Chemical medicines are usually available as pills or tablets. Biologic medicines are often administered by an injection at home or an infusion in a hospital or clinic.

Biologic medicines are used to treat diseases such as:

- rheumatoid arthritis
- inflammatory bowel diseases such as ulcerative colitis and Crohn’s disease
- cancer
- diabetes
- multiple sclerosis
- severe chronic plaque psoriasis.

Figure 3: Top ten medicines, by selected measures, 2015–16 to 2020–21



Display
● Total prescriptions
○ Above co-payment prescriptions
○ Government expenditure (constant prices)*
○ Government expenditure (current prices)†

Year
2020–21

Source: AIHW analysis of PBS and RPBS data maintained by the Australian Government Department of Health.
http://www.aihw.gov.au/

Medicines made available under special arrangements

In addition to medicines available under normal PBS arrangements, a number of drugs are also available as PBS pharmaceutical benefits but are distributed under alternative arrangements where these are considered more appropriate. These alternative arrangements are provided for under section 100 (s100) of the *National Health Act 1953*. Some of these medicines are listed for the treatment of complex conditions (chronic conditions and cancer) where they are supplied mostly through hospitals and administered under specialised medical supervision.

Section 100 includes the following programs:

- Highly Specialised Drugs (HSD)

- Efficient Funding of Chemotherapy (EFC)
- Botulinum Toxin
- Growth Hormone
- In Vitro Fertilisation
- Opiate Dependence Treatment
- Remote Area Aboriginal Health Services.

The 2largest of these programs are HSD and EFC. In 2020–21, the HSD and EFC programs accounted for 47% and 43% respectively of government expenditure for s100 programs (Department of Health 2021).

While government spending on all medicines available through normal PBS arrangements has remained relatively stable, spending on s100 programs has been increasing predominately due to the listing of new drugs and new indications (new use of existing drugs for different conditions) on the PBS – after adjusting for inflation, it grew by 51% in the years between 2015–16 and 2020–21, which equates to an average annual increase of 7.1%. In contrast, spending on medicines through normal PBS arrangements has increased by 0.4% in total over the same period.

Who can prescribe medicines?

Medicines are primarily prescribed by medical practitioners (GPs and referred medical specialists), however certain other types of health practitioners (dentists, optometrists, nurse practitioners and midwives) can also prescribe selected medicines.

In 2020–21, GPs prescribed the majority of PBS and RPBS medicines – around 87% of all prescriptions dispensed. Table 1 shows the most commonly dispensed medicines by authorised PBS prescriber groups.

Table 1: Most common medicines by number of prescriptions dispensed, by selected PBS prescriber groups, 2020–21

PBS prescriber groups	Most common medicines	Used to treat
GPs	Rosuvastatin, Atorvastatin; Pantoprazole, Esomeprazole	High cholesterol; Gastro-oesophageal reflux and ulcers
Referred medical specialists	Methylphenidate;	Attention deficit hyperactivity disorder;

PBS prescriber groups	Most common medicines	Used to treat
	Pantoprazole	Gastro-oesophageal reflux and ulcers
Dentists	Amoxicillin	Bacterial infections
Optometrists	Latanoprost; Hyaluronate sodium	Glaucoma and other eye diseases; Dry eye syndrome
Nurse practitioners	Esomeprazole, Pantoprazole; Rosuvastatin, Atorvastatin	Gastro-oesophageal reflux and ulcers; High cholesterol
Midwives	Metoclopramide	Nausea

Note: Some medicines may be used to treat a variety of conditions (indications) and this article refers to just some of the common conditions treatable by these medicines.

Source*:* Therapeutic Goods Administration, Consumer Medicines Information (CMI) and Product Information (PI) documents for selected medicines.

Who received these medicines?

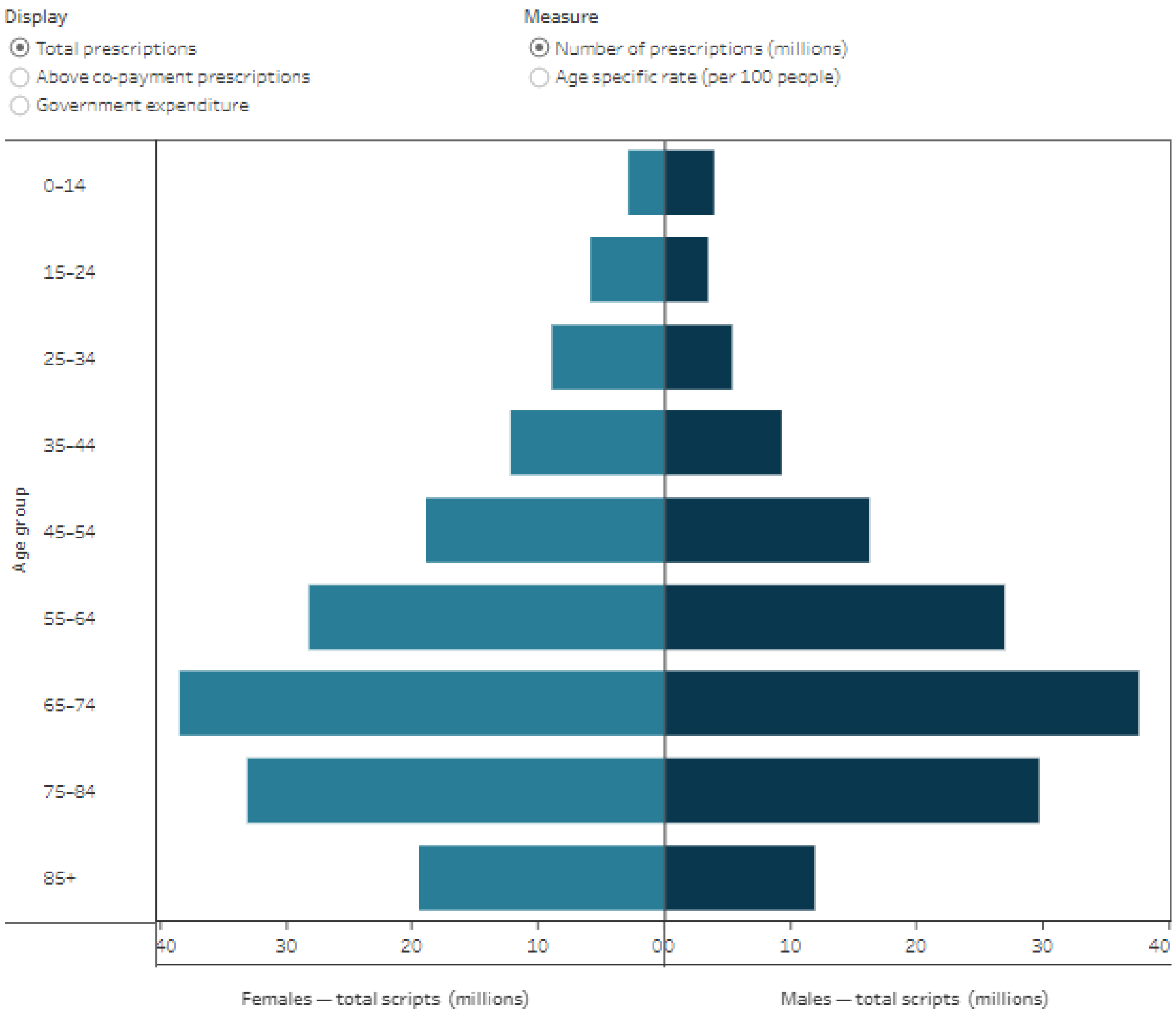
In 2020–21, PBS prescriptions were dispensed to 16.6 million Australians (65% of the population). Population dispensing rates increased with age – young people aged 0–14 had the lowest rates of dispensed prescriptions (145 prescriptions per 100 people aged 0–14), and the highest rates were among those aged 85 and over (5,928 prescriptions per 100 people aged 85 and over). Similar patterns were seen for both males and females (Figure 4).

Over half of PBS and RPBS medicines were dispensed to people aged 65 and over (54%). Within specific age groups, people aged 65–74 had the highest number of dispensed prescriptions and accounted for the highest Australian Government expenditure.

When adjusting for the difference in population age structure, the overall rate of dispensed prescriptions fell by 6.3% between 2015–16 and 2020–21 from 1,132 to 1,061 prescriptions per 100 people (Figure 1). This was particularly the case for above co-payment prescriptions, where age-standardised dispensing rates per 100 people fell by 11% (from 808 to 722 per 100 people). The age-standardised rate of the number of people dispensed one or more prescriptions over the same period also decreased – a fall of 9.3% (from 69 to 63 patients per 100 people). When looking at above co-payment prescriptions only, the age-standardised rate of patients fell by 10.6% (from 37 to 33 per 100 people).

Between 2015–16 and 2020–21, there was a fall in prescription rates for all age groups. This fall was most apparent in the 0–14 age group, for which the prescribing rate fell by 25%. The driver of the observed decrease might be related in part to the utilisation of some antibiotics. PBS utilisation showed a fall of 1.9 million scripts for this age group, of which 1.7 million scripts were for 6 antibiotics.

Figure 4: Total prescriptions and government expenditure, by age and sex, 2020–21



Display
● Total prescriptions
○ Above co-payment prescriptions
○ Government expenditure

Measure
● Number of prescriptions (millions)
○ Age specific rate (per 100 people)

Source: AIHW analysis of PBS and RPBS data maintained by the Australian Government Department of Health; ABS 2021.
http://www.aihw.gov.au/

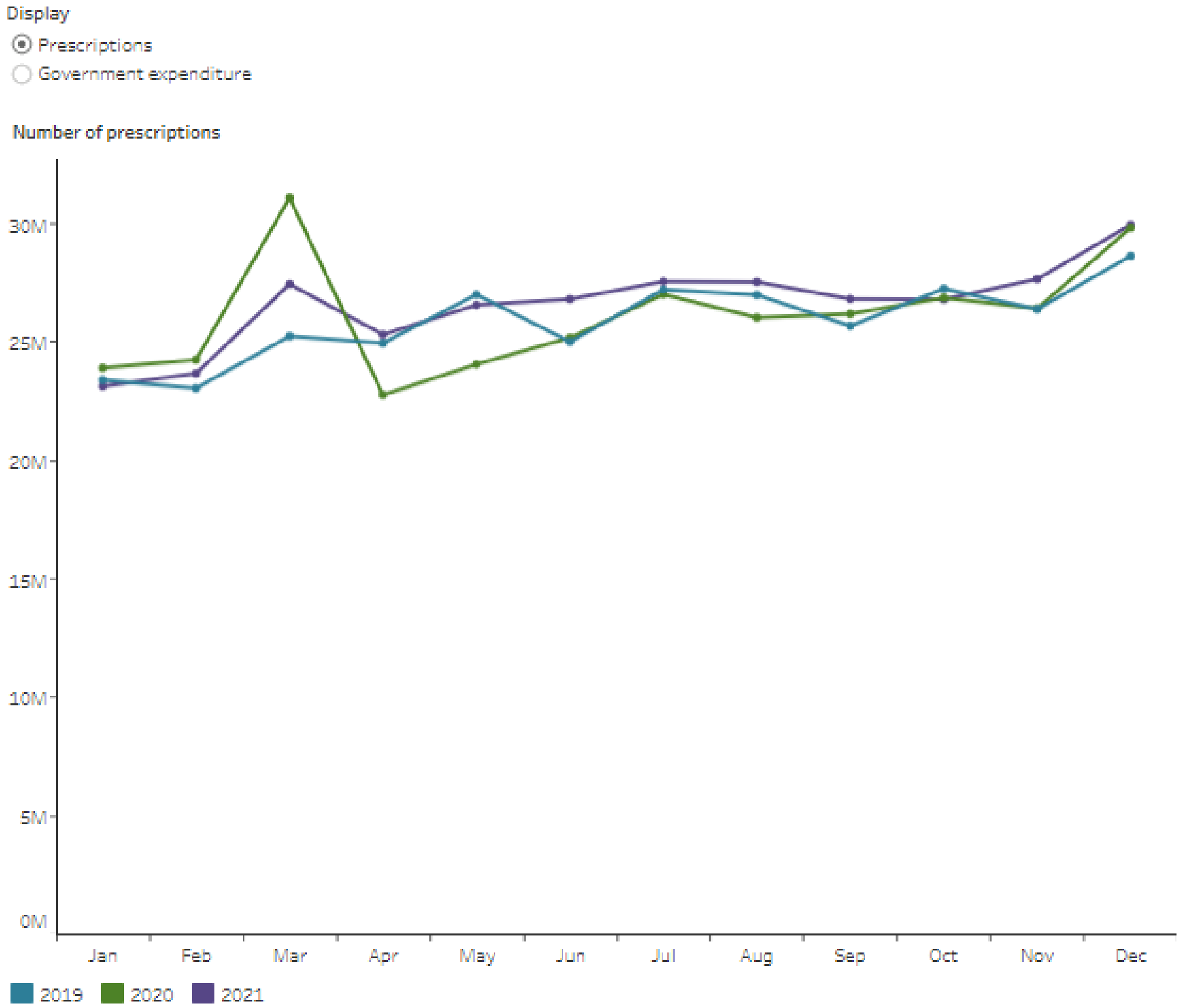
Impact of COVID-19 on prescription medicine use

In response to the COVID-19 pandemic, a number of temporary changes to prescribing and dispensing of PBS medicines were implemented. These changes were aimed at minimising the risk of prescribing doctors, dispensing pharmacists and consumers contracting COVID-19 while ensuring efficient supply of medicines so that consumers could have continued access to their medications.

The pandemic impact on consumer access to prescription medicines was most noticeable in March and April 2020. In March, there was a 23% increase in the number of prescriptions dispensed in 2020 (31.0 million), compared with 2019 (25.2 million) (Figure 5). The high demand for medicines resulted in pharmacies and wholesalers reporting medicine shortages. This change in consumer behaviour was likely due to stockpiling influenced by the introduction of restrictions nationally to contain the spread of COVID-19.

To restrain local shortage in community pharmacies driven by consumer stockpiling, pharmacists have been required to limit dispensing of prescription medicines to prevent unnecessary stockpiling. Consequently, prescription volume decreased by 9% in April 2020 (22.7 million), compared with April 2019 (24.9 million).

Figure 5: Total prescriptions and government expenditure, by month, 2019 to 2021



Note: Government expenditure figures expressed in current prices (please refer to glossary).
Source: AIHW analysis of PBS and RPBS data maintained by the Australian Government Department of Health.
http://www.aihw.gov.au

How have medicines associated with COVID-19 treatments been managed?

Due to global supply constraints and development of new novel treatments for COVID-19, the Australian Government has made significant direct investments in a diverse range of treatment options to support access to, and delivery of, safe and effective COVID-19 vaccines and treatments as soon as they are available. This includes new novel treatments such as intravenous treatments, sotrovimab and remdesivir, and the listing of 2 new oral antiviral treatments, molnupiravir and the combination product of nirmatrelvir and ritonavir, on the PBS Schedule in 2022.

During the pandemic, the medicines tocilizumab, hydroxychloroquine and ivermectin have attracted interest. Tocilizumab is a biologic medicine used to treat a number of conditions including severe arthritis and giant cell arteritis. Concerns were raised that consumers would be impacted by the global shortage of tocilizumab, due to off-label use (where a drug is prescribed for an indication, a route of administration, or a patient group that is not included in the approved product information document for that drug) for treatment of COVID-19. Hydroxychloroquine is an antimalarial and anti-rheumatic drug and ivermectin is an anti-parasitic drug. There were also concerns about unapproved use of these 2 medicines for treatment of COVID-19.

Tocilizumab

In July 2021, Roche Products Pty Limited (Roche), the sponsor of tocilizumab (Actemra), notified the TGA of shortages of multiple presentations of tocilizumab (Actemra) products due to global demand in response to the COVID-19 pandemic (due to the use in the treatment of critically ill COVID-19 patients as per the World Health Organization recommendations). Tocilizumab has been given provisional approval for the treatment of COVID-19 in Australia.

From 15 August 2021, temporary PBS arrangements have been in place to facilitate timely access to tocilizumab and appropriate alternative medicines until the shortage of tocilizumab has been resolved. These include:

- switching from subcutaneous tocilizumab to intravenous tocilizumab
- switching from tocilizumab to an alternative medicine
- making subcutaneous tocilizumab presentations interchangeable whichever presentation is available (ended on 30 April 2022)
- considering the off-label use of baricitinib (a rheumatoid arthritis medicine) for COVID-19 patients to conserve tocilizumab for patients with limited medicine options (such as juvenile idiopathic arthritis and cytokine release syndrome).

In early March 2022, Roche advised that availability of tocilizumab (Actemra) in Australia continues to improve but will remain constrained throughout early 2022.

Script volume of tocilizumab showed a decrease of 25% from August to September 2021, and a further 20% decrease in October (Figure 6). Volumes were steady in November, with a 7% increase in December. Correspondingly, script volume of substitutable PBS medicines showed a 5% increase in November 2021, and a further 7% increase in December.

Numbers of patients claiming a script for tocilizumab showed a 23% decrease for September 2021, followed by a 16% decrease for October 2021. For the relevant substitutable PBS medicines, there was a small increase of 3% in patient numbers for both November and December 2021.

Hydroxychloroquine

Hydroxychloroquine has been touted since early 2020, as being highly effective in COVID-19 prevention and treatment, despite a lack of clinical evidence and official concerns about patient safety.

There was concern that prescriptions may be used for off-label treatment for COVID-19. To discourage this practice, in March 2020 the TGA placed restrictions on medical specialists who could initiate prescribing of the medication. Further changes in hydroxychloroquine PBS listing criteria took place on 1 May 2020 where the PBS restriction level of hydroxychloroquine on the PBS was increased. The Clinical Evidence Taskforce also strongly recommended that people do not use hydroxychloroquine to treat COVID-19.

There was an initial surge of prescribing hydroxychloroquine in March 2020, followed by a reduction over the next 2 months (Figure 6). Since then, there has been no indication that there is widespread off-label prescribing, with script volumes following a similar pattern to the previous year. There was a 6% increase to around 325,000 scripts from 2019 to 2020, followed by a 2% increase to around 332,000 scripts in 2021.

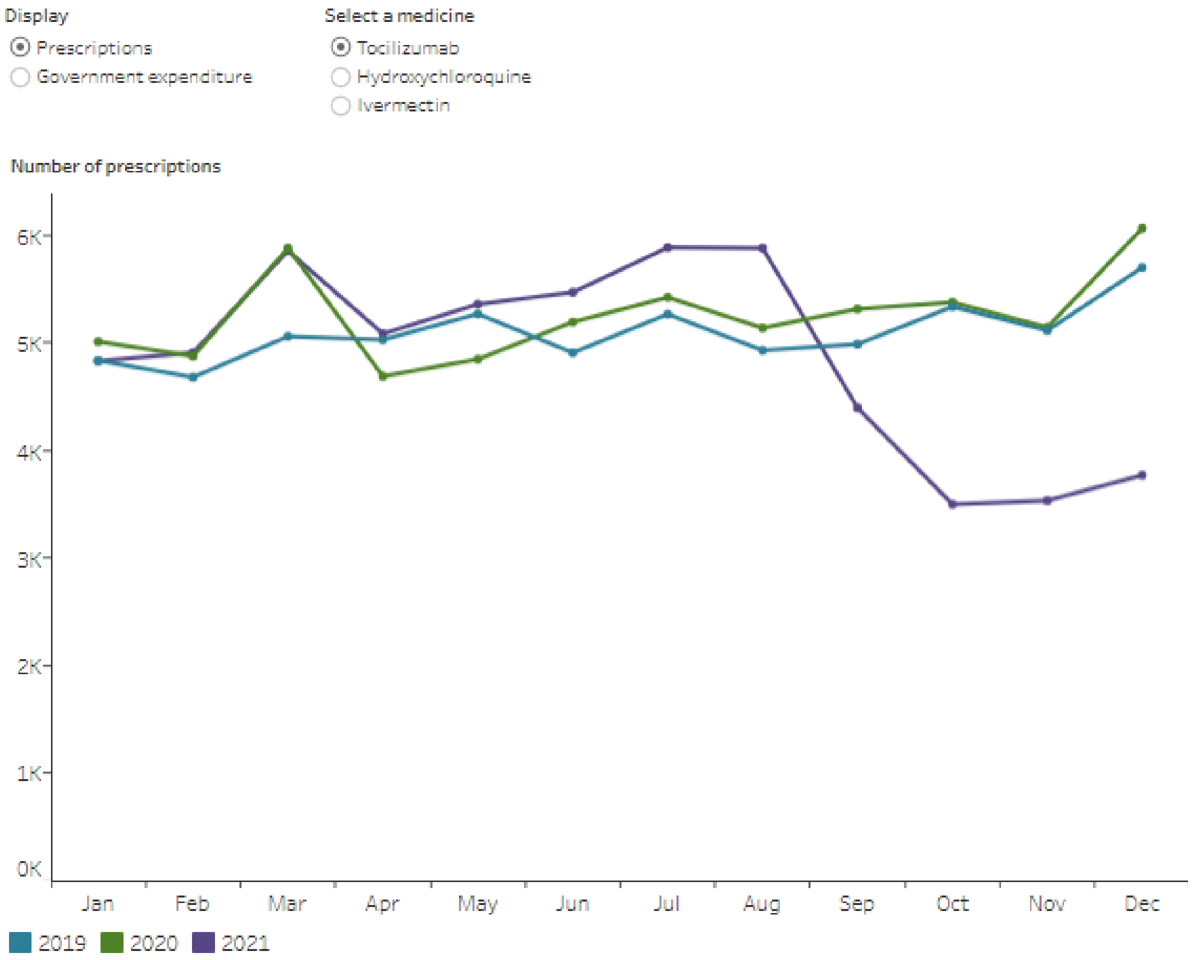
Ivermectin

The efficacy of ivermectin for the prevention and treatment of COVID-19 has been hyped, even though there is no robust clinical evidence, and official concerns about safety of off-label use.

There was concern that prescriptions may be misused for treatment of COVID-19. The Clinical Evidence Taskforce strongly recommended that people do not use ivermectin to treat COVID-19.

There was some indication that ivermectin might have had some off-label prescribing, with script volume increasing by 19% to over 13,600 scripts from 2019 to 2020 (Figure 6). This was followed by a 7% increase to about 14,500 scripts in 2021.

Figure 6: Total prescriptions and government expenditure, by selected medicines, 2019 to 2021



Display

● Prescriptions

○ Government expenditure

Select a medicine

● Tocilizumab

○ Hydroxychloroquine

○ Ivermectin

[Notes]

Source: AIHW analysis of PBS and RPBS data maintained by the Australian Government Department of Health.
http://www.aihw.gov.au

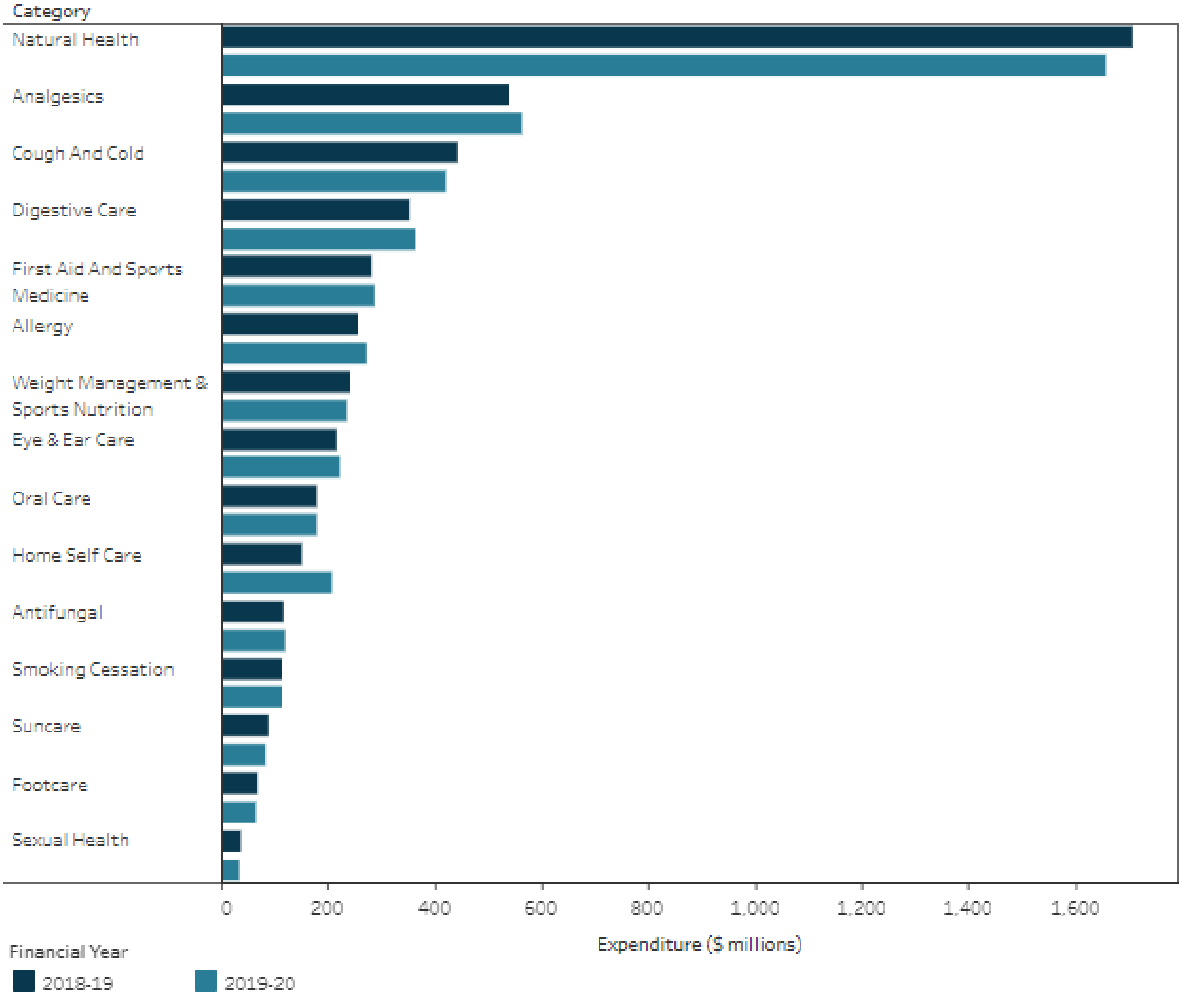
Non-PBS/RPBS subsidised medicines

Over-the-counter (OTC) medicines

In addition to prescription medicines, certain types of medicines and other health care products are available from pharmacies, supermarkets or health food outlets without a prescription. Among OTC and complementary medicines sold in pharmacies, natural health products were the largest-selling items, with an estimated expenditure in 2019–20 of $1.7 billion. These include vitamin and mineral supplements, herbal medicines, homeopathic preparations and probiotics. Analgesics were the second largest-selling group ($563.4 million) (Figure 7).

Compared with the previous year, growth in expenditure for OTC medicines in 2019–20 was greatest for home self-care products at 37%. Among these products, masks and thermometers experienced the largest increases in expenditure. The second largest growth was for allergy medicines at 7%. Footcare had the biggest decline in expenditure at 7% less than the expenditure in 2018–19.

Figure 7: Expenditure on over-the-counter medicines sold by pharmacies, 2018–19 and 2019–20



Source: AIHW analysis of IRi Health and Beauty Over-the-Counter Report, 2020 and 2021 (unpublished).
http://www.aihw.gov.au/

Private prescriptions

Medicines that require a prescription but are not eligible for subsidy under the PBS are known as private prescriptions. Some examples of private prescriptions include medicines that are not listed on the PBS; are prescribed for off-indication use; and are provided to consumers who are not eligible for PBS.

Private scripts expenditure for 2018–19 and 2019–20 was estimated at $902.8 million and $836.0 million (current prices) respectively, representing a decline of 7.4% (AIHW 2021).

Where do I go for more information?

For more information on medicines in the health system, see:

- Services Australia Medicare Statistics
- Department of Health PBS Statistics
- Pharmaceutical Benefits Scheme website

For information on how medicines are regulated, see:

- Therapeutic Goods Administration: how we regulate medicines

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Mental health services

This topic summary is part of the Mental health services in Australia report.

In a calendar year, 1 in 5 (20%) people aged 16–85 will experience mental illness (ABS 2008). Mental illness can affect not just the individual, but also their family, friends and the community – in 2018, *Mental and substance use disorders* were responsible for around 13% of the total disease burden in Australia (AIHW 2021).

People with mental illness can access a variety of support services, which are delivered by governments, and by the private and not-for-profit sectors.

Mental health treatment, care and support is provided in a range of settings and services, including:

- specialised hospital services – public and private
- residential mental health services
- community mental health care services
- primary care services.

Health care professionals who provide treatment, care and support within the mental health system include:

- general practitioners
- psychiatrists and other medical staff
- psychologists
- nurses – registered and enrolled
- social workers
- other allied health professionals
- mental health consumer and carer workers
- other personal care staff.

Service use

A large number of support services are provided to people with a mental illness each year. For example, state and territory community mental health care services provided around 10 million service contacts in 2019–20 (Table 1).

Table 1: Selected mental health-related services provided, 2019–20

Service type	Volume	Selected findings
Medicare-subsidised mental health-related services[(a)]	12.4 million services	Psychologists (including Clinical Psychologists) (45%) were the largest providers of these services. 11.8% of services were delivered via telehealth.
People accessing Medicare-subsidised mental health-related services	2.7 million people	10.7% of Australians accessed these services, up from 5.7% in 2008–09.
Mental health-related prescriptions[(b)]	40.7 million prescriptions	4.4 million patients (17.2% of the Australian population) received these prescriptions 72% of prescriptions were for antidepressant medication[(b)].
Public sector community mental health care service contacts	10.0 million contacts	Aboriginal and Torres Strait Islander patients received community mental health care services at more than 3 times the rate of non-Indigenous patients.
Emergency department (ED) services (public hospitals)	310,471 presentations in 2019–20	310,471 presentations to public Australian EDs were mental health-related, which was 3.8% of all presentations (up from 2.9% in 2011–12).
Overnight admitted patient hospitalisations	275,270 hospitalisations	Depressive episode (15.4%) and Schizophrenia (13.4%) were the most common principal diagnoses for overnight mental health-related hospitalisations with specialised psychiatric care.
Same-day admitted patient hospitalisations	59,002 hospitalisations	Almost 1 in 4 (22.4%) of same day, admitted mental health-related hospitalisations with specialised psychiatric care in public hospitals had a principal diagnosis of Depressive episode.

(f) Includes psychiatrists, GPs, clinical psychologists, other psychologists and other allied health services. These services are billed as mental health-related items, which underestimates the total mental health-related activity, especially for services provided by GPs.

(g) Prescriptions subsidised and under co-payment under the Pharmaceutical Benefits Scheme and Repatriation Pharmaceutical Benefits Scheme.

Source*:* AIHW 2022. https://www.aihw.gov.au/mhsa.

Spending

About $11.0 billion, or $431 per person, was spent on mental health-related services in Australia in 2019–20; $10.4 billion of this was government mental health expenditure, representing 7.6% of total government health expenditure. Per person, total spending on mental health increased (in real terms) by an annual average of 1.3% between 2015–16 and 2019–20. The total expenditure in 2019–20 included:

- about $6.7 billion, or $260 per person, spent on state and territory specialised mental health services
- about $1.4 billion, or $53 per person, spent on Medicare Benefits Scheme (MBS) subsidised services
- about $566 million, or $22 per person, spent on mental health-related prescriptions subsidised under the Pharmaceutical Benefits Scheme (PBS) and Repatriation Pharmaceutical Benefits Scheme (RPBS).

Comparing 2015–16 with 2019–20, recurrent per person spending on state and territory specialised mental health services increased (in real terms) from $250 to $260.

See Expenditure on mental health services for more information.

Workforce

A variety of professionals deliver care and support to people with mental illness, including psychologists, psychiatrists, mental health nurses, general practitioners (GPs), social workers, counsellors and peer workers. Available registered and employed workforce data for some of these professions indicate that in Australia in 2019 there were:

- 28,400 registered psychologists
- 24,100 mental health nurses
- 3,600 psychiatrists.

In 2019–20, there were about 35,686 full-time equivalent (FTE) staff employed in state and territory specialised mental health care services.

See Mental health workforce for more information.

Safety and quality

Safety and quality is important in all areas of the health system. A safe and high-quality health system provides the most appropriate and best-value care, while keeping patients safe from preventable harm. Data are available that can be used to measure aspects of safety and quality in the Australian mental health care system – including use of restrictive practices, consumer perspectives of care, and change in mental health consumers' clinical outcomes.

Seclusion and restraint

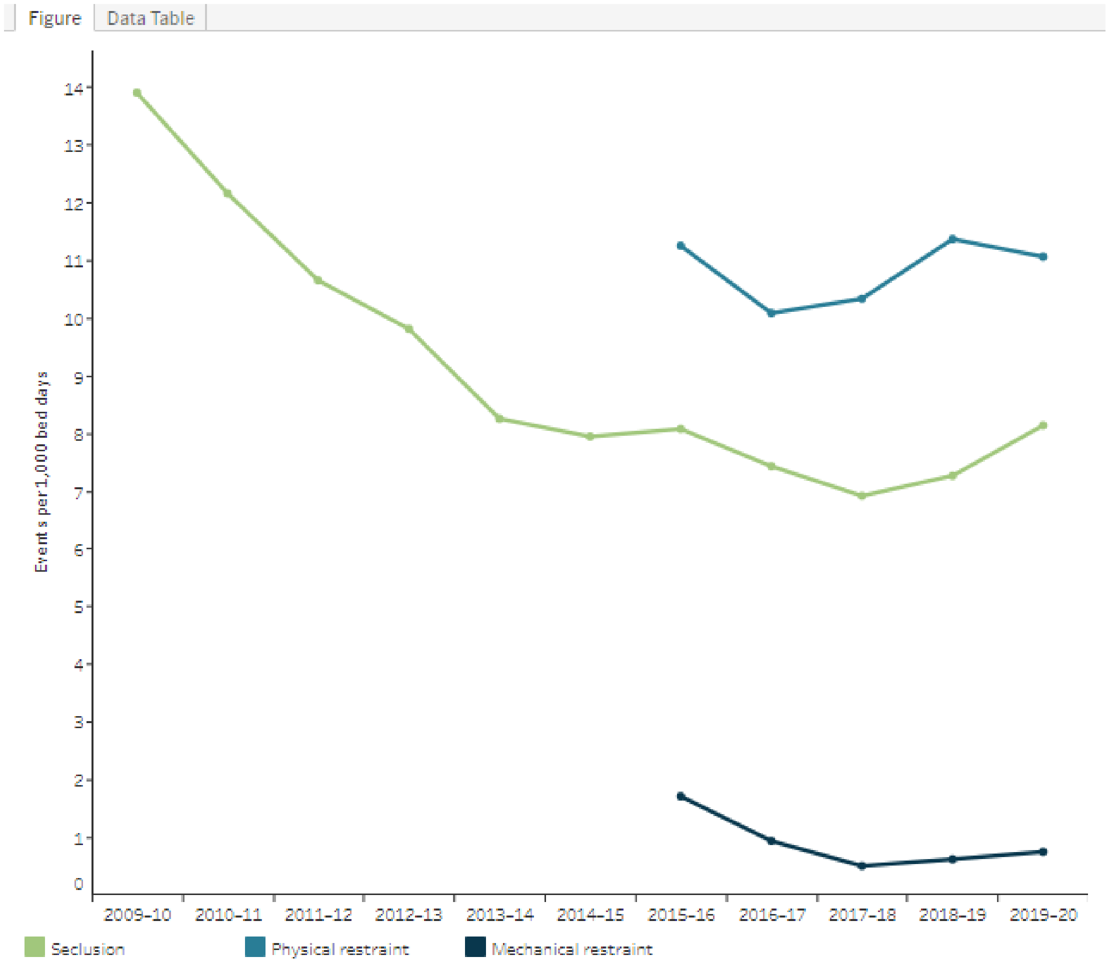
Use of seclusion and restraint are examples of restrictive practices and are included in the Key Performance Indicators for Australian Public Mental Health Services (NMHPC). Seclusion is defined as the confinement of a patient alone in a room or area from which free exit is prevented. Restraint is defined as the restriction of an individual's freedom of movement by physical or mechanical means.

Reducing, and where possible, eliminating the use of seclusion and restraint is a policy priority in Australian mental health care and has been supported by changes to legislation, policy and clinical practice (RANZCP 2021).

Seclusion events in specialised acute public hospital mental health services over the past decade have fallen from 13.9 seclusion events per 1,000 bed days in 2009–10 to 8.1 events per 1,000 bed days in 2019–20 (Figure 1).

Mechanical restraint events fell from 1.7 events per 1,000 bed days of patient care in 2015–16 to 0.7 in 2019–20. The use of physical restraint has remained relatively stable, since reporting began in 2015–16, varying between 10 to 12 events per 1,000 bed days of patient care (Figure 1).

Figure 1: Rate of seclusion and restraint events, public sector acute mental health hospital services, 2009–10 to 2019–20



Note: For detailed notes, see notes in data tables within Mental Health Services in Australia. https://www.aihw.gov.au/reports/mental-health-services/mental-health-services-in-australia/report-contents/restrictive-practices
Source: National Seclusion and Restraint Database.
http://www.aihw.gov.au

See Restrictive practices for more information.

Patient-reported experiences of care

Patient-reported experience measures collect patients' views and observations on aspects of the care they have received. Monitoring mental health consumer and carer experiences of service has been a long-term goal of the National Mental Health Strategy (Commonwealth of Australia 2009 and CHC 2017) and patient-reported measures have attracted increasing national focus for their potential to support health service improvement. One such measure – the Your Experience of Service (YES) survey – has been implemented in New South Wales, Victoria and Queensland specialised mental health services. Each state has a method of administration that best suits local needs and, therefore, comparisons between jurisdictions with different methods should be made with caution.

In 2019–20, more than 25,600 YES survey responses were collected across 68 mental health service organisations across New South Wales and Queensland. Victoria did not conduct the survey during 2019–20 due to the COVID-19 pandemic. In 2019–20 it is estimated that:

- 70% of respondents in New South Wales and 50% in Queensland reported a positive experience of admitted care services
- 80% of respondents in New South Wales and 81% in Queensland and reported a positive experience of ambulatory (non-admitted) care services
- 80% of respondents in Queensland residential care reported a positive experience of service.

See Consumer perspectives of mental health care for more information.

Consumer outcomes of care

Clinical measures that capture information about the health and wellbeing of people during mental health service use can be used to report on whether consumers improve after receiving mental health care. The National Outcomes and Casemix Collection (NOCC) encourages the routine use of outcome measures in all publicly funded or managed mental health services and provides data for reporting one of the Key Performance Indicators for Australian Public Mental Health Services (NMHPC).

See Consumer outcomes in mental health care for more information.

COVID-19 impact on mental health

The potential for COVID-19 to impact mental health and wellbeing was recognised early in the pandemic (WHO 2020). In addition to concerns around contracting the SARS-CoV-2 virus itself, some of the measures necessary to contain its spread were also likely to negatively impact mental health (NMHC 2020).

Medicare-subsidised mental health-specific services

The Australian Government introduced additions to the MBS to support provision of health care via telehealth (telephone and videoconference) to reduce the risk of community transmission of COVID-19. These MBS items include mental health services provided by GPs, psychiatrists, psychologists and other allied health workers.

Between 16 March 2020 and 9 January 2022, there were 25 million MBS-subsidised mental health-related services processed and $2.8 billion in benefits paid. About 7.3 million (29.2%) of these services were delivered via telehealth.

Pharmaceutical Benefits Scheme prescriptions

In March 2020, the Australian Government temporarily expanded existing Continued Dispensing arrangements through the Continued Dispensing (Emergency Measures) for most PBS and RPBS medicines supplied through community pharmacies to support Australians' continued access to PBS medicines in response to the pandemic (Department of Health 2022; Services Australia 2021).

Key trends include:

- A spike in PBS prescriptions, including all mental health-related prescriptions, was observed in March 2020 during the first wave of the pandemic and the nationwide lockdown in 2020.
- An 18.6% increase in the number of mental health-related prescriptions dispensed in the 4 weeks to 29 March 2020 compared with the 4 weeks to 31 March 2019.
- In the 4 weeks to 28 November 2021, there was a 3.9% increase compared with the 4 weeks to 29 November 2020. Prescriptions for antidepressants increased by 5.0% between these periods.

National use of crisis and support organisations

There are a range of crisis, support and information services available to support Australians experiencing mental health issues, such as Lifeline, Kids Helpline and Beyond Blue.

These crisis support services reported an increased demand for their services in March 2020 and have recorded fluctuations in activity during the course of the pandemic. Total demand for crisis and support organisations trended upward from June 2021 to early September 2021, with Lifeline reaching record call demand in September 2021. Direct comparisons between organisations are not meaningful due to differences in populations being serviced, service models, funding envelopes, workforce availability and information systems.

See COVID-19 impact on mental health services for more information, including state and territory breakdowns.

Where do I go for more information?

- More information on mental health services can be found in Mental health services in Australia.

If you or someone you know needs help please call:

- Lifeline 13 11 14

- Beyond Blue 1300 22 4636
- Kids Helpline 1800 55 1800

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Palliative care services

This topic summary is part of the Palliative care services in Australia report.

Palliative care aims to prevent and relieve suffering and improve the quality of life of people (adults, children and their families) facing problems associated with life-limiting illness. Palliative care can be delivered by a wide range of health and community providers, is not limited to any specific condition, can be delivered at any stage of illness, and can accompany curative treatments. With an ageing and growing population, it is projected that the demand for palliative care and end-of-life care will rise substantially.

Identifying and accessing information on when palliative care has been provided and by whom remains a significant challenge (see below for further details).

See Glossary and Technical Information for further details on the definitions, data, and data sources used on this page.

Overview of palliative care services and data availability

In Australia, government agencies, as well as private and not-for-profit bodies, deliver palliative care in many health care settings, including but not limited to specialist inpatient and community-based palliative care services, neonatal units, paediatric services, geriatric services, public and private hospitals, general practices, disability services, and residential and community aged care services.

Identifying palliative care and end-of-life care in existing data collections and across all health settings remains a significant challenge, particularly care delivered in community, primary care, and residential aged care settings. For example, limited national data are currently available on palliative care-related expenditure, community-based palliative care services, Medicare Benefits Schedule-subsidised services provided by general practitioners and non-palliative care medical specialists, and the number of palliative care beds in hospitals, both acute and subacute. The data on this page is focused on specific settings where systems are in place to record a palliative care service, in particular specialist palliative care.

The AIHW is working with palliative care stakeholders to help address data gaps in palliative care reporting. The AIHW in collaboration with the End-of-Life Care Data Development Working Group released the National Palliative Care and End-of-Life Care Information Priorities report (PDF, 890KB) in January 2022. This document outlines an aspirational vision for the future of national palliative care and end-of-life care information development over the next decade and articulates priorities aimed at supporting that vision.

Hospitalisations

Palliative care-related hospitalisations are those where palliative care was provided during all or part of an episode of admitted patient care. It includes hospitalisations where the primary clinical purpose is palliative care and care is provided in a palliative care unit or by a palliative care specialist (referred to as palliative care hospitalisation) and hospitalisations with a recorded diagnosis of palliative care but where the primary clinical purpose of care is not recorded as palliative care (referred to as other end-of-life care hospitalisation; see Technical Information).

In 2019–20, there were 87,000 palliative care-related hospitalisations (49,200 for palliative care and 37,700 for other end-of-life care).

- 1 in 2 (52%) palliative care hospitalisations recorded a principal diagnosis of cancer.
- 3 in 5 (60%) patients who died in hospital received palliative-related care during their final hospitalisation.
- Average length of stay for palliative care-related hospitalisations was almost twice as long as for all overnight hospitalisations (9.6 days for palliative care and 11.1 days for other end-of-life care compared with 5.5 days for all hospitalisations).

Between 2015–16 and 2019–20, palliative care-related hospitalisations increased by almost one fifth (18%) – this increase was at a steeper rate than that for hospitalisations for all reasons (6%) over the same period.

For more information refer to the section on admitted patient palliative care.

Medicare-subsidised specialist services

Medicare-subsidised palliative medicine specialist services (identified through specific MBS items) are those provided by palliative medicine physician/specialist. These services cover patient attendances (or consultations) provided in different settings – hospital/consulting room or other setting (such as a person's place of residence, including home, residential aged care or institution) – as well as services such as case conferencing (community case conference and discharge case conference).

In 2020-21, 15,800 patients received 77,000 palliative medicine specialist services.

- Patients received an average of 4.9 services per year.
- 4 in 5 (80%) were for palliative care attendances in consulting rooms or a hospital and 1 in 8 (12%) were for palliative medicine case conferences.
- $6.3 million was paid in benefits for these services.

The decline in the number of MBS-subsidised palliative medicine specialist services first observed between 2018–19 to 2019–20 continued in the 12 months to 2020–21 (8.7% decline between 2019–20 and 2020–21). This is in contrast to the 3 years leading to 2018–19 where services had been increasing.

For more information refer to medicare-subsidised palliative medicine services.

Medications

Palliative care-related prescriptions are an important component of care for palliative patients. One of the attributes of palliative care is to '*provide relief from pain and other distressing symptoms*' (WHO 2020a). Palliative care-related prescriptions are defined as those listed in the Palliative Care Schedule of the Pharmaceutical Benefits Scheme (PBS). This schedule aims to improve access to essential and affordable medications for patients receiving palliative care.

In 2020–21, there were 1.2 million palliative care-related prescriptions provided to almost 515,000 patients.

- 1 million prescriptions were for pain relief, accounting for 89% of all palliative care prescriptions.
- 9 in 10 (92%) palliative care-related prescriptions were prescribed by general practitioners.

Between 2016–17 and 2020–21, the number of palliative care-related prescriptions increased on average by 6% per year, with the steepest increase being for gastrointestinal symptom prescriptions (13% average annual increase).

For more information refer to the section on palliative care-related medications.

Residential Aged Care

The Australian Government subsidises residential aged care services for older Australians whose care needs are such that they can no longer remain living in their own homes. The data used here are based on Aged Care Funding Instrument (ACFI) appraisals, which are used to determine Australian Government subsidies for people living in permanent residential aged care (PRAC) services.

In 2020–21, there were 4,500 people using permanent residential aged care with an ACFI appraisal indicating the need for palliative care (only 1.9% of the 243,500 people using PRAC).

- 3 in 5 (59%) were aged 85 years and over.
- 1 in 4 (22%) had cancer listed as the first condition on their appraisal, compared, with 3.5% for those appraised as requiring other care.
- 1 in 2 (50%) exited within 8 weeks of admission, compared with 8.5% for those appraised as requiring other care.

For more information refer to the section on palliative care in residential aged care.

Outcomes

Key measures of quality care are the outcomes that patients, their families and carers achieve. The Australian Palliative Care Outcomes Collaboration (PCOC) is a national program that aims to systematically improve patient and carer outcomes, using standardised validated clinical assessment tools (clinician and patient-rated scales) to benchmark and measure outcomes. These include timeliness of palliative care, responsiveness to urgent needs, and responsiveness and appropriateness of the care plan in place.

In 2020, 53,300 patients received palliative care from the 170 palliative care services participating in PCOC.

- 9 in 10 episodes commenced on the day the patient was ready for palliative care, or the day after.
- 9 in 10 patients had urgent needs (unstable phase) managed within 3 days or less.
- 9 in 10 palliative care phases that started with absent/mild patient pain remained absent/mild at the end of the phase.

Achieving an absent/mild symptom outcome is less likely when the patient has moderate/severe symptoms to begin with, especially for those with distress from fatigue and breathing problems:

- 3 in 5 palliative care phases that began with moderate/severe patient pain reduced to absent/mild by the end of the phase.
- 1 in 2 of those starting with moderate/severe distress from fatigue or breathing problems reduced to absent/mild by the end of the palliative care phase.

For more information refer to the section on Palliative care outcomes.

Workforce

The palliative care workforce consists of a number of professional groups, including specialist palliative medicine physicians, palliative care nurses, general practitioners, pharmacists, allied health professionals, other medical specialists (such as oncologists and geriatricians), as well as other health workers, support staff and volunteers. Due to a lack of comprehensive data, data are only available on physicians with a primary specialty of palliative medicine (palliative medicine physicians) and nurses working in palliative care (palliative care nurses)) (see Box WK.1 in the palliative care workforce section).

In 2019, there were 292 employed palliative medicine physicians and 3,700 employed palliative care nurses.

- The majority of specialist palliative medicine physicians were women (64%), almost double the proportion of all women employed as medical specialists (34%).

- Almost 9 in 10 (87%) palliative medicine physicians and 3 in 4 (72%) palliative care nurses worked in *Major cities*.

Between 2014 and 2019, there was a 50% increase in the number of employed palliative medicine physicians and a 10% increase in palliative care nurses.

For more information refer to the section on the Palliative care workforce.

Impact of COVID-19 on palliative care services

The COVID-19 pandemic was anticipated to impact palliative care in a number of ways, including disruptions in service delivery and increased demand of palliative care-related resources such as palliative care physicians/specialists and medications (WHO 2020b). A high proportion of people using palliative care services and in permanent residential aged care are aged 70 and over and/or are immunocompromised and so are at an increased risk of dying due to COVID-19.

By looking at monthly service activity data we can assess whether the public health response to the COVID-19 pandemic had an impact on the delivery and receipt of palliative care services during 2020 and 2021.

- There was a large decrease in MBS-subsidised palliative care specialist services in April, May and September 2020 (25%, 12% and 18% decrease from 2019 levels). While the number of services was similar to or above March 2020 levels between November 2020 and June 2021, it did not fully recover to the levels observed in the corresponding months in 2019 (remained 10–18% lower). Note, palliative care physicians/specialists were able to use new MBS COVID-19 telehealth items from March 2020 in response to the pandemic, which may have contributed to the above mentioned declines in face-to-face consultations with palliative care physicians/specialists.
- In March 2020 there was a large increase in palliative care-related prescriptions (13% increase from 2019 levels), followed by a large drop in April (20% from March 2020 and 7% lower than in April 2019), with prescription numbers then returning to relatively similar levels observed in previous years between July and December 2020 . Another large drop was observed for most months between January to May 2021 (3–15% below the 2019 levels for the corresponding months).
- A large decrease in the new admissions to permanent residential aged care was also observed in May 2020 (28% and 24% decline from March 2020 for people appraised as requiring palliative and other care, respectively), reaching its lowest level in May 2020 in the 3 years to June 2021. Another decrease was also observed in October 2020 and January 2021 for palliative care admissions and in August 2020 and January 2021 for other care. By February 2021, the number of admissions had largely recovered to similar levels observed prior to the COVID-19 pandemic in March 2020.

These falls coincided with the stricter public health restrictions and lockdowns in certain regions at these times, however fluctuations in counts may reflect a number of factors that may or may not be related to the COVID-19 pandemic.

The most recent hospitals and outcomes data only captures the first 3 months of the COVID-19 pandemic in Australia. More data over a longer period of time, and including patients experiencing COVID-19 who received palliative care, is needed to provide insights on the effects of the COVID-19 pandemic on palliative care service activity and outcomes.

Where do I go for more information?

For more information on palliative care services see:

- Palliative care services
- Department of Health Palliative care website
- Palliative Care Australia website
- Medicare Benefits Schedule website
- Pharmaceutical Benefits Scheme website
- Palliative Care Outcomes Collaboration

References

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Pathology, imaging and other diagnostic services

Find the most recent version of this information at:
https://www.aihw.gov.au/reports/diagnostic-services/pathology-imaging-and-other-diagnostic-services

Pathology, diagnostic imaging and other diagnostic services assist medical and other health practitioners to describe, diagnose and monitor a patient's illness or injury. Patients may receive such services in hospital, but for services provided in non-hospital settings, patients are typically referred to these services by a medical practitioner. There are simple basic pathology tests, some imaging services and many other diagnosis services that patients do not require a referral to attract Medicare benefit.

- Pathology services include a wide range of tests on patient samples, such as blood or body tissue.
- Diagnostic imaging services include: radiography (X-ray), ultrasound, computed tomography (CT scan), nuclear medicine and magnetic resonance imaging (MRI). These services are performed by qualified technical staff in conjunction with registered medical practitioners who are often specialists in diagnostic radiology.

As well as pathology and diagnostic imaging, there are a wide variety of other diagnostic services performed by, or under the direct supervision of, a medical practitioner (often a specialist). These services include electrocardiography (ECG), sleep studies, audiograms, and spirometry.

Whilst many diagnostic services are rendered in hospital, not all of these are subsidised through the Medicare Benefits Schedule (MBS). Common examples of non-MBS subsidised services include:

- services provided by hospital doctors to public patients
- services provided under the Department of Veterans' Affairs National Treatment Account
- services covered by third party or workers' compensation.

This page focuses on pathology, imaging and other diagnostic services subsidised through the MBS, and based on the financial year of processing between 2015–16 and 2020–21. It also highlights the impact of COVID-19 on diagnostic services processed until the end of December 2021.

How many Medicare-subsidised pathology and diagnostic services were provided?

Overall, in 2020–21, 17.8 million (69%) Australians accessed 204.1 million Medicare-subsidised pathology tests, imaging scans and a range of diagnostic services.

Most (91% or 185.1 million) Medicare-subsidised services included in this grouping were provided in non-hospital settings. The most common Medicare-subsidised services in this group were pathology (62% of people had at least one service) and diagnostic imaging services (39% of people had at least one service) (Table 1).

Table 1: Use of non-hospital Medicare-subsidised pathology, imaging and other diagnostic services, 2020–21

Type of service	Proportion of people receiving a service (%)	Number of services (million)	Number of services per patient (average)
Pathology – non-hospital[(a)] [(b)]	61.8	150.9	9.5
Diagnostic imaging – non-hospital[(c)]	39.0	27.7	2.8
Other diagnostic services – non-hospital[(d)]	14.5	6.5	1.7
Total	69.1	185.1	10.4

(h) Pathology services include tests of patient samples, such as blood, urine, stools or body tissues. Note that one sample may result in multiple tests and therefore multiple MBS services.

(i) Patient episode initiation items are included in the above statistics. These items are for the collection and management of specimens – not for the pathology tests themselves.

(j) Diagnostic imaging services include X-rays, CT scans, ultrasound scans, MRI scans and nuclear medicine scans.

(k) Other diagnostic services include diagnostic procedures and investigations, such as electrocardiography, allergy testing, audiograms and sleep studies.

Source: AIHW analysis of MBS data maintained by the Australian Government Department of Health; National, state and territory population, ABS 2021.

Non-hospital Medicare-subsidised services

Trends

Overall, there was an increase in the proportion of people who had a Medicare-subsidised service within this group over the 5 years between 2015–16 and 2020–21. The proportion of people who had a pathology service increased from 55% to 62%, and the proportion who had diagnostic imaging services increased from 38% to 39%. Most of the growth in the number of patients receiving a pathology service occurred in 2020–21 and was due to the large number of patients receiving a polymerase chain reaction (PCR) test for COVID-19 (see Impact of COVID-19 on the use of pathology and diagnostic services).

The number of these services per 100 people increased between 2015–16 and 2020–21, from 502 to 587 pathology services and from 96 to 108 diagnostic imaging services. After adjusting for differences in the age structure of the population, this increase was still observed (475 to 549 pathology services, and 92 to 101 diagnostic imaging services). Please refer to Figure 1 for further details on the volume of pathology and diagnostic imaging services.

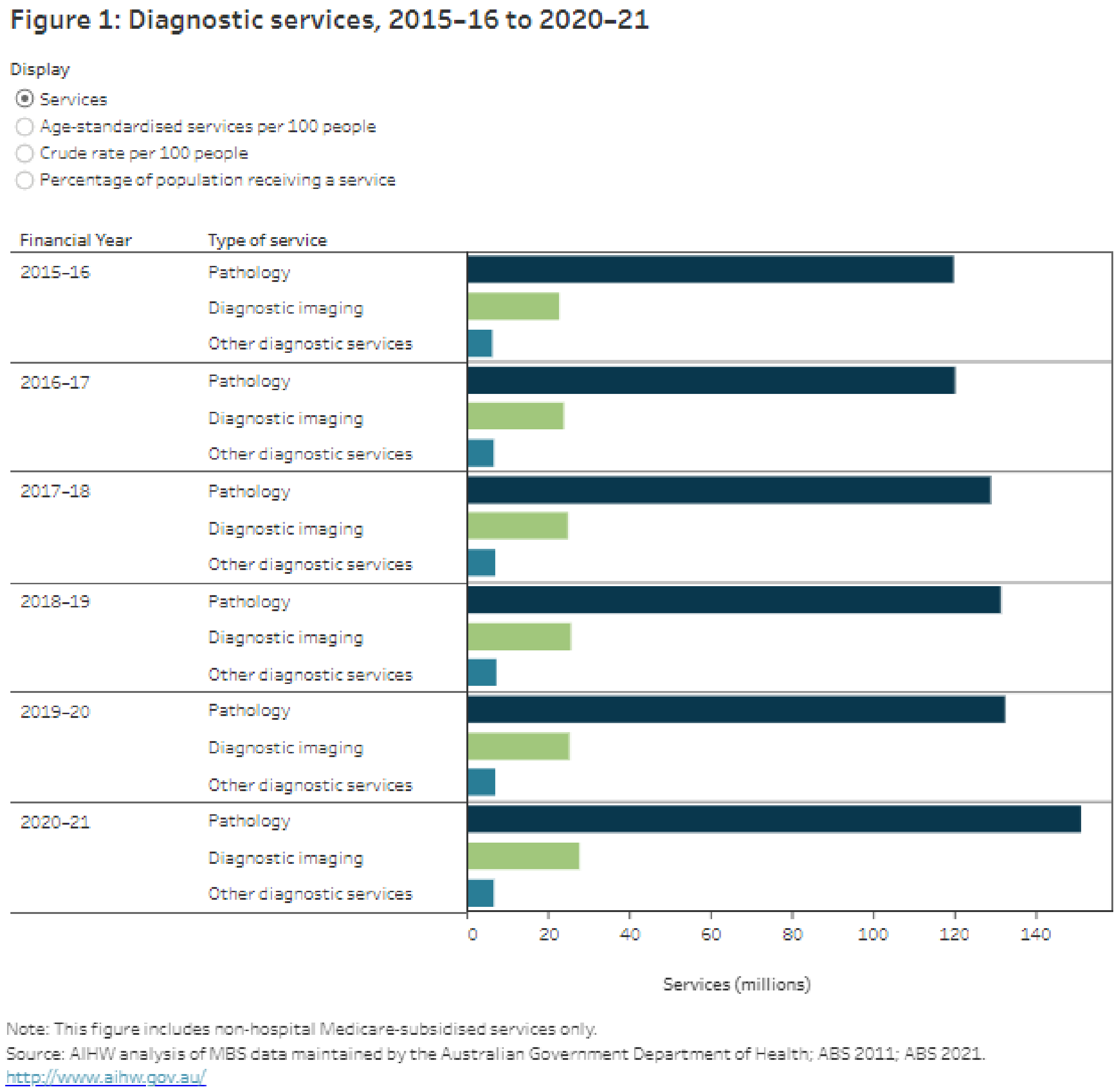


Figure 1: Diagnostic services, 2015–16 to 2020–21

Display

● Services

○ Age-standardised services per 100 people

○ Crude rate per 100 people

○ Percentage of population receiving a service

Note: This figure includes non-hospital Medicare-subsidised services only.

Source: AIHW analysis of MBS data maintained by the Australian Government Department of Health; ABS 2011; ABS 2021.

http://www.aihw.gov.au/

Patient characteristics

Older people were more likely to receive at least one of these Medicare-subsidised services. In 2020–21, 92% of people aged 65 and over had at least one pathology service, compared with 74% of people aged 45–64 and 49% of people aged 44 and under.

Females were more likely than males to have had one or more Medicare-subsidised pathology service (68% of females had at least one service, compared with 55% of males). This trend was also apparent for diagnostic imaging services, where 44% of females received a service compared with 34% of males.

In 2020–21, similar proportions of people living in *Major cities*, *Inner regional* and *Outer regional* areas received these types of services, compared with *Remote* and *Very remote* areas, where lower percentages of people received them. This was most apparent with diagnostic imaging, where 39% of people living in *Major cities*, *Inner regional* and *Outer regional* areas received a service, compared with 31% of people living in *Remote* areas and 23% of people living in *Very remote* areas.

Spending

In 2020–21, $8.7 billion was spent on Medicare-subsidised pathology, imaging and other diagnostic services in non-hospital settings. This comprised:

- $8.2 billion in Medicare benefits paid by the Australian Government
- $518.5 million in out-of-pocket costs paid by patients.

About $3.6 billion was spent on Medicare-subsidised pathology services in non-hospital settings, and $4.1 billion on diagnostic imaging services in 2020–21.

In 2020–21, 179 million (97%) of these diagnostic services were bulk-billed (indicating that patients did not incur costs for these services). Pathology services contributed a large proportion of this figure (Figure 2). For those who did incur out-of-pocket costs, diagnostic imaging had the highest average cost per patient ($195) in 2020–21, whereas pathology had the lowest ($75) for all services received in the year.

Trends in spending

In the 5 years between 2015–16 and 2020–21, spending on Medicare-subsidised pathology, imaging and other diagnostic services outside of hospital increased:

- Medicare benefits paid by the Australian Government increased in real terms (after adjusting for inflation), from $6.3 billion in 2015–16 to $8.2 billion in 2020–21 (Figure 2). Per patient, this was an increase in real terms from $409 to $461 over the same period.
- Patient out-of-pocket costs increased in real terms, from $511.4 million in 2015–16 to $518.5 million in 2020–21 (Figure 2). On a per patient basis, there was an increase in real terms from $167 to $170 in this period.

For pathology services, the number of patients who had an out-of-pocket cost decreased – from around 305,000 in 2015–16 to 152,000 in 2020–21. Over the same period, the average cost per patient (for those who had out-of-pocket costs) also decreased from $77 to $75 per patient in real terms.

However, for diagnostic imaging services, the number of patients who had an out-of-pocket cost has been stable between 2015–16 and 2020–21 – approximately 2.1 million in each year. The average cost per patient (for those who had an out-of-pocket cost) increased in real terms from $187 in 2015–16 to $195 in 2020–21.

Figure 2: Diagnostic service fees and out-of-pocket costs, constant prices, 2015–16 to 2020–21

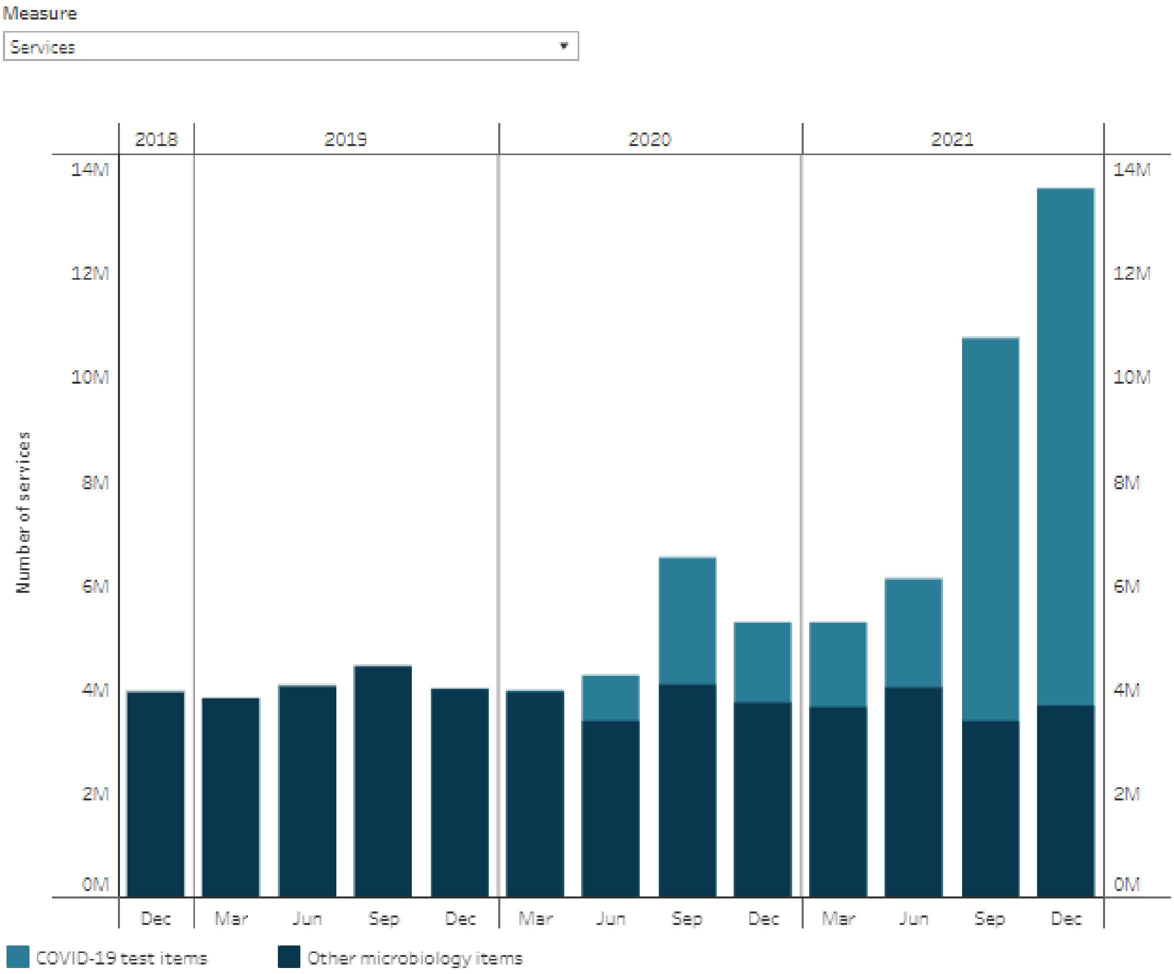
Notes:
1. This figure includes non-hospital Medicare-subsidised services only.
2. Medicare benefit and provider fees expressed in constant prices (please refer to glossary).
Source: AIHW analysis of MBS data maintained by the Australian Government Department of Health.
http://www.aihw.gov.au/

Impact of COVID-19 on the use of pathology and diagnostic services

The COVID-19 pandemic saw new Medicare items introduced on or after 13 March 2020 to provide funding for COVID-19 PCR testing by accredited public and private pathology laboratories (rapid antigen tests are not funded under the MBS). However, these new items do not include mass testing conducted at Government-run testing sites, as the Commonwealth component of this funding is covered under the National Partnership on COVID-19 Response. These items are listed under MBS group P03 – microbiology, and were the main driver in the increase in pathology services in the second half of 2021.

Since the June quarter 2020, the volume of services for COVID-19 testing formed a significant proportion of all microbiology services for non-hospital patients – in the range of 20–38%, which rose to 68% in the September quarter of 2021 and peaked at 73% of all microbiology services in the December quarter of 2021, when COVID-19 case numbers started to rise in south-eastern Australia in the previous quarter (Figure 3). The relatively high benefit for COVID-19 testing items made this effect even more pronounced when looking at Medicare benefits paid. In the December quarter 2021, 89% of all Medicare benefits paid for microbiology services related to COVID-19 testing.

Figure 3: Microbiology services, COVID-19 test items and all items, October 2018 to December 2021

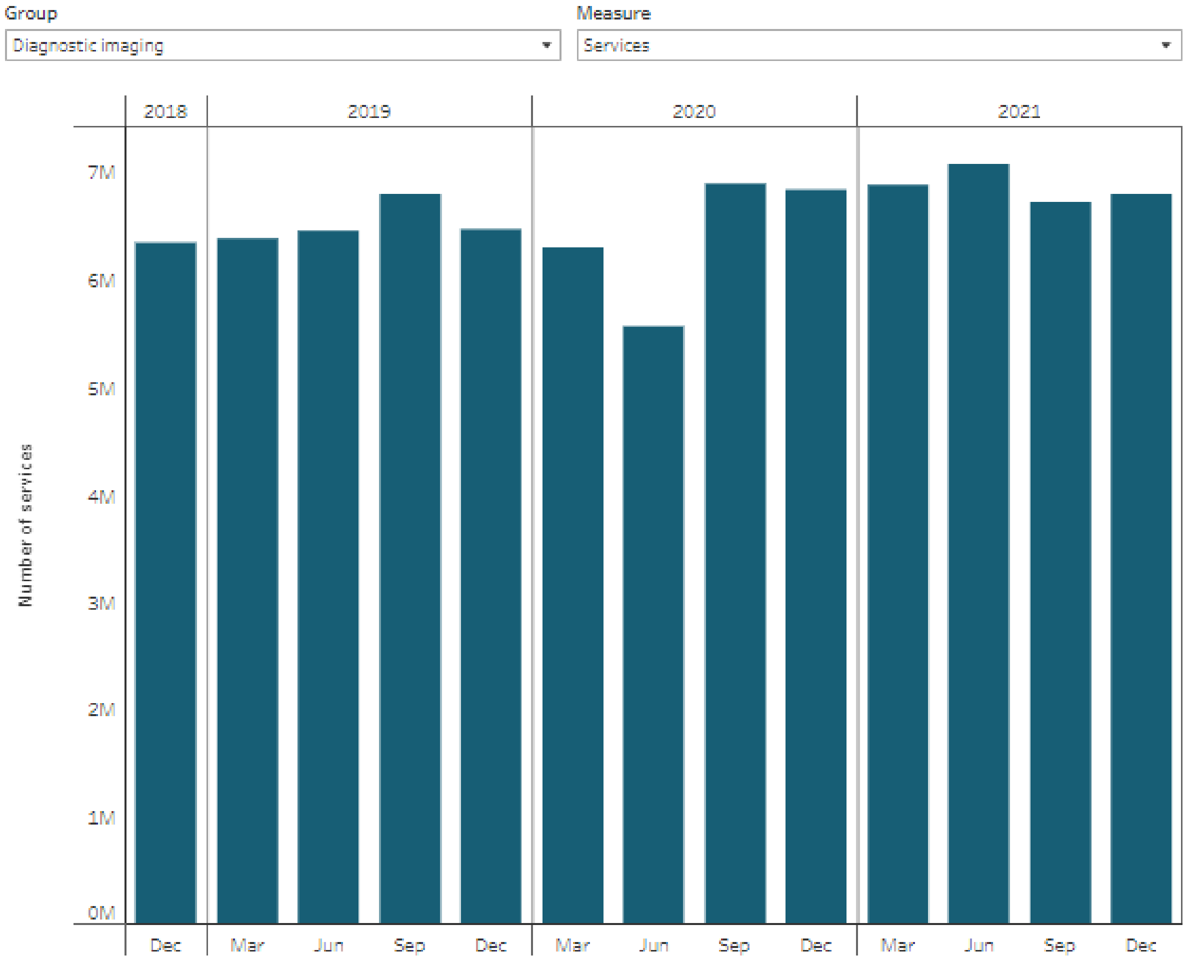


Note: This figure includes non-hospital Medicare-subsidised services only.
Source: AIHW analysis of MBS data maintained by the Australian Government Department of Health.
http://www.aihw.gov.au/

Diagnostic imaging saw the volume of services drop significantly in the June quarter 2020, down to 5.6 million from approximately 6.5 million in previous quarters (Figure 4). This decline could be attributed to the extensive lockdowns throughout Australia that occurred in this quarter, along with the postponement of elective surgeries in place for part of the quarter. The volume of imaging services bounced back and reached 7.1 million in the June quarter 2021.

Other diagnostic procedures, on the other hand, saw a more sustained fall in service volumes since the COVID-19 pandemic began. Similar to diagnostic imaging, there was a large initial drop in services in the June quarter of 2020 (Figure 4). Since that quarter, the service volumes did increase somewhat (to approximately 1.6 million services per quarter), but did not reach the numbers seen prior to the pandemic (about 1.8 million services per quarter).

Figure 4: Diagnostic imaging services by quarter, October 2018 to December 2021



Note: This figure includes non-hospital Medicare-subsidised services only.
Source: AIHW analysis of MBS data maintained by the Australian Government Department of Health.
http://www.aihw.gov.au/

Please refer to Impact on MBS service utilisation for additional details on how COVID-19 has changed the way Medicare-subsidised pathology medical services are delivered to patients.

Where do I go for more information?

For more information on pathology, imaging and other diagnostic services, see:

- Department of Health Pathology 2016 fact sheet
- Department of Health Medical Radiation Practitioners 2017 fact sheet

References

ABS (Australian Bureau of Statistics) (2011) *Australian demographic statistics, Jun 2011*, ABS, Australian Government, accessed 7 February 2022.

ABS (2021) *National, state and territory population, Jun 2020*, ABS, Australian Government, accessed 2 February 2022.

Referred medical specialist attendances

Find the most recent version of this information at: https://www.aihw.gov.au/reports/medical-specialists/referred-medical-specialist-attendances

Specialists generally only see their patients after receiving a ‘referral’ from a primary health care practitioner. They provide diagnostic and treatment services in a specific area of medicine, generally for a particular disease or body system. This is distinct from other practitioners, such as specialists General practice, allied health and other primary care services, where a referral is not usually required.

Common referred specialties include: cardiology, dermatology, gynaecology, neurology, obstetrics, oncology, paediatrics and rheumatology. All specialists have completed advanced training, and must be registered with the Australian Health Practitioner Regulation Agency in order to practise in Australia.

Whilst many referred medical specialist attendances are rendered in hospital, not all of these are subsidised through the Medicare Benefits Schedule (MBS). Common examples of non-MBS subsidised services include:

- services provided by hospital doctors to public patients
- services provided under the Department of Veterans' Affairs National Treatment Account
- services covered by third party or workers' compensation.

This page reports on referred medical specialist attendances subsidised through the MBS, and based on the financial year of processing between 2015–16 and 2020–21. It also highlights the impact of COVID-19 on specialist attendances processed to the end of 2021.

How many Medicare-subsidised referred specialist attendances were there?

In the 2020–21 financial year, there were 36.6 million MBS-subsidised referred medical specialist attendances (consultations) in a range of settings (Table 1). These attendances were provided to 8.6 million Australians (34% of people). Of these attendances, most (77%, or 28.2 million services) occurred in non-hospital settings, such as private consulting rooms and private outpatient clinics – and were provided to 8.3 million patients in total.

Table 1: Medicare-subsidised referred medical specialist attendances[(a)] by setting, 2020–21[(b)]

Service setting	Proportion of people receiving a service (%)	Number of services (million)	Number of services per patient (average)
Referred medical specialist attendances - non-hospital	32.4	28.2	3.4
Referred medical specialist attendances - in-hospital	8.4	8.4	3.9
Referred medical specialist attendances - total	33.6	36.6	4.2

(l) Specialist attendances are Medicare-subsidised referred patient/doctor encounters, such as visits, consultations, and attendances by video conference, involving medical practitioners who have been recognised as specialists or consultant physicians for Medicare benefits purposes. Specialist attendances include psychiatry and obstetric care, including antenatal and post-natal attendances. In many cases, antenatal and post-natal attendances are performed by General Practitioners (GPs). These services have been regarded as specialist attendances.

(m) Services provided to public inpatients or outpatients are not included in the table.

Sources: AIHW analysis of MBS data maintained by the Australian Government Department of Health; ABS 2021a.

Non-hospital specialist consultations

In 2020–21, 32% of people had at least one Medicare-subsidised referred medical specialist consultation in a non-hospital setting. The most widely accessed specialties (in terms of the percentage of the population receiving a consultation) were:

- ophthalmology (5.1%)
- cardiology (4.6%)
- general surgery (3.8%)
- dermatology (3.7%) (Figure 1).

Across all referred medical specialties, there was an average of 3.4 specialist attendances per patient in 2020–21 (patients may have seen different types of specialists). The specialties for which patients received the most repeat services on average within the year included:

- psychiatry (4.7 services per patient)
- addiction medicine (4 services per patient)

- medical oncology (3.8 services per patient).

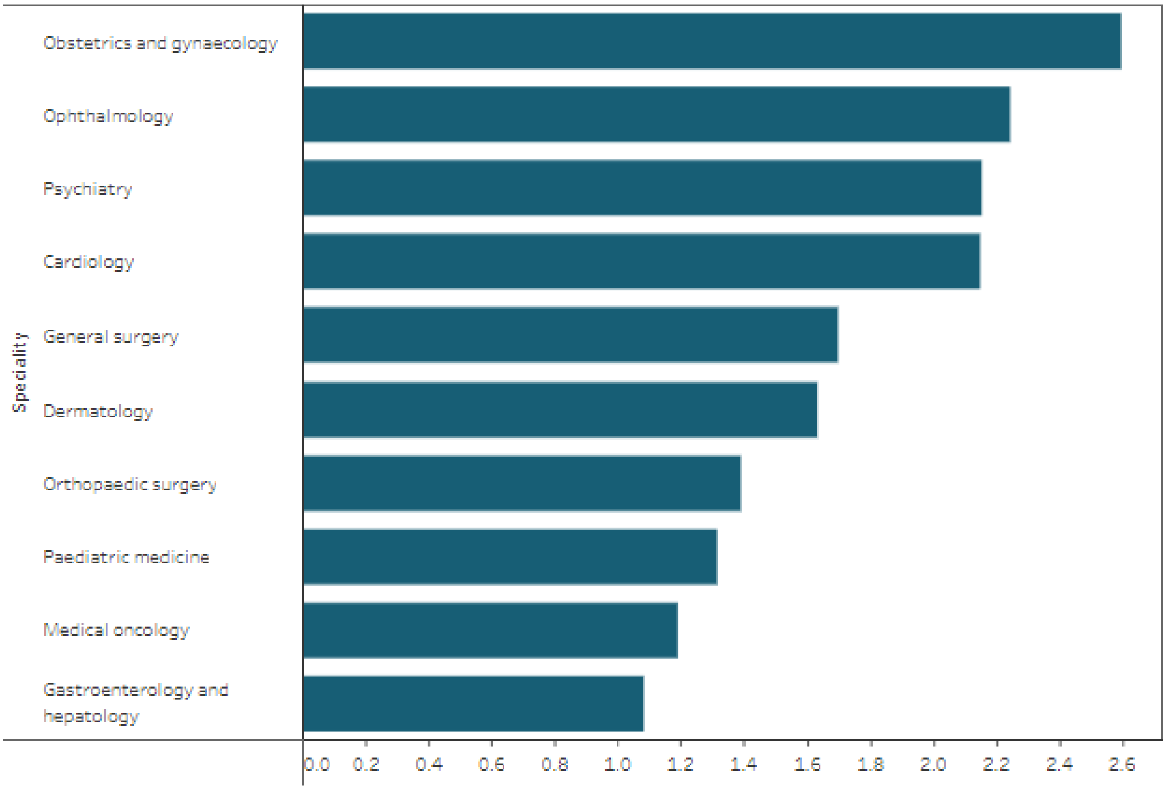
In 2020–21, the specialties with the highest number of non-hospital consultations subsidised by Medicare within the year were:

- obstetrics and gynaecology (2.6 million)
- ophthalmology (2.2 million)
- psychiatry (2.2 million)
- cardiology (2.2 million)
- general surgery (1.7 million)
- dermatology (1.6 million)
- orthopaedic surgery (1.4 million)
- paediatric medicine (1.3 million) (Figure 1).

These 8 specialties accounted for over half of all non-hospital specialist consultations subsidised by Medicare (54%). In total there are over 40 specialist specialties.

Figure 1: Top ten specialties by number of attendances, 2020–21

Measure
● Specialist attendances (millions)
○ Percentage of population receiving a service



Notes:
1. This figure includes non-hospital Medicare-subsidised services only.
2. Top 10 specialties defined as those with the highest number of specialist attendances processed in that year, or the highest percentage of the population receiving a service from that specialist type in that year.
Sources: AIHW analysis of MBS data maintained by the Australian Government Department of Health; ABS 2021a.
http://www.aihw.gov.au/

Trends

The number of patients who had a Medicare-subsidised referred medical specialist consultation in a non-hospital setting increased from 7.5 million in 2015–16 to 8.3 million in 2020–21. However, the proportion of people who had a consultation with a specialist only increased slightly (31% and 32% of people respectively).

After adjusting for differences in the age structure of the population, the number of specialist consultations per 100 people increased slightly in the 5 years to 2020–21, from 96 to 101 consultations.

Patient characteristics

Older people received more Medicare-subsidised referred medical specialist consultations in non-hospital settings than younger people. In 2020–21, just under 2 in 3 Australians (63%) aged 65 and over had at least one Medicare-subsidised referred medical specialist consultation, whereas just over 1 in 4 (27%) aged under 65 had at least one consultation.

Among all patients regardless of age, a higher proportion of females (36%) had at least one specialist consultation in a non-hospital setting than males (29%). This difference is partly associated with pregnancy-related consultations. Without the pregnancy-related consultations, the proportion of females receiving a specialist consultation was only 2.9 percentage points higher than for males.

The proportion of Australians who received at least one referred medical specialist consultation in a non-hospital setting varied depending on where they lived. The proportion of people who had at least one referred medical specialist consultation was similar for residents of *Inner regional* and *Major cities* areas (34% and 33%, respectively), but decreased with increasing remoteness to 14% of people living in *Very remote* areas. The lower use of Medicare-subsidised referred medical specialist attendances in *Remote* and *Very remote* areas may be partly attributed to these populations relying more on General Practitioners (GPs) to provide health care services, due to less availability of local specialist services (AIHW 2019b).

Spending

In 2020–21, $4 billion was spent on Medicare-subsidised referred medical specialist consultations in non-hospital settings. By funding source:

- $2.5 billion in Medicare benefits was paid by the Australian Government
- $1.5 billion in out-of-pocket costs was paid by patients.

Nearly two-thirds (63%) or $1.6 billion of Australian Government spending on non-hospital referred medical specialist consultations was accounted for by 10 specialties:

- psychiatry ($370.1 million)
- cardiology ($207.3 million)
- obstetrics and gynaecology ($175.7 million)
- paediatric medicine ($160.9 million)
- ophthalmology ($131.6 million)
- gastroenterology and hepatology ($108.5 million)
- general medicine ($106.2 million)
- dermatology ($99.3 million)
- general surgery ($95.7 million)
- endocrinology ($95.1 million).

In 2020–21, 47% (13.1 million services) of non-hospital Medicare-subsidised referred medical specialist consultations were bulk-billed (indicating that patients did not incur costs for these services). For those who did pay out-of-pocket costs (71% of patients or 6 million people), the average cost per patient for non-hospital specialist attendances was $257 for all services received in the year (an average of $104 per service for those who incurred out-of-pocket costs).

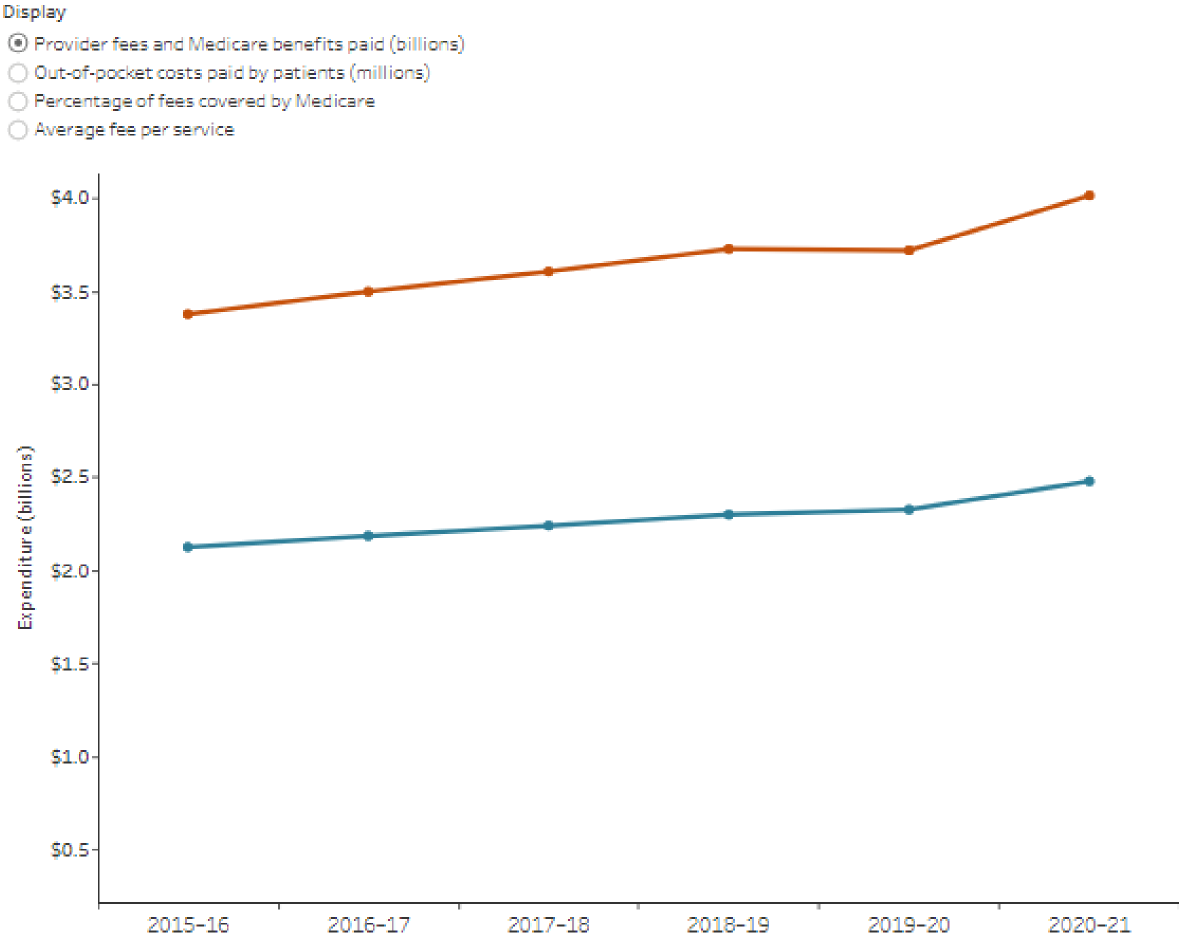
Trends in spending

Overall, spending on Medicare-subsidised referred medical specialist consultations in non-hospital settings increased:

- Medicare benefits paid by the Australian Government increased in real terms (after adjusting for inflation), from $2.1 billion in 2015–16 to $2.5 billion in 2020–21. When accounting for changes in the number of patients (including through population growth), spending also increased on a per patient basis ($286 per patient in 2015–16 to $298 in 2020–21).
- Patient out-of-pocket costs increased, in real terms, from $1.2 billion in 2015–16 to $1.5 billion in 2020–21 (Figure 2). On a per patient basis, there was an increase in real terms from $233 per patient to $257 during this period.

In the 5 years to 2020–21, the average referred medical specialist fee per service increased 0.3% per year (on average) in real terms, from $140.4 in 2015–16 to $142.4 in 2020–21. The proportion of provider fees covered by Medicare for non-hospital specialist attendances decreased by 1.2 percentage points, from 63% in 2015–16 to 61.8% in 2020–21.

Figure 2: Specialist attendance fees and out-of-pocket costs, constant prices, 2015–16 to 2020–21



Display

● Provider fees and Medicare benefits paid (billions)

○ Out-of-pocket costs paid by patients (millions)

○ Percentage of fees covered by Medicare

○ Average fee per service

Notes:
1. This figure includes non-hospital Medicare-subsidised services only.
2. Medicare benefit and provider fees expressed in constant prices (please refer to glossary).
Source: AIHW analysis of MBS data maintained by the Australian Government Department of Health.
http://www.aihw.gov.au/

Patient experiences

The Patient Experiences in Australia survey for 2020–21 (ABS 2021b) estimated that for people aged 15 and over who saw a medical specialist (in both hospital and non-hospital settings) in the previous 12 months:

- 19.1% of people who reported that they needed to see a referred medical specialist at some time in the last 12 months delayed their appointment at least once or did not see a specialist. Of this 19.1%, 5.9% of patients citied cost as a reason for delaying or not seeing the medical specialist.
- 21.7% waited longer than they felt acceptable to get an appointment with a medical specialist.

- A high proportion of people reported that the medical specialists they saw ‘always’ listened carefully, spent enough time with them and showed respect (80.9%, 81.8% and 85.2% respectively). Smaller proportions reported that the specialists they saw ‘often’ displayed these behaviours (12.4%, 10.8%, and 9.7% respectively).

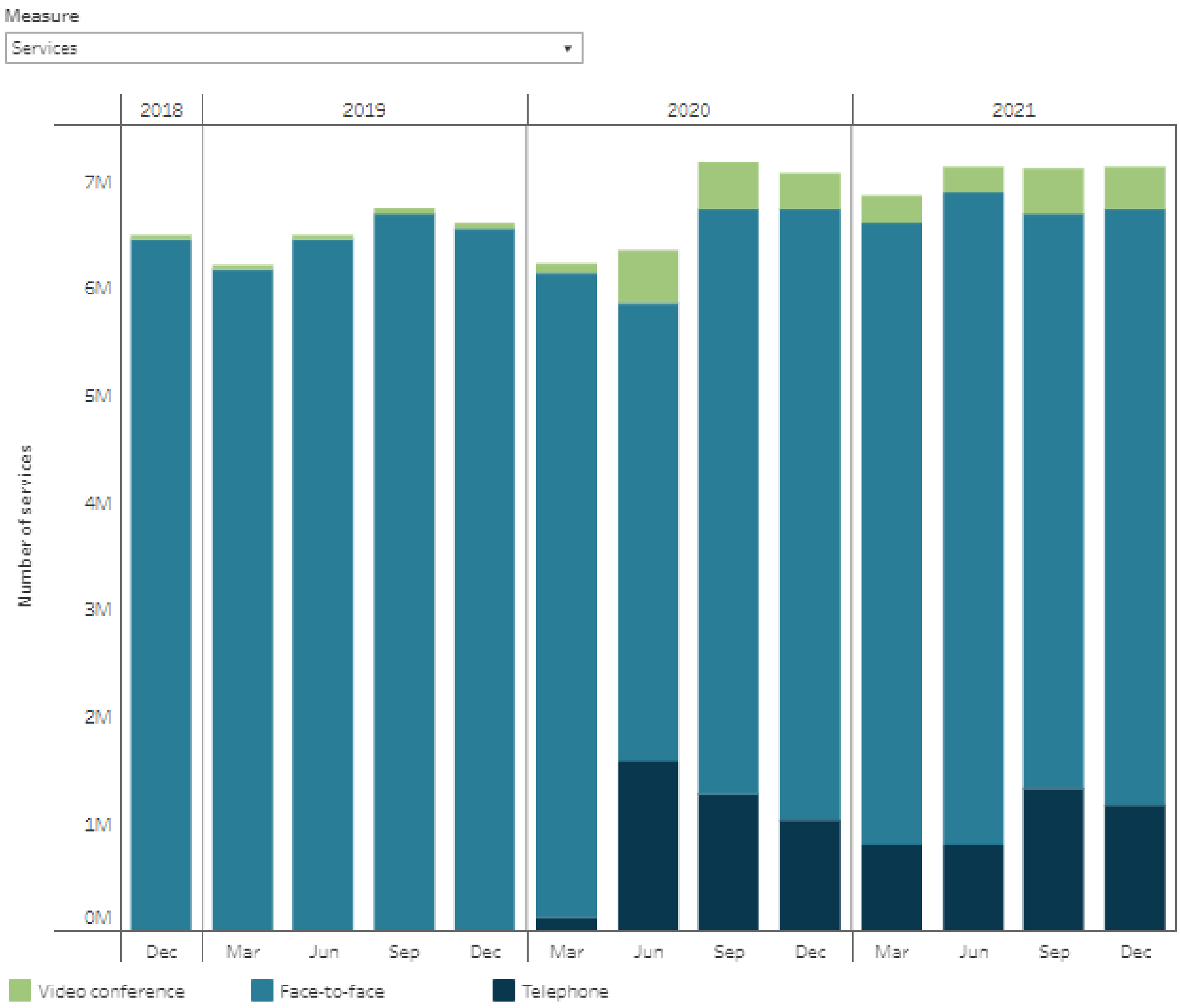
Impact of COVID-19 on the use of specialist attendances

Whilst a number of limited scope video conferencing items relating to referred medical specialist attendances have existed in the MBS since 2011, the COVID-19 pandemic saw the introduction of telephone consultation items and a much larger range of video conferencing items on or after 13 March 2020. These items, known as telehealth items, were created to help reduce the risk of community transmission of COVID-19 and provide protection for patients and health care providers.

The introduction of these items has a clear impact on the way referred medical specialist attendances are delivered to patients, including:

- The number of face-to-face referred medical specialist attendances fell from 6 million in the March quarter 2020 to 4.3 million in the June quarter 2020.
- The volume of face-to-face attendances recovered to 5.4 million in the September quarter 2020, and continued to increase in the subsequent quarters until it reached 6.1 million in the June quarter 2021. Correspondingly, the volume of telehealth attendances decreased from 2.1 million in the June quarter 2020 to 1.1 million in the March quarter 2021, and into the next quarter.
- Due to widespread lockdowns in New South Wales, Victoria and the Australian Capital Territory in the September quarter 2021, the volume of face-to-face attendances fell back to 5.4 million whilst the volume of telehealth attendances increased to 1.8 million (Figure 3).

Figure 3: Specialist attendances by mode of delivery, October 2018 to December 2021



Note:This figure includes non-hospital Medicare-subsidised services only.
Source: AIHW analysis of MBS data maintained by the Australian Government Department of Health.
http://www.aihw.gov.au/

The billing profile of these telehealth items is also quite different from that of the face-to-face items. Discounting the March quarter 2020 (where these items had only existed for less than 3 weeks in the quarter), the bulk billing rate of telephone attendances was in the range of 80–90% up to the December quarter 2021. The bulk billing rate of video conferences was in the range of 59%–76% over these quarters, which was also much higher than the bulk billing rate of face-to-face attendances which was about 40% each quarter (Figure 3).

A lower number of services per patient was observed for both telephone and video conferencing from the June quarter 2020 to the December quarter 2021. These delivery methods had approximately 1.3 to 1.4 services rendered to each patient over the quarters, whereas face-to-face consultations had 1.6 services rendered per patient for each quarter (Figure 3).

Please refer to Impact on MBS service utilisation for additional details on how COVID-19 has changed the way Medicare-subsidised referred medical specialist attendances are delivered to patients.

Where do I go for more information?

For more information on specialist attendances, see:

- Medicare-subsidised GP, allied health and specialist health care across local areas: 2019–20 to 2020–21

References

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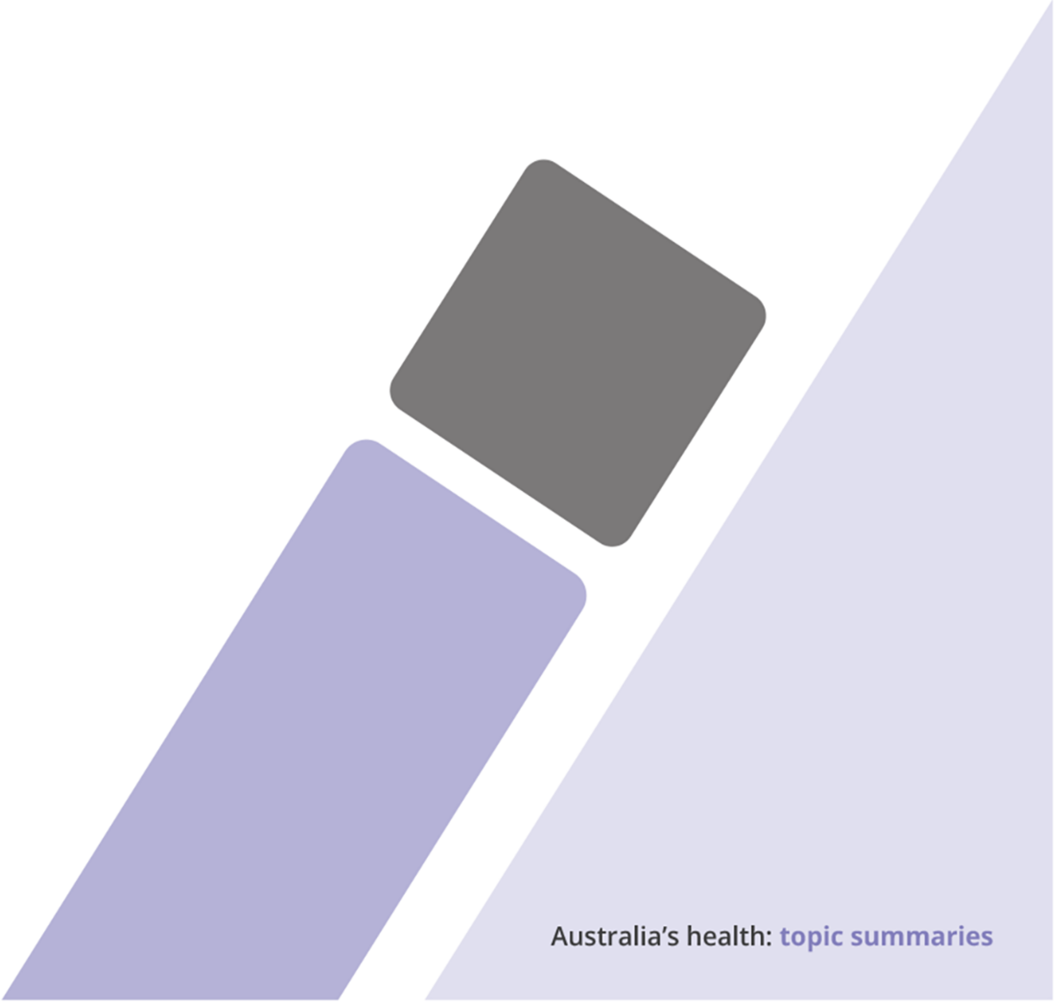
Health across population groups

These topic summaries explore the different health experiences of certain population groups in Australia.



Health across socioeconomic groups

Find the most recent version of this information at:
https://www.aihw.gov.au/reports/australias-health/health-across-socioeconomic-groups

Socioeconomic factors are key determinants of health. Having access to material and social resources and being able to participate in society are important for maintaining good health.

Generally, people in lower socioeconomic groups are at greater risk of poor health, have higher rates of illness, disability and death, and live shorter lives than people from higher socioeconomic groups (van Lenthe and Mackenbach 2021). The higher a person's socioeconomic position, the healthier they tend to be – a phenomenon often termed the 'social gradient of health'. In countries at all levels of income, health and illness follow a social gradient: the lower the socioeconomic position, the worse the health (WHO 2022). See Social determinants of health and Determinants of health for Indigenous Australians.

This page compares socioeconomic groups on health measures across 4 key health areas, focusing on people in the lowest and highest socioeconomic groups, where differences are usually large. It highlights that for almost all health measures, people from lower socioeconomic groups fare worse.

Measuring socioeconomic position – the Index of Relative Socio-economic Disadvantage

Socioeconomic position can be measured using an individual characteristic, such as a person's level of income, education or occupation, or it may be constructed as a composite measure using a range of socioeconomic information.

In the AIHW's reporting on health across socioeconomic groups, a composite measure of socioeconomic position known as the Index of Relative Socio-economic Disadvantage (IRSD) is frequently used (ABS 2018).

The IRSD classifies individuals according to the socioeconomic characteristics of the area in which they live. It scores each area by summarising attributes of the population, such as low income, low educational attainment, high unemployment and jobs in relatively unskilled occupations. Areas can then be ranked according to their score. The population living in the 20% of areas with the greatest overall level of disadvantage is described as the 'lowest socioeconomic group'. The 20% at the other end of the scale – the top fifth – is described as the 'highest socioeconomic group'.

Note that the IRSD reflects the overall or average level of disadvantage of the population of an area; it does not show how individuals living in the same area differ from each other in their socioeconomic position. Inequality estimates based on area-level measures of socioeconomic position will underestimate inequalities because of the substantial variation in socioeconomic position within areas (Mather et al. 2014).

Health risk factors

On most health risk factors, adults living in the areas with the greatest overall level of disadvantage (the lowest socioeconomic group) fared worse than adults living in areas with the least overall level of disadvantage (the highest socioeconomic group).

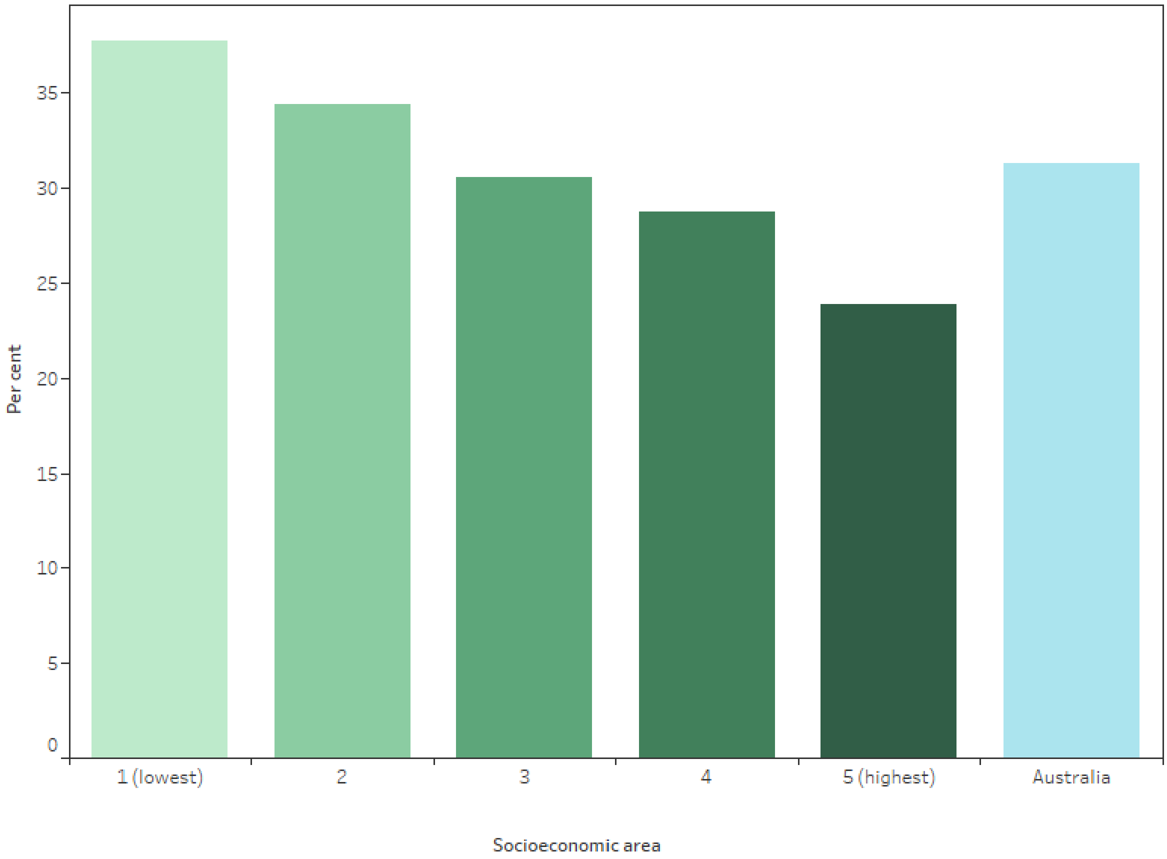
Based on the Australian Bureau of Statistics 2017–18 National Health Survey, after adjusting for age differences, it is estimated that, when compared with adults living in the highest socioeconomic areas, adults living in the lowest socioeconomic areas were:

- 1.6 times as likely to be obese (38% and 24%) (AIHW 2020f) (Figure 1)
- 1.3 times as likely to be insufficiently active (63% and 48%) (AIHW 2020d)
- 1.2 times as likely to have uncontrolled high blood pressure (24% and 19%) (AIHW 2019).

The National Drug Strategy Household Survey 2019 used a similar composite measure of socioeconomic position, the Index of Relative Socioeconomic Advantage and Disadvantage (IRSAD). Based on the survey, it is estimated that, when compared with people aged 14 and over living in the highest socioeconomic areas, people aged 14 and over living in the lowest socioeconomic areas were:

- 3.6 times as likely to smoke daily (18% and 5.0%) (AIHW 2020e)
- at similar lifetime risk of harm from drinking alcohol (15% and 17%, with no difference between socioeconomic groups) (AIHW 2020e).

Figure 1: Proportion of adults who are obese, by socioeconomic area, 2017–18



Notes
1. Obese classification is derived from measured height and weight. In 2017–18, 33.8% 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.
2. Socioeconomic areas are classified according to population-based quintiles using the Index of Relative Socio-Economic Disadvantage (IRSD) based on Statistical Area Level 2 (SA2) current residence.
3. Proportions are age-standardised to the 2001 Australian Standard Population.
4. 95% CI = 95% confidence interval. We can be 95% confident that the confidence interval contains the true value.
Source: AIHW 2020f.
http://www.aihw.gov.au/

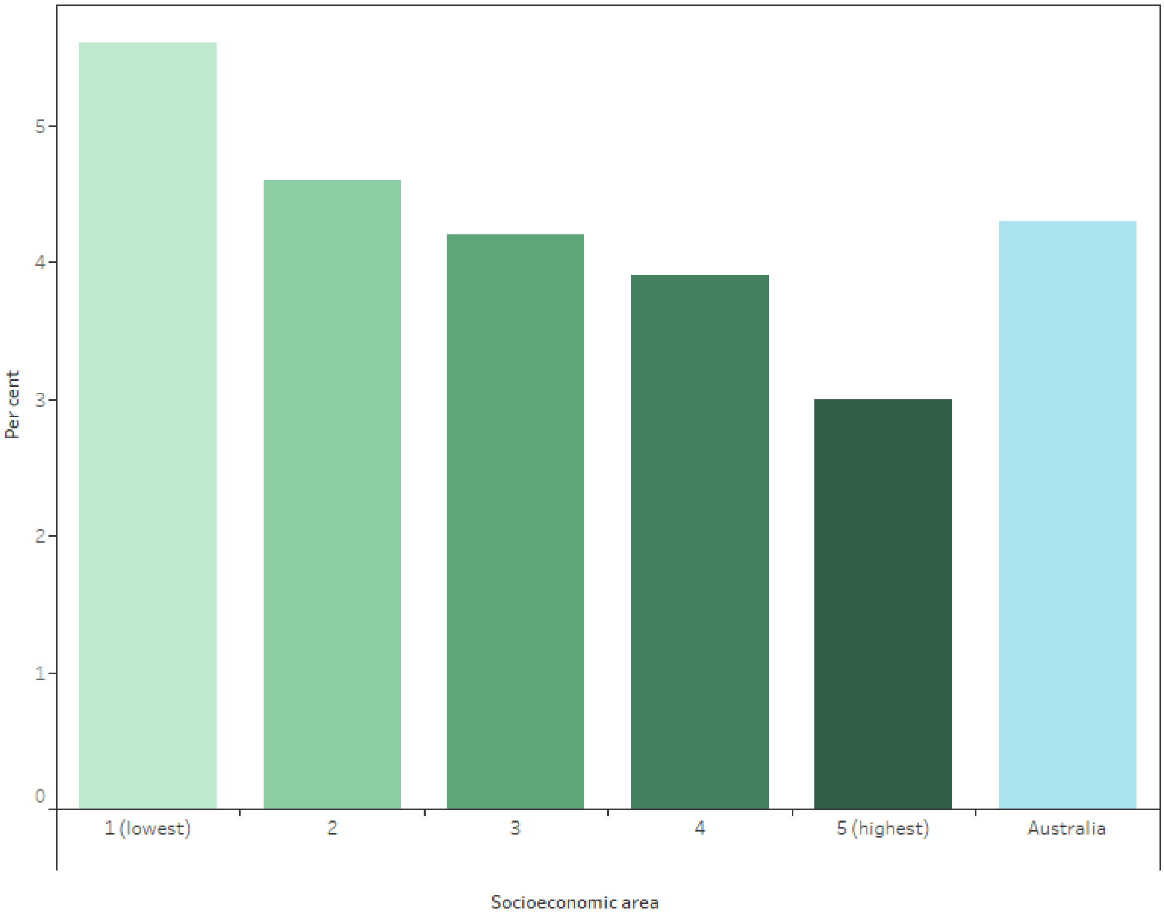
Chronic conditions

Rates of chronic conditions were also higher for people living in the lowest socioeconomic areas, compared with people living in the highest socioeconomic areas (ABS 2022b). In particular, it is estimated that, when compared with people living in the highest socioeconomic areas, people living in the lowest socioeconomic areas were:

- 2.0 times as likely to self-report having chronic obstructive pulmonary disease in 2017–18, among people aged 45 and over (7.1% and 3.6%) (AIHW 2020b)
- 1.9 times as likely to have diabetes in 2020 (5.6% and 3.0%) (AIHW 2022a, 2020c) (Figure 2)
- 1.6 times as likely to have biomedical signs of chronic kidney disease in 2011–12, among adults (14% and 8.3%) (AIHW 2020a)

- 1.6 times as likely to self-report having coronary heart disease in 2017–18, among adults (3.2% and 2.0%) (AIHW 2021c)
- 1.1 times as likely to be newly diagnosed with cancer in 2012–2016 (509 and 484 cases per 100,000 population) (AIHW 2021b).

Figure 2: Prevalence of diabetes by socioeconomic area, 2020



Notes
1. Proportions are age-standardised to the 2001 Australian Standard Population.
2. Socioeconomic areas are classified according to population-based quintiles using the Index of Relative Socio-Economic Disadvantage (IRSD) based on Statistical Area Level 2 (SA2) current residence.
Source: AIHW analysis of linked National Diabetes Services Scheme and Australasian Paediatric Endocrine Group state-based registers.
http://www.aihw.gov.au/

Deaths

For deaths occurring in 2020, people living in the lowest socioeconomic areas were 1.5 times as likely to die as people living in the highest socioeconomic areas (AIHW 2022).

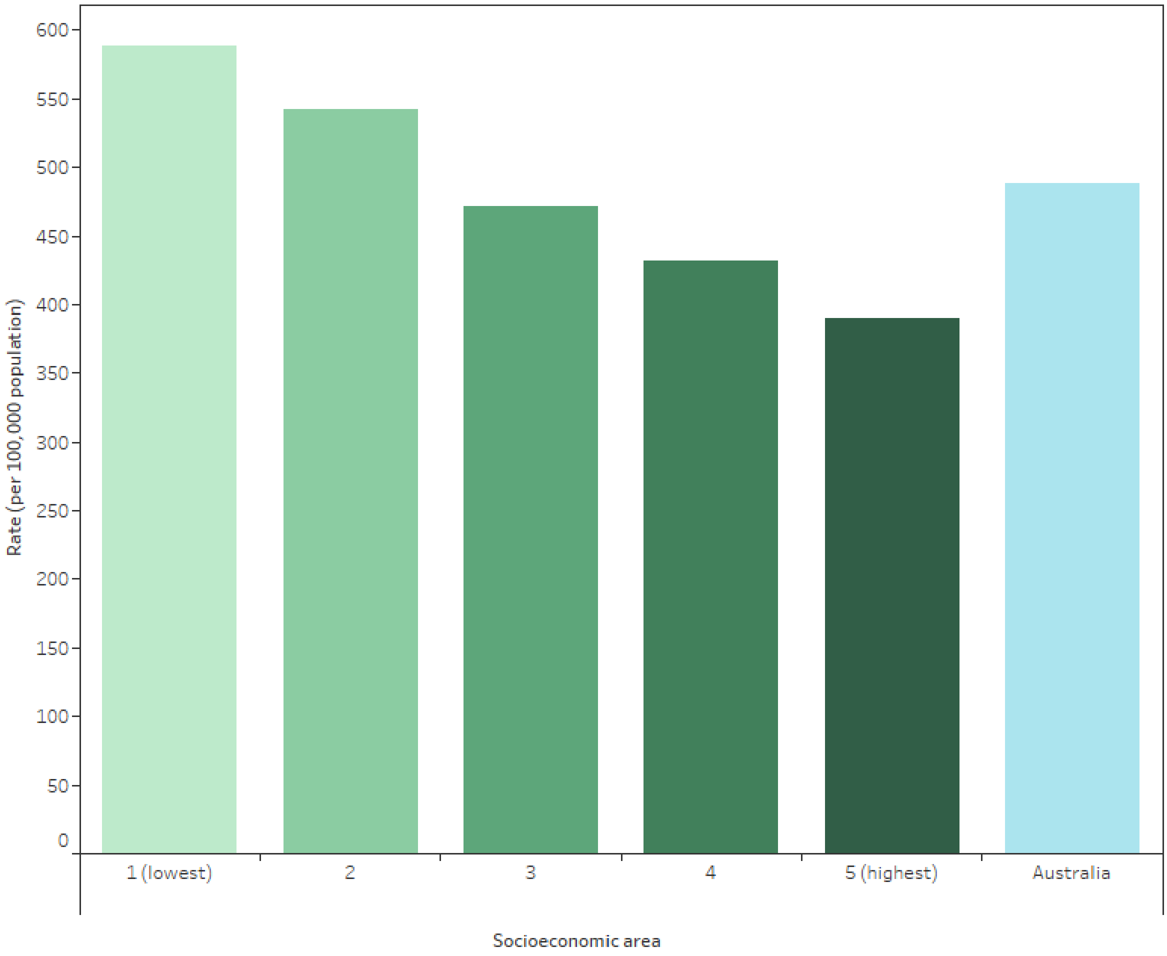
After adjusting for age differences in the population, the mortality rate from all causes of death for people living in the lowest socioeconomic areas was 589 deaths per 100,000 population, compared with 542 in the second group, 472 in the third, 432 in the fourth, and 390 for people living in the highest socioeconomic areas (Figure 3).

People living in the lowest socioeconomic areas were 2.2 times as likely to die from potentially avoidable causes in 2020 (140 and 65 deaths per 100,000 population) – a potentially avoidable death being a premature death that could have been avoided with timely and effective health care.

Disease-specific death rates were generally higher for people living in the lowest socioeconomic areas, compared with people living in the highest areas. In particular, when compared with people living in the highest socioeconomic areas, people in the lowest socioeconomic areas in 2016–2020 were:

- 2.6 times as likely to die from chronic obstructive pulmonary disease (33 and 13 deaths per 100,000 population)
- 2.0 times as likely to die from lung cancer (38 and 19 deaths per 100,000 population)
- 1.6 times as likely to die from coronary heart disease (70 and 43 deaths per 100,000 population)
- 1.3 times as likely to die from cerebrovascular disease (mostly stroke) (34 and 27 deaths per 100,000 population)
- 1.1 times as likely to die from dementia (including Alzheimer's disease) (42 and 40 deaths per 100,000 population) (AIHW 2022).

Figure 3: All-cause mortality rate, by socioeconomic area, 2020



Notes
1. Rates are age-standardised to the 2001 Australian Standard Population.
2.Socioeconomic areas are classified according to population-based quintiles using the Index of Relative Socio-Economic Disadvantage (IRSD) based on Statistical Area Level 2 (SA2) current residence.
Source: AIHW 2022.
http://www.aihw.gov.au/

In 2018, males and females living in the lowest socioeconomic areas lived, on average, 5.9 and 3.9 years less than males and females living in the highest socioeconomic areas (AIHW 2021a).

See Causes of death and 'Chapter 2 Changes in the health of Australians during the COVID-19 period' in Australia's health 2022: data insights.

Burden of disease

Burden of disease analysis combines estimates of the fatal and non-fatal impact of disease. The 'disability adjusted life year' (DALY) measure combines health loss from living with illness and injury and dying prematurely to estimate the total burden of health loss (see Glossary and Burden of disease). One DALY is equivalent to one healthy year of life lost.

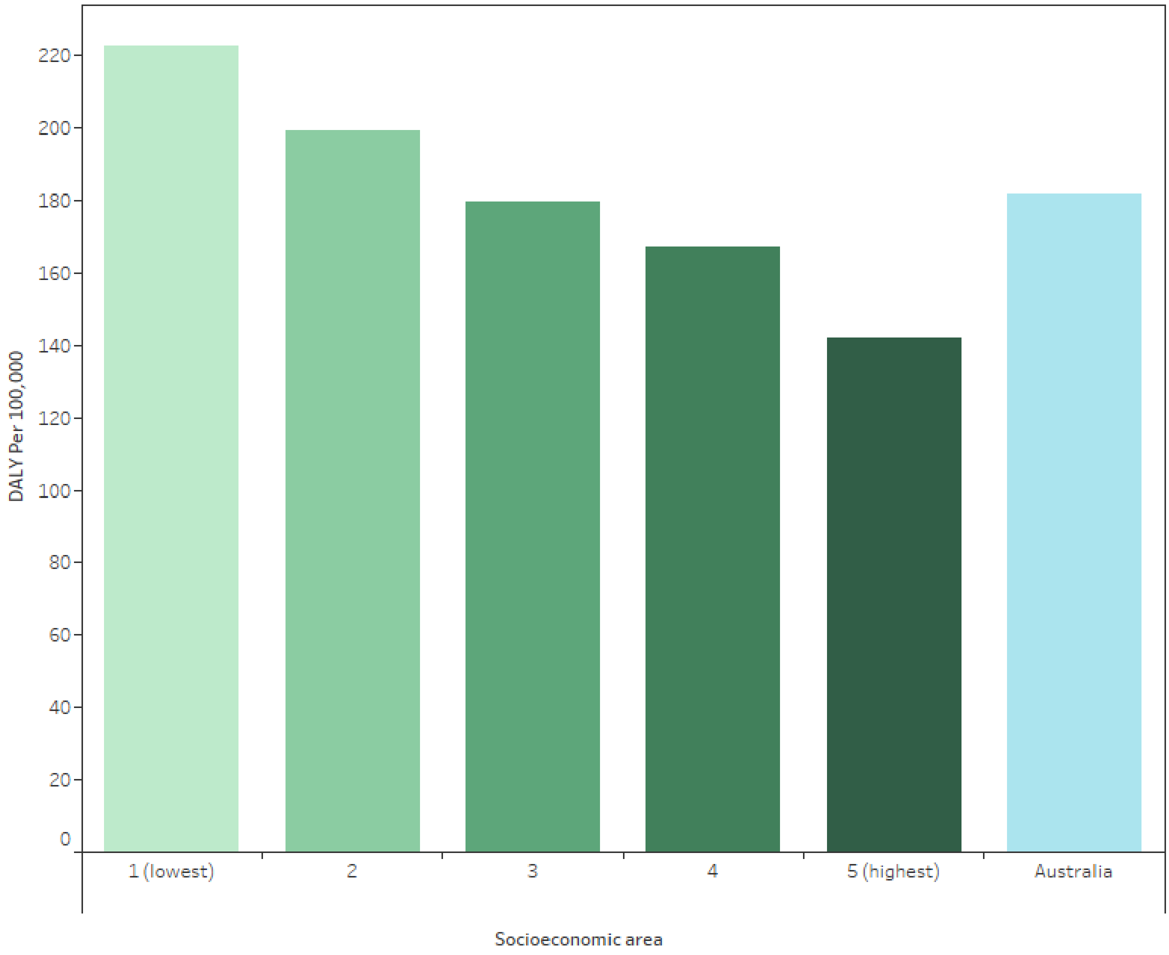
In 2018, total burden decreased with increasing socioeconomic group: total burden rates were 1.6 times as high for people living in the lowest socioeconomic areas (223 DALY per 1,000 population) as for people living in the highest socioeconomic areas (142 DALY per 1,000 population) (AIHW 2021a) (Figure 4).

Compared with people living in the highest socioeconomic areas, people living in the lowest socioeconomic areas experienced burden of disease that was estimated to be:

- 2.4 times as high for type 2 diabetes (5.8 and 2.4 DALY per 1,000 population)
- 2.2 times as high for lung cancer (7.4 and 3.3 DALY per 1,000 population)
- 2.0 times as high for coronary heart disease (15 and 7.2 DALY per 1,000 population)
- 1.6 times as high for stroke (5.2 and 3.3 DALY per 1,000 population)
- 1.2 times as high for dementia (6.6 and 5.7 DALY per 1,000 population).

In terms of population impact, if all Australians had experienced the same burden as people living in the highest socioeconomic areas in 2018, the total disease burden could have been reduced by one-fifth (21%) (AIHW 2021a).

Figure 4: Total burden of disease, by socioeconomic area, 2018



Notes
1. Rates are age-standardised to the 2001 Australian Standard Population.
2. Socioeconomic areas are classified according to population-based quintiles using the Index of Relative Socio-Economic Disadvantage (IRSD) based on Statistical Area Level 2 (SA2) current residence.
Source: AIHW 2021a.
http://www.aihw.gov.au/

Impact of COVID-19 across socioeconomic groups

As with most other diseases, COVID-19 disproportionately affects lower socioeconomic groups. Of the 2,639 COVID-19 deaths that occurred by 30 April 2022, there were more than 3 times as many among people living in the lowest socioeconomic areas compared with people living in the highest socioeconomic areas (1,870 and 527 deaths) (ABS 2022a). Age-standardised mortality rates were 2.8 times as high (105 and 38 per million) (AIHW 2021d).

For more information on the health impact of the pandemic, see ‘Chapter 1 The impact of a new disease: COVID-19 from 2020, 2021 and into 2022’ and ‘Chapter 2 ’Changes in the health of Australians during the COVID-19 period’ in Australia’s health 2022: data insights.

Where do I go for more information?

For more information on health across socioeconomic groups, see:

- Mortality Over Regions and Time (MORT) books
- Australian Burden of Disease Study: impact and causes of illness and death in Australia 2018

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Health of children

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In a national study of Australian children's perspectives, health ranked as the second most important domain, after family, for having a good life (Redmond et al. 2016). Good health influences how children feel and go about their daily lives, as it can affect participation in family life, schooling, social and sporting activities.

The foundations for good health start during the antenatal period and early years and can have long-term impacts on a child's later life – see Health of mothers and babies. Targeting risk factors in children can reduce preventable chronic disease in adulthood and equips children with the best life chances (AIHW 2022a; Department of Health 2019). Investment in early years of child development also provides an opportunity for substantial health gains across their lifespan (Department of Health 2019).

The COVID-19 pandemic has had an impact on aspects of children's health and wellbeing. Further monitoring is required to understand any long-term impacts.

Profile of children

At 30 June 2021, an estimated 4.8 million children aged 0–14 lived in Australia. Boys made up a slightly higher proportion of the population than girls (51% compared with 49%) (ABS 2021c).

Who are Australia's children?

Defining the age range for children varies across Australian and international data collections and reporting. Definitions can be based on theories of child development and/or levels of dependency at different stages from birth to youth, or legal definitions.

For the purposes of reporting national Children's Headline Indicators, children are defined as aged 0–12, covering the developmental stages from the antenatal period and infancy through to the end of primary school. Defining children as those aged 0–12 aligns with the AIHW Australia's children report, and complements the age range in the AIHW Australia's youth report and National Youth Information Framework of 12–24 years.

Throughout this page, where data for 0–12-year-olds are either not available or the numbers are too small for robust reporting, a different age range (most commonly 0–14 years) is reported. This is particularly the case for health-related data from the Australian Bureau of Statistics (ABS), which are commonly used on this page.

The number of children in Australia is projected to reach 6.4 million by 2048 (ABS 2018c). However, due to sustained low fertility rates and increasing life expectancy, the number of children as a proportion of the entire population has steadily fallen, from

29% in 1968 to 19% in 2021 (ABS 2021c). In 2018, the proportion was projected to fall to 18% by 2048 (ABS 2018c). The COVID-19 pandemic caused significant disruptions to Australian population trends and these changes may affect subsequent projections.

Australia's children

In 2020, among all children aged 0–14:

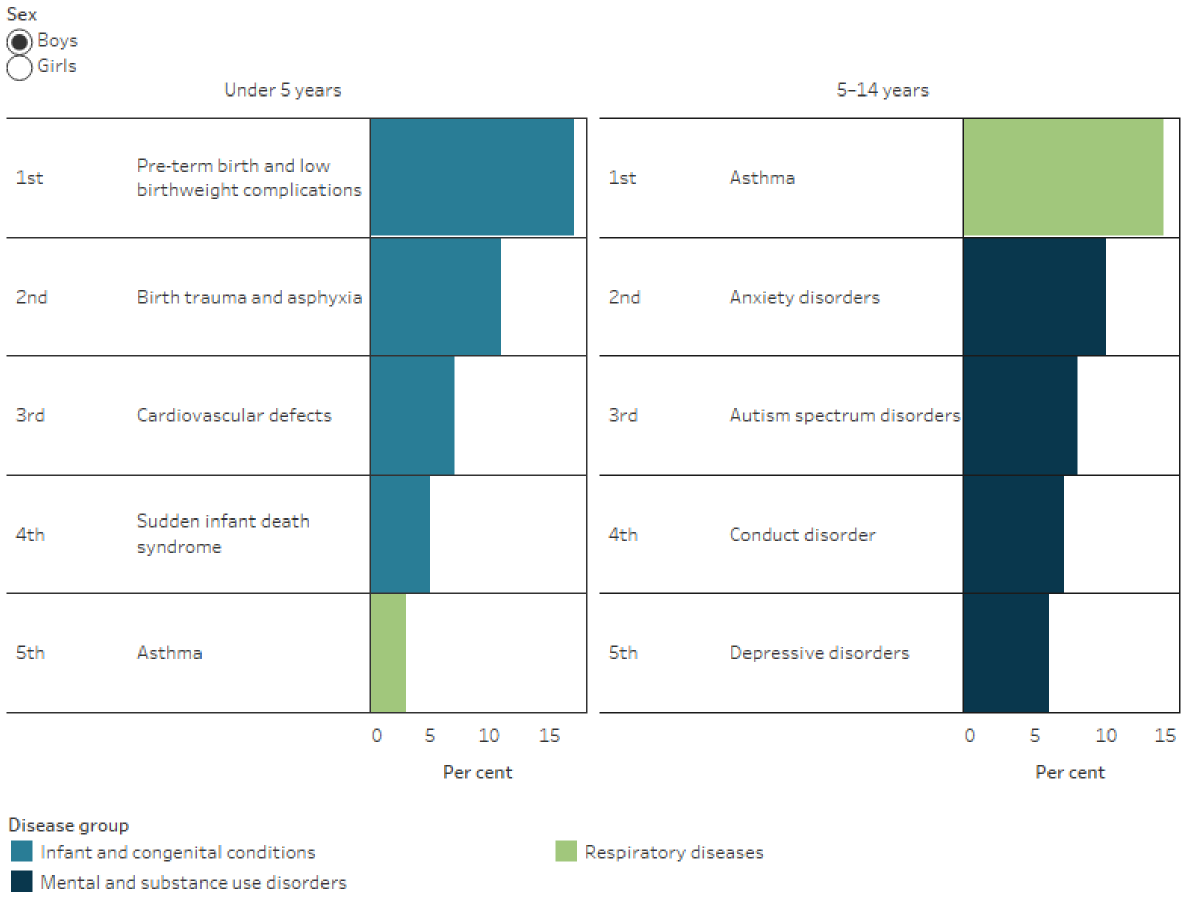
- Almost 3 in 4 (72%) lived in *Major cities* (ABS 2021d).
- Just over 1 in 5 (21%) lived in the lowest socioeconomic areas (ABS 2018a, 2020).
- Around 1 in 12 (8.6%) were born overseas (ABS 2021b).
- Nearly 1 in 17 (5.9%) were Aboriginal and Torres Strait Islander people (ABS 2019b).

Health status

Burden of disease

The burden of disease is the quantified impact of a disease or injury on a population, which captures health loss, or years of healthy life lost through premature death or living with ill health (see Burden of disease). For infants and young children aged under 5, the leading causes of total burden of disease were mainly infant and heart conditions, with similar leading causes for both boys and girls (Figure 1). Among children aged 5–14, asthma was the leading cause of total burden, followed by four mental health conditions: anxiety disorders, depressive disorders, conduct disorder and autism spectrum disorders (AIHW 2021b). The leading causes of total burden among boys and girls aged 5–14 differed slightly, with asthma contributing the most burden to boys (14%) and anxiety disorders contributing the most for girls (12%) (Figure 1).

Figure 1: Leading causes of total burden among children aged 0–14, by age group and sex, 2018



Note: Groups of residual conditions (e.g. other congenital conditions) have been excluded from rankings as these categories are often made up of several causes and, as a group, are difficult to interpret.
Source: AIHW 2021a, 2021b.
http://www.aihw.gov.au/

Mental health

The latest national data on child and adolescent mental health was collected in 2013–14 in the Australian Child and Adolescent Survey of Mental Health and Wellbeing (also known as the Young Minds Matter survey). In 2013–14, 1 in 7 (14%) children aged 4–11 experienced a mental disorder in the 12 months prior to the survey. Boys were more commonly affected than girls (17% compared with 11%), particularly in relation to Attention Deficit Hyperactivity Disorder (ADHD) (11% compared with 5.4%) (Table 1) (Lawrence et al. 2015).

Table 1: Prevalence of mental disorders among 4–11-year-olds, by sex, 2013–14

Disorder	Boys (%)	Girls (%)	Children (%)
ADHD	10.9	5.4	8.2
Anxiety disorders	7.6	6.1	6.9
Conduct disorder	2.5	1.6	2.0
Major depressive disorder	1.1	1.2	1.1
Any mental disorder[(a)]	16.5	10.6	13.6

(a) Totals are lower than the sum of disorders as children may have had more than 1 class of mental disorder in the previous 12 months.

Source: Lawrence et al. 2015.

Among children aged 4–11 with some form of mental disorder, almost 3 in 4 (72%) had mild disorders, 1 in 5 (20%) had moderate disorders and around 1 in 12 (8.2%) had severe disorders. Severe disorders were more common among boys (9.9%) than girls (5.6%) (Lawrence et al. 2015).

See Mental health.

Impacts of the COVID-19 pandemic on mental health

In October 2021, a review of research undertaken since the COVID-19 pandemic began found substantial deterioration of children's mental health, particularly during periods of lockdown and for children with pre-existing conditions and families in financial distress (Renshaw and Seriamlu 2021).

In August 2021, as part of the Australian National University Centre for Social Research and Methods' COVID-19 Impact Monitoring Survey Program, parents/carers of children aged 2 and over reported the impact of the COVID-19 pandemic on their child's mental health: 61% experienced a negative impact, 35% experienced no impact and 5.0% experienced a positive impact (Biddle et al. 2021).

A higher proportion of children in older age groups were reported to have experienced negative impacts on their mental health: 71% for children aged 15–18 compared with 63% of children aged 10–14, 62% of children aged 5–9 and 40% of children aged 2–4 (Biddle et al. 2021).

A comparison with a similar survey in July 2020 suggests the proportion of children aged 3–17 who experienced any negative effect had increased as the pandemic continued (from 36% in July 2020 to 61% in August 2021) according to parent/carer reports (Biddle et al. 2021).

In a survey in September 2020 on the impacts of remote learning due to COVID-19, parents/carers reported that more than 1 in 3 children aged 5–18 (35%) experienced a negative impact on their mental health, with higher proportions in Victoria (56%) than New South Wales (34%) or other states and territories combined (26%) (RCHpoll 2021). Some reported a positive impact, with around 1 in 3 (29%) children in New South Wales and around 1 in 5 in Victoria (21%) and other states and territories (21%). Children in Victoria were still engaged in both lockdowns and remote learning in September 2020, while those from other states/territories had returned to face-to-face learning (RCHpoll 2021).

Disability

According to the ABS 2018 Survey of Disability, Ageing and Carers, around 1 in 13 (7.6% or an estimated 356,000) Australian children aged 0–14 have disability (ABS 2019c). More boys (9.6%) than girls (5.7%) have disability. Around 1 in 20 (4.5%, or an estimated 210,000) children had a severe or profound core activity limitation and 7.8% (an estimated 241,000) of children aged 5–14 had a schooling restriction. Schooling restrictions are determined based on whether a person needs help, has difficulty participating, or uses aids or equipment in their education because of their disability. Boys aged 5–14 were more likely than girls to have a schooling restriction (9.9% compared with 5.6%).

The prevalence of disability has remained relatively stable over time for children. Since 2003, there has been little change in the prevalence for children aged 0–4 (4.3% in 2003 compared with 3.7% in 2018) or children aged 5–14 (10% in 2003 compared with 9.6% in 2018) (ABS 2019a).

Effects of the COVID-19 pandemic on children with disability

A review of the existing research released between March 2020 and June 2021 suggests the COVID-19 pandemic has exacerbated existing problems with support for children with disability including:

- access to inclusive information
- access to health and social opportunities, including medical services
- issues with the flexibility of systems to adjust to the additional needs and complexity of children with disability’s lives (Renshaw and Goodhue 2021).

Children with disability also experienced uncertainty about education and access to appropriate learning materials – in a survey in April–June 2020, families of children with disability reported that only half (50%) had received accessible learning materials and curriculum (Dickinson et al. 2020).

Chronic conditions

Chronic condition data

Chronic condition prevalence data for 2020–21 is based on self-reported data from the Australian Bureau of Statistics (ABS) 2020–21 National Health Survey (NHS).

Previous versions of the NHS have primarily been administered by trained ABS interviewers and were conducted face-to-face. The 2020–21 NHS was conducted during the COVID-19 pandemic. To maintain the safety of survey respondents and ABS Interviewers, the survey was collected via online, self-completed forms.

Non-response is usually reduced through Interviewer follow up of households who have not responded. As this was not possible during lockdown periods, there were lower response rates than previous NHS cycles, which impacted sample representativeness for some sub-populations. Additionally, the impact of COVID-19 and lockdowns might also have had direct or indirect impacts on people's usual behaviour over the 2020–21 period.

Due to these changes, comparisons to previous NHS data over time are not recommended.

According to self-reported data from the ABS 2020–21 National Health Survey (NHS), an estimated 2 in 5 (44%) children aged 0–14 had one or more chronic conditions (ABS 2022). Chronic conditions, also known as long-term conditions or non-communicable diseases, refer to a wide range of conditions, illnesses and diseases that tend to be long-lasting with persistent effects. Chronic disease can interrupt a child's normal development and can increase the risk of being developmentally vulnerable at school entry (Bell et al. 2016).

According to the 2020–21 NHS, the most common chronic conditions among children aged 0–14 were:

- hay fever and allergic rhinitis (11%) and asthma (8.7%), both diseases of the respiratory system
- allergies (including food, drug and undefined) (7.8%)
- anxiety related disorders (7.1%) and problems of psychological development (6.8%); both mental and behavioural conditions (ABS 2022).

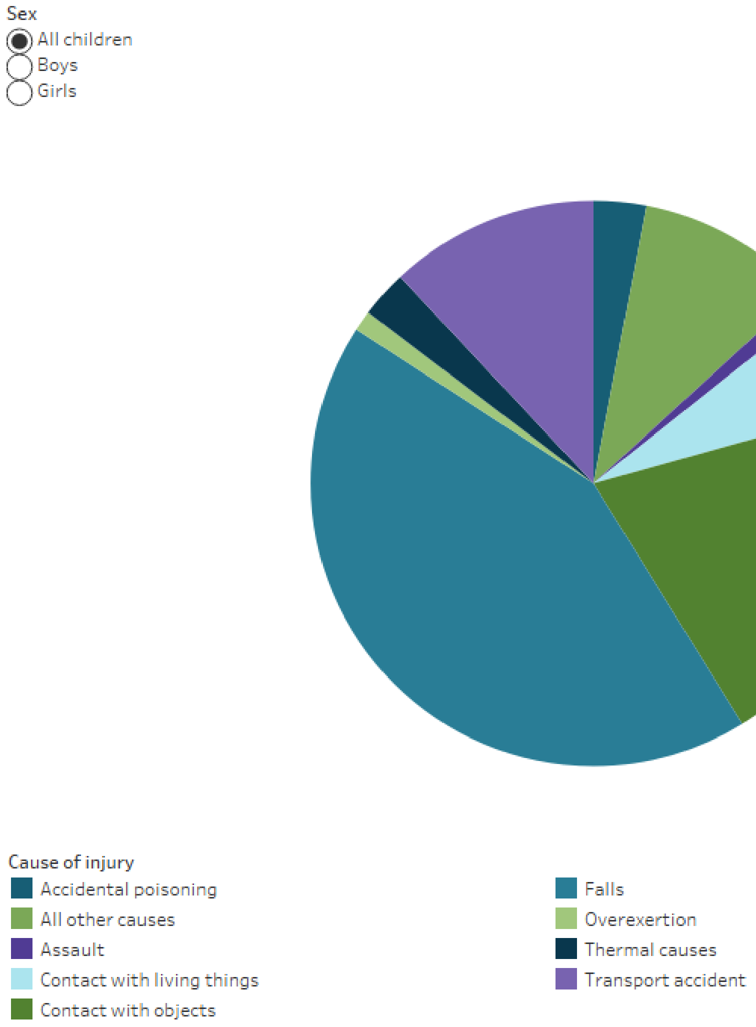
Injuries

In 2019–20, there were around 62,100 hospitalised injury cases among children aged 0–14, a rate of around 1,300 per 100,000 children (AIHW 2022b). Hospitalised injury cases exclude presentations to emergency departments that are not admitted to hospitals. For more information on non-admitted patient services, see Hospitals.

Overall, boys were 1.5 times as likely as girls to sustain an injury that resulted in hospitalisation (around 1,500 and 1,000 per 100,000, respectively) (AIHW 2022b). These differences varied by age, from 1.3 times as likely for children aged 0–4 to 1.8 times for 10–14-year-olds.

In 2019–20, the leading causes of hospitalised injuries among children were falls, contact with objects (such as being struck or cut by something other than another human or animal) and transport accidents (Figure 2).

Figure 2: Hospitalised injury cases for children aged 0–14, by causes of injury, 2019–20



Source: AIHW 2022b.
http://www.aihw.gov.au/

During 2018–2020, injuries contributed to 502 deaths of children aged 0–14, a rate of 3.5 per 100,000 children (AIHW 2022a).

Deaths

In 2020, there were 943 deaths of infants under the age of one, a rate of 3.2 per 1,000 live births (ABS 2021a). Infant deaths accounted for 7 in 10 (71%) deaths among all children aged 0–14. The leading causes of infant deaths were: perinatal conditions (56%), congenital conditions (26%) and symptoms, signs and ill-defined conditions, including Sudden Infant Death Syndrome (11%) (ABS 2021a). The infant death rate fell from 5.0 deaths per 1,000 live births in 1998 to 3.2 per 1,000 in 2020 (AIHW 2022a).

In 2020, there were 386 deaths of children aged 1–14, a rate of 8.6 per 100,000 children. The leading causes of child deaths were: land transport accidents (13%), malignant brain tumours (8.3%) and congenital conditions (8.3%) (ABS 2021a). The death rate for children aged 1–14 fell from 19.7 deaths per 100,000 in 1998 to 8.6 per 100,000 in 2020 (AIHW 2022a).

See Causes of death.

As of 24 May 2022, since the COVID-19 pandemic began, there have been 8 deaths due to COVID-19 among children aged 0–9 and 6 deaths among children aged 10–19 (Department of Health 2022a). For the most recent data on cases and deaths, see the Department of Health's Coronavirus (COVID-19) case numbers and statistics.

Health risk factors

Nutrition

Why is the most recent data from 2017–18?

Nationally representative estimates on nutrition are derived from the ABS' National Health Survey (NHS).

Due to the COVID-19 pandemic, statistics on children's fruit, vegetable and sugar-sweetened and diet drink consumption were not reported at the time of the NHS 2020–21, the most recent NHS.

The figures presented in this snapshot reflect the latest nationally representative data on nutrition for children.

Good nutrition is key to supporting children's growth and development (NHMRC 2013).

According to self-reported data from the ABS 2017–18 NHS:

- About 7 in 10 (72%) children aged 5–14 met the recommended guidelines for fruit consumption.
- About 1 in 25 (4.4%) children aged 5–14 met the recommended guidelines for vegetable consumption (ABS 2019e).

It was also estimated that almost half (45%) of children aged 5–14 consumed either sugar-sweetened drinks or diet drinks at least once a week. The proportion was higher for children aged 10–14 (53%) than children aged 5–9 (33%) (ABS 2019e).

See Diet.

Eating behaviour during the COVID-19 pandemic

In a survey in June 2020, parents/carers reported that, compared with before the pandemic, over 1 in 4 (26%) children had eaten more in general and 1 in 4 (25%) ate more unhealthy food since the pandemic began (RCHpoll 2020). About 2 in 5 (43%) children were reported to have consumed sugary drinks or 'treat food' on most days of the week during the 2 weeks prior to the survey.

Physical activity

In addition to good nutrition, participating in physical activity and limiting sedentary behaviour is critical to a child's health, development and psychosocial wellbeing. The most recent data available on physical activity and sedentary screen time for children are self-reported from the ABS 2011–12 National Nutrition and Physical Activity Survey.

In 2011–12, among children aged 2–4:

- Most (72%) met the recommended 180 minutes of physical activity each day.
- Just over one-quarter (26%) met the screen-based activity guideline of no more than 60 minutes per day (ABS 2013).

In 2011–12, among children aged 5–14:

- Less than one-quarter (23%) undertook the recommended 60 minutes of physical activity every day.
- Less than one-third (32%) met the screen-based activity guidelines.
- Only 1 in 10 (10%) met both sets of guidelines each day (ABS 2013).

On average, children aged 5–14 spent around 2 hours (123 minutes) each day sitting or lying down for screen-based activities, with only 3.5 minutes of this being for homework. Children aged 10–14 spent more time in front of screens (145 minutes) on average in a day than children aged 5–9 (102 minutes) (ABS 2013).

See Insufficient physical activity.

Effects of COVID-19 on physical health

In June 2020, parents/carers reported that only 1 in 10 (10%) children aged 5–18 met the recommended activity guidelines in the 2 weeks prior to the survey (RCHpoll 2020). About 2 in 5 children aged 3–18 were reported to have spent less time being outdoors (42%) and physically active (42%) in a typical week during the pandemic compared with before the pandemic. More teenage children (44%) spent less time being physically active than primary or pre-school aged children (37%). Many children aged 3–18 (51%) were reported to have spent more time on screens for entertainment. More than one-third (36%) of parents said their own or their child's concern about catching COVID-19 was a barrier to their child engaging in exercise or physical activity outdoors (RCHpoll 2020).

Overweight and obesity

Why is the most recent data from 2017–18?

Nationally representative estimates on overweight and obesity are derived from the ABS' National Health Survey (NHS).

Due to the COVID-19 pandemic, physical measurements (including height, weight and waist circumference) were not taken at the time of the NHS 2020–21, the most recent NHS.

While self-reported height and weight were collected as part of the survey, self-reported data underestimates actual levels of overweight and obesity based on objective measurements (ABS 2018b).

As self-reported and measured rates of overweight and obesity should not be directly compared, the figures presented in this snapshot reflect the latest nationally representative data based on measured body mass index.

Based on measured data from the 2017–18 NHS, the majority of children aged 5–14 (67% or an estimated 2 million) were a normal weight and around 1 in 4 (24% or an estimated 746,000) were overweight or obese (ABS 2019d). Almost 1 in 13 (7.7%) children aged 5–14 were obese. The prevalence of overweight and obesity:

- was similar for boys and girls across age groups
- remained relatively stable between 2007–08 and 2017–18 (ABS 2019d).

For further detail of how overweight and obesity is defined and measured, see Overweight and obesity.

Health care

Immunisation

Measuring childhood immunisation coverage helps track how protected the community is against vaccine-preventable diseases, and reflects the capacity of the health care system to effectively target and provide vaccinations to children.

In 2021, more than 9 in 10 (93%) children aged 2 were fully immunised. Coverage rates for 2-year-olds are slightly lower than for 1-year-olds (95%) and 5-year-olds (95%) due to changes to the National Immunisation Program Schedule in December 2014 and March 2017 (Department of Health 2022c).

The proportion of children fully immunised at 2 years old was relatively stable at around 91–93% between 2009 and 2021, dropping slightly to 89% in 2015 and 90% in 2017 (Department of Health 2022c).

See Immunisation and vaccination.

COVID-19 vaccination rates

As of 30 April 2022, about half (53%) of children aged 5–11 had one dose of the COVID-19 vaccine and 37% were fully vaccinated (Department of Health 2022b). Most children aged 12–15 have had one dose (85%) or have been fully vaccinated (80%). For the most recent vaccination data, see the Department of Health’s COVID-19 vaccination – vaccination data.

Medicare-subsidised mental health-specific services

In 2019–20, 1 in 100 children aged 0–4 (1.0% or 15,600) and 1 in 15 children aged 5–11 (6.8% or 154,000) received Medicare-subsidised mental health-specific services (AIHW 2022c). Of all people receiving Medicare-subsidised mental health-specific services, children aged 0–11 made up 6.2%, with those aged 25–34 making up the greatest proportion of patients (20%). The most common provider type for children was general practitioners (0.7% of all children aged 0–4 and 5.2% of all children aged 5–11) (AIHW 2022c).

COVID-19 impact on mental health services

In August 2021, a survey of parent and carers of children aged 0–18 found that around 1 in 5 (21%) needed mental health support for their child/ren and 73% of those sought help (Biddle et al. 2021). Of those who sought help, 2 in 5 (40%) reported it was difficult or very difficult to access mental health support services for their child.

Kids Helpline reported that nationally the number of duty of care interventions to protect children and young people between December 2020 and 31 May 2021 was nearly twice as high as the same period a year ago (an increase of 99%) (yourtown 2021). This increase in contact to police, child safety or ambulance services was largely due to interventions for suicide attempts (38%) and child abuse (35%).

Where do I go for more information?

For more information on the health of children, see:

- Australia's children
- National Action Plan for the Health of Children and Young People: 2020–2030
- National framework for protecting Australia's children indicators
- Children's headline indicators

Visit Children & youth for more on this topic.

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Health of mothers and babies

Find the most recent version of this information at:
https://www.aihw.gov.au/reports/mothers-babies/health-of-mothers-and-babies

The health of both mothers and babies can have important lifelong implications. Maternal demographics, such as maternal age and country of birth, can impact on maternal and perinatal health. Maintaining a healthy lifestyle during pregnancy and attending routine antenatal care contributes to better outcomes for both mother and baby. The health of a baby at birth is a key determinant of their health and wellbeing throughout life, for example the gestational age of a baby, and their birthweight, have important implications for their health, with poorer outcomes generally reported for those born early and with a birthweight below 2,500 grams.

This page uses data from the National Perinatal Data Collection (AIHW 2021) and other related perinatal collections to explore aspects of pregnancy and childbirth as well as key outcomes for babies at birth. For more information on data sources used in this page, and to see a full list of AIHW products that focus on mothers and babies, see Data sources and Reports.

Profile of mothers and babies

About 298,600 women gave birth to around 303,100 babies in 2019. While the number of babies born and women giving birth has been increasing, the rate of women giving birth has fallen from 65 per 1,000 women of reproductive age (15–44) in 2009 to 58 per 1,000 women in 2019.

In 2019:

    - 74% of mothers lived in *Major cities* compared with the proportion of women of reproductive age in the population (76%).
    - 36% of mothers were born overseas compared with the proportion of women of reproductive age in the population (34%).
    - 20% of mothers were from the lowest socioeconomic areas compared with the proportion of women of reproductive age in the population (17%).
    - 4.8% of mothers were of Aboriginal and Torres Strait Islander origin compared with 3.6% of Indigenous women of reproductive age in the population.
- 51% of babies born were male, with a ratio of 106 live-born boys to 100 live-born girls.
- 6% of babies born were Indigenous babies.

Detailed information on mothers and babies from population groups, such as Indigenous mothers and babies or those from remote areas, is available from Australia's mothers and babies.

COVID-19 impacts

During 2020, shutdowns and service disruptions may have affected the ability of pregnant women to attend face-to-face antenatal care. Additionally, because of personal safety concerns, women may have opted not to attend face-to-face appointments, as health advice encouraged avoiding public spaces except for essential purposes (RANZCOG 2021; RCOG 2022). On 13 March 2020, the Australian Government added services to the Medicare Benefits Schedule to cover antenatal services delivered via telehealth (Department of Health 2021b).

During 2020, over 1.6 million services for antenatal care were processed nationally. Of these, there were around 136,000 fewer face-to-face antenatal services in 2020 compared with 2019. This decrease was mostly offset by telehealth services (added in March 2020) that contributed 126,000 antenatal services from March to December 2020. The overall reduction of antenatal services in 2020 compared with 2019 was less than 10,000 services (a 0.6% reduction).

For more information see Antenatal care during COVID–19, 2020.

Mothers

Maternal age

Maternal age is an important risk factor for both obstetric and perinatal outcomes. Adverse outcomes are more common in younger and older mothers. Women in Australia are continuing to give birth later in life:

- The average age of women who gave birth was 30.8 in 2019 compared with 30.0 in 2009.
- The proportion of women giving birth aged 35 and over remained relatively stable from 23% in 2009 to 25% in 2019, while the proportion aged under 25 decreased from 18% to 13% (Figure 1).

Smoking status

Smoking during pregnancy is the most common preventable risk factor for pregnancy complications and is associated with poorer perinatal outcomes, including low birthweight, being small for gestational age, pre-term birth and perinatal death. Women who stop smoking during pregnancy can reduce the risk of adverse outcomes for themselves and their babies. Support to stop smoking is widely available through antenatal clinics.

Almost 1 in 10 (9.3%) mothers who gave birth in 2019 smoked at some time during their pregnancy, a decrease from 15% in 2009 (Figure 1). Of mothers who were smoking at the start of their pregnancy, 1 in 5 (20%) quit smoking during the pregnancy.

Antenatal care

Antenatal care is a planned visit between a pregnant woman and a midwife or doctor to assess and improve the wellbeing of the mother and baby throughout the pregnancy. Routine antenatal care, beginning in the first trimester (before 14 weeks gestational age), is known to contribute to better maternal health in pregnancy, fewer interventions in late pregnancy, and positive child health outcomes (AHMAC 2011; WHO RHR 2015).

Australian Pregnancy Care Guidelines

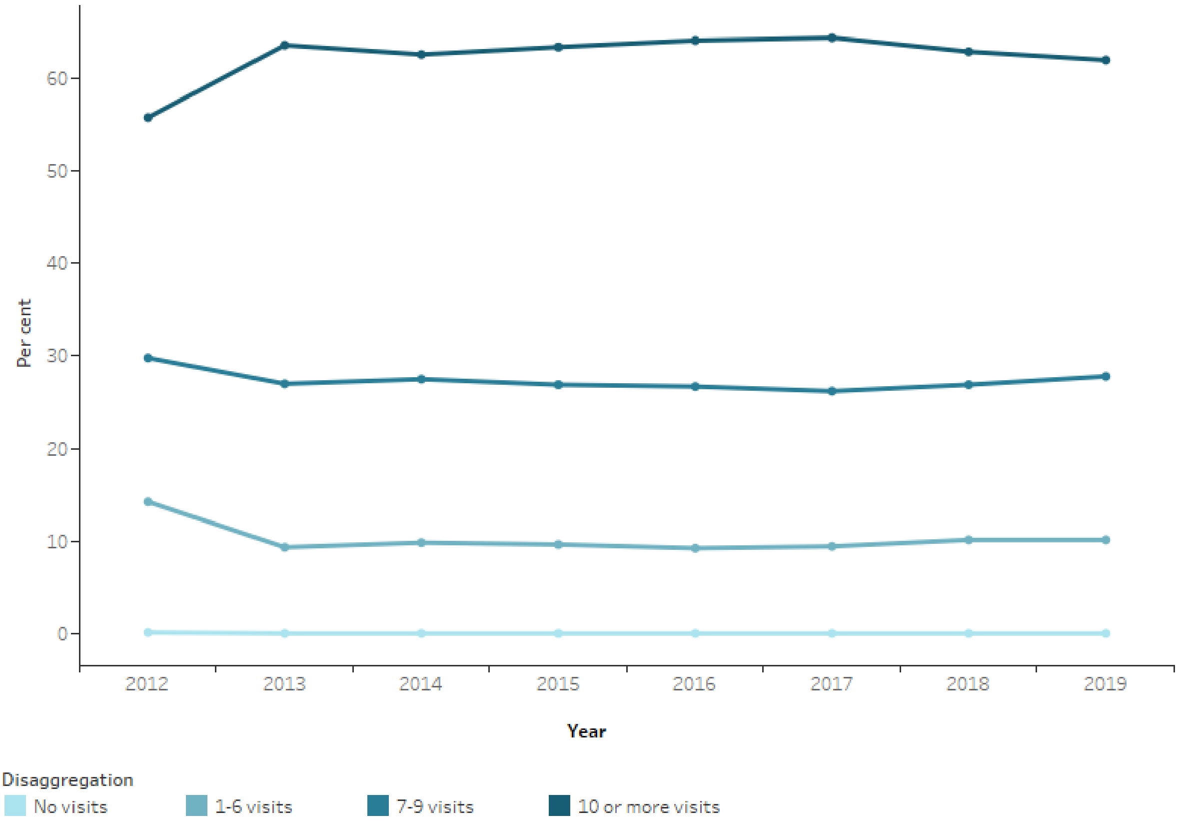
The Australian Pregnancy Care Guidelines recommend that the first antenatal visit occur within the first 10 weeks of pregnancy and that first-time mothers with an uncomplicated pregnancy have 10 antenatal visits during pregnancy (7 visits for subsequent uncomplicated pregnancies) (Department of Health 2021a).

Looking at the number of antenatal visits by mothers who gave birth at 32 weeks or more gestation in 2019:

- Almost all mothers (99.8%) received antenatal care during pregnancy.
- 77% of mothers received antenatal care within the first 10 weeks of pregnancy.
- 57% of first-time mothers had at least 10 antenatal visits during pregnancy and 85% of mothers who had given birth previously had at least 7 visits the rates have remained steady since 2013 (excludes data from Victoria) (Figure 1).

Figure 1: Health factors of mothers, 2009 to 2019

Filter by
Antenatal visits for first time mothers



Notes
1. Trend data excludes Victoria
2. Percentage calculated after excluding records with Not stated values. Care must be taken when interpreting percentages.

Source: National Perinatal Data Collection.
https://www.aihw.gov.au/reports-data/population-groups/mothers-babies/reports

Method of birth

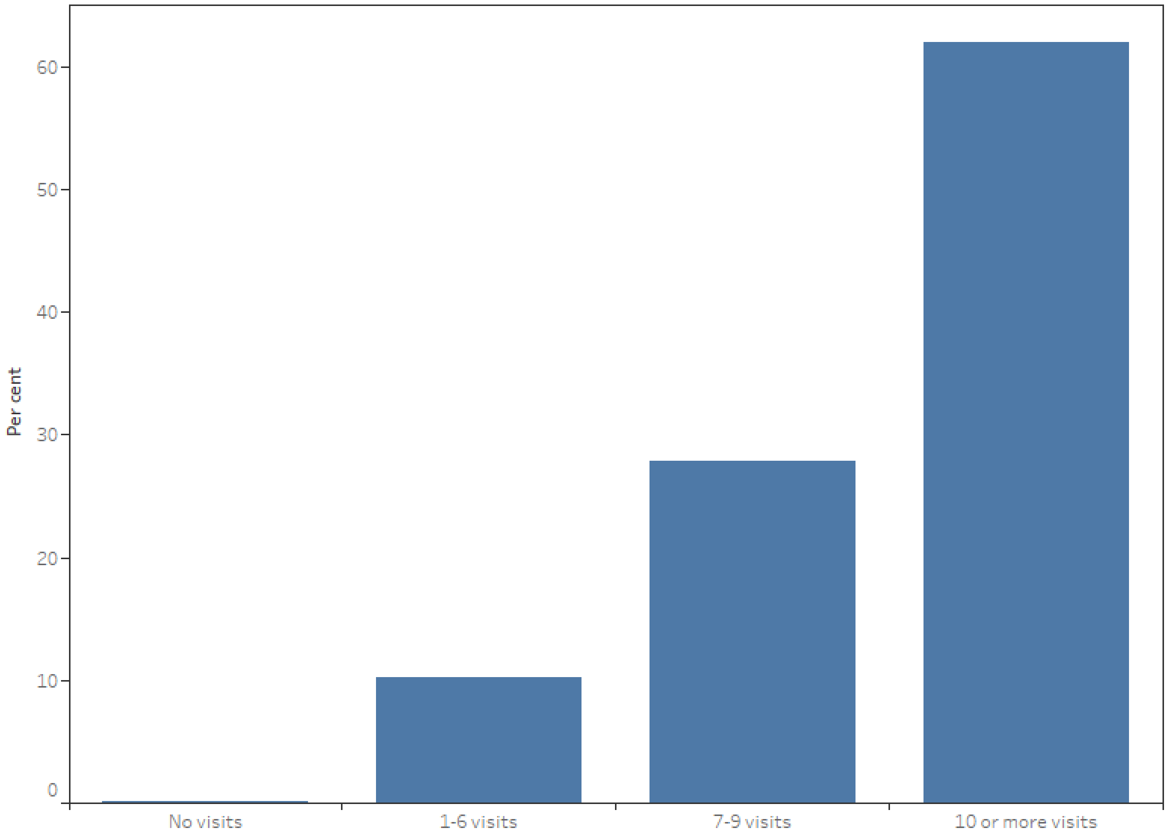
In 2019, 64% of mothers (190,853) had a vaginal birth and 36% (107,543) had a caesarean section (Figure 2).

Around half (51%) of all births were non-instrumental vaginal births. When instrumental births were required, vacuum extraction was more common than forceps (8% and 5% of all births, respectively) (Figure 2).

Since 2009, the rate of non-instrumental vaginal births decreased (from 57% in 2009 to 51% in 2019) whereas the caesarean section rate increased (from 32% in 2009 to 36% in 2019) (Figure 1). The rate of vaginal birth with instruments was relatively stable over this time, between 12% and 13%. These trends remain when changes in maternal age over time are considered.

Figure 2: Health factors of mothers, 2019

Filter by
Antenatal visits for first time mothers



Notes
1.Trend data excludes Victoria
2. Percentage calculated after excluding records with Not stated values. Care must be taken when interpreting percentages.

Source: National Perinatal Data Collection.
https://www.aihw.gov.au/reports-data/population-groups/mothers-babies/reports

Gestational age

Gestational age is the duration of pregnancy in completed weeks. Gestational age is reported in 3 categories: pre-term (less than 37 weeks gestation), term (37 to 41 weeks) and post-term (42 weeks and over). The gestational age of a baby has important implications for their health, with poorer outcomes generally reported for those born early. Pre-term birth is associated with a higher risk of adverse neonatal outcomes.

In 2019:

- The median gestational age for all babies was 39 weeks.
- 91% of all babies born were born at term (Figure 2).

Birthweight

Birthweight is a key indicator of infant health and a principal determinant of a baby's chance of survival and good health. A birthweight below 2,500 grams is considered low and is a known risk factor for neurological and physical disabilities. A baby may be small due to being born early (pre-term) or be small for gestational age, for example, due to fetal growth restriction within the uterus.

In 2019, 6.6% of babies born in Australia had low birthweight (Figure 2), and there has been little change since 2009. Birthweight and gestational age are closely related – low birthweight babies made up 57% of babies who were pre-term compared with only 2.3% of babies born at term.

Apgar score at 5 minutes

Apgar scores are clinical indicators that determine a baby's condition shortly after birth. These scores are measured on a 10-point scale for several characteristics. An Apgar score of 7 or more at 5 minutes after birth indicates the baby is adapting well post-birth.

The vast majority (98%) of liveborn babies in 2019 had an Apgar score of 7 or more at 5 minutes after birth (Figure 2). This rate has remained steady since 2009.

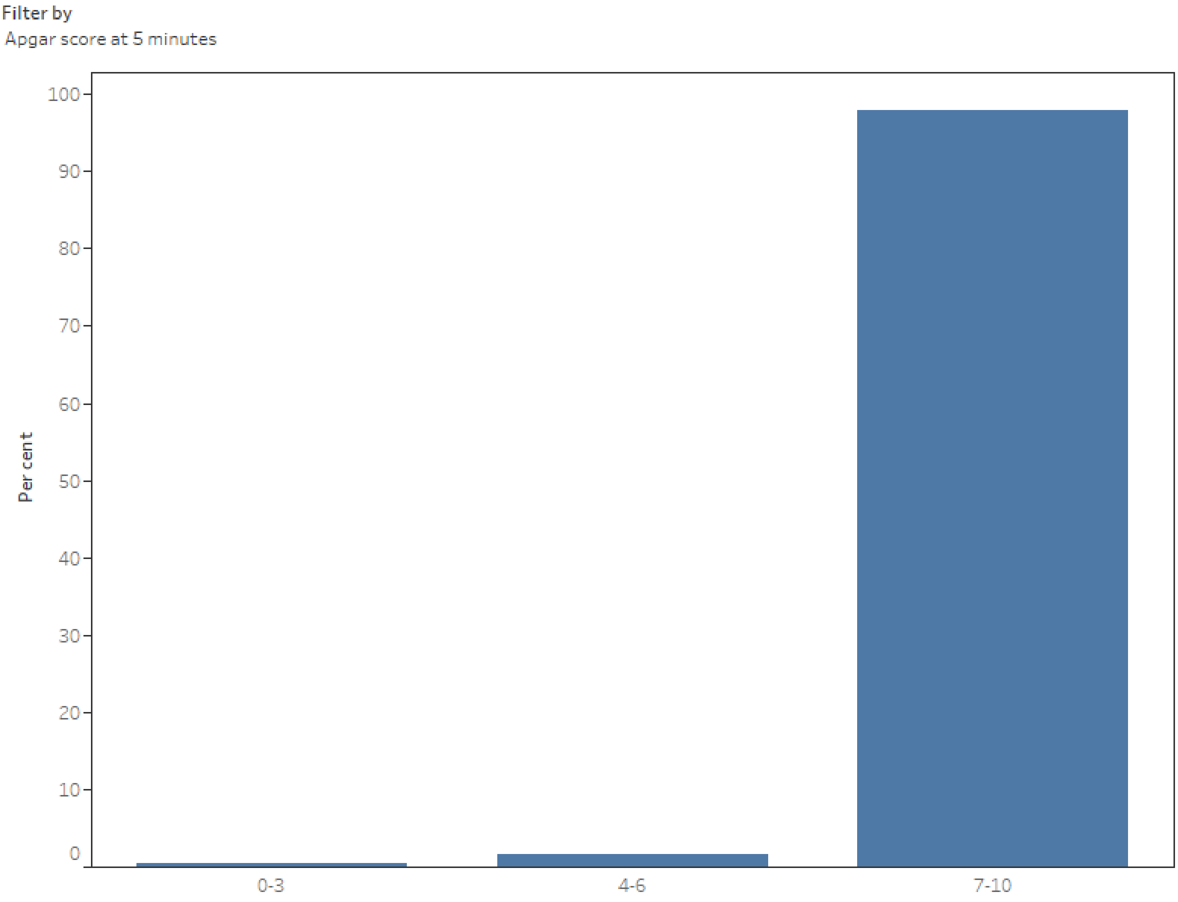
Resuscitation

Resuscitation is undertaken to establish independent breathing and heartbeat or to treat depressed respiratory effort and to correct metabolic disturbances. Resuscitation methods range from less intrusive methods like suction or oxygen therapy to more intrusive methods, such as external cardiac massage and ventilation. More than one type of resuscitation method can be recorded.

Almost 1 in 5 (19%) liveborn babies required active resuscitation immediately after birth in 2019. Where resuscitation was required, continuous positive pressure ventilation (CPAP) was reported as the most used method nationally and external cardiac compressions as the least common method.

Babies who required resuscitation were also more likely to have an Apgar score of less than 7, be of low birthweight, be born pre-term, and be born as part of a multiple birth.

Figure 3: Apgar score at 5 minutes of babies, 2019



Note: includes liveborn babies only.

Source: National Perinatal Data Collection.
https://www.aihw.gov.au/reports-data/population-groups/mothers-babies/reports

A stillbirth is the death of a baby before birth, at a gestational age of 20 weeks or more, or a birthweight of 400 grams or more. A neonatal death is the death of a liveborn baby within 28 days of birth. Perinatal deaths include both stillbirth and neonatal deaths.

In 2019, there were 9.6 perinatal deaths for every 1,000 births, a total of 2,897 perinatal deaths. This included:

- 2,183 stillbirths, a rate of 7.2 deaths per 1,000 births
- 714 neonatal deaths, a rate of 2.4 deaths per 1,000 live births.

Between 2009 and 2019 the stillbirth and neonatal mortality rates have remained largely unchanged at between 7 and 8 in 1,000 births and between 2 and 3 in 1,000 live births, respectively. Congenital anomaly was the most common cause of perinatal death.

For more information see Stillbirths and neonatal deaths in Australia.

Maternal deaths

Maternal death is the death of a woman while pregnant or within 42 days of the end of pregnancy, irrespective of the duration and outcome of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes.

Between 2010 and 2019, the maternal mortality ratio in Australia was relatively stable, ranging from between 5.0 to 8.4 per 100,000 women giving birth.

The most frequent causes of maternal death reported in Australia between 2010 and 2019 were complications of pre-existing cardiovascular disease and non-obstetric haemorrhage (mostly haemorrhage within the brain and haemorrhage from a ruptured aneurysm of the splenic artery).

For more information see Maternal deaths.

Congenital anomalies

Congenital anomalies encompass a wide range of atypical bodily structures or functions that are present at or before birth. They are a cause of child death and disability, and a major cause of perinatal death.

In 2016, over 8,900 (3%) babies were born with a congenital anomaly, almost 1 in 31 babies. Circulatory system anomalies (these are anomalies of the heart and major blood vessels) were the most common type of anomaly, 29% of babies with any anomaly having a circulatory system anomaly. Most (91%) babies with an anomaly survived their first year.

Congenital anomaly rates were higher in:

- babies born pre-term (before 37 weeks' gestation), at a rate of 107 per 1,000 births
- babies born with low birthweight (less than 2,500 grams), at a rate of 123 per 1,000 births
- babies that were small for gestational age (that is with a birthweight below the 10th percentile for their gestational age and sex), at a rate of 45 per 1,000 births.

For more information see Congenital anomalies 2016.

Maternity models of care

A maternity model of care describes how a group of women are cared for during pregnancy, birth, and the postnatal period.

In 2021, around 830 maternity models of care were reported across Australian maternity services, and they can be grouped into 11 major model categories. Amongst them:

- The most common major model category is public hospital maternity care with 41% of all models of care falling into this category.
- 45% of all models of care have a midwife employed in the public health system as the designated carer.

- 62% of models have continuity of carer in any stage of the maternity period.

Around 500 (61%) models of care are targeted at specific groups of women who share a common characteristic or set of characteristics. Aboriginal or Torres Strait Islander identification is a target group in 11% of models.

- For more information, read the full Maternal models of care report.

Where do I go for more information?

For more information on the health of mothers and babies, see:

- Australia's mothers and babies
- Stillbirths and neonatal deaths
- Maternal deaths
- National Core Maternity Indicators
- Older mothers in Australia
- Antenatal care during COVID-19
- Congenital anomalies
- Maternal models of care

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Health of older people

This topic summary is part of the Older Australians compendium.

As the number of older people in Australia continues to grow, supporting their health and wellbeing is becoming even more important. While understanding health conditions is one way to measure how older people are faring, so too is understanding their overall health status, functioning, life expectancy and death. The burden of disease on the lives of older people is also important.

Throughout this page, ‘older people’ refers to people aged 65 and over. Where this definition does not apply, the age group in focus is specified. The ‘Older Aboriginal and Torres Strait Islander people’ feature article defines older people as aged 50 and over. This definition does not apply to this page, with Indigenous Australians aged 50–64 not included in the information presented.

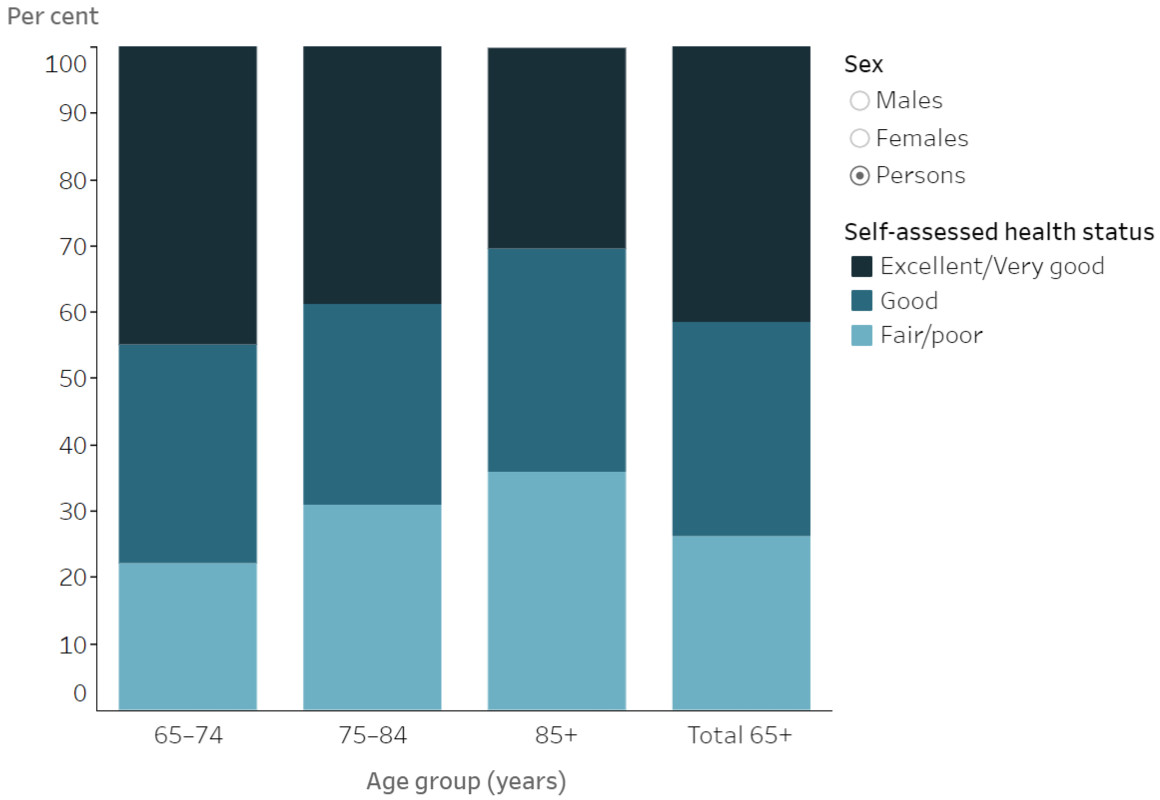
Self-assessed health

According to the 2017–18 Australian Bureau of Statistics (ABS) National Health Survey (NHS), an estimated 3 in 4 (74%) older Australians (aged 65 and over) reported their health as good, very good or excellent including:

- 42% who reported their health as being very good or excellent
- 32% who reported their health as being good (ABS 2018).

Older men and women self-assessed their health similarly. Around 2 in 5 older men (41%) and older women (43%) reported their health as very good or excellent, and 1 in 4 older men (27%) and women (26%) reported their health as being fair or poor (ABS 2018). Older people aged 65–74 were more likely to report their health as very good or excellent than older people aged 75 and over, and less likely to report their health as fair or poor (ABS 2018) (Figure 3A.1).

Figure 3A.1: Older Australians' self-assessed health status by sex and age group, 2017–18



Notes

1. Percentage may not add to 100 due to rounding.
2. 'Older Australians' refers to people aged 65 and over.

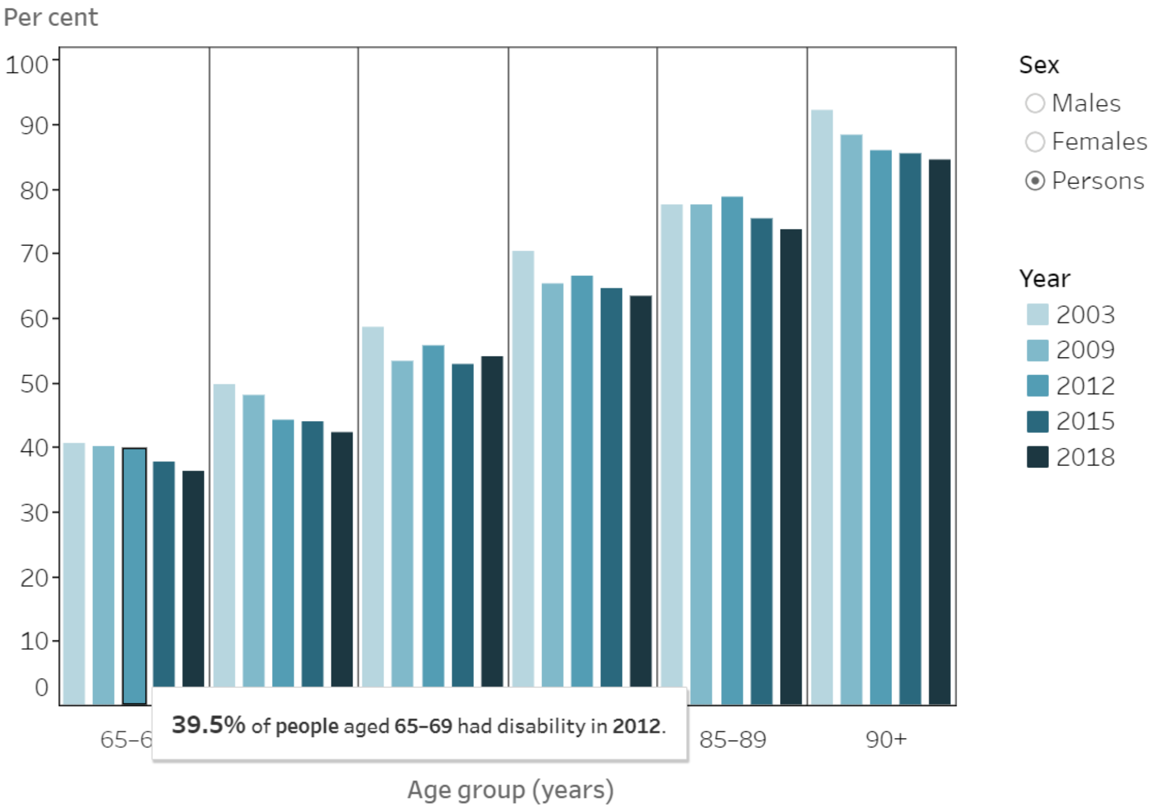
Source: ABS 2018.
http://www.aihw.gov.au/

Disability

According to the 2018 ABS Survey of Disability, Ageing and Carers (SDAC), half (50%) of older Australians (aged 65 and over) had disability. In the SDAC, a person is considered to have disability if they have at least one of a list of limitations, restrictions or impairments, which has lasted, or is likely to last, for at least six months. The prevalence of disability among older Australians has remained relatively stable in recent years, at 51% in 2015 (ABS 2019).

The rate of disability increased with age in 2018, rising from 36% of people aged 65–69 to 85% of those 90 and over (Figure 3A.2). The need for assistance at older ages is likely a trigger for needing formal support services such as aged care. See Aged care for more information.

Figure 3A.2: Percentage of older Australians with disability by sex and age group, 2003–2018



Note: 'Older Australians' refers to people aged 65 and over.

Source: ABS 2018.
http://www.aihw.gov.au/

Older people experience different levels of disability. The severity of disability is defined by whether a person needs help, has difficulty, or uses aids or equipment with 3 core activities of communication, mobility or self-care, and is grouped for mild, moderate, severe and profound limitation. In 2018, nearly 1 in 5 (18%) older Australians (aged 65 and over) had severe or profound disability (that is, they sometimes or always needed help with self-care, mobility or communication) (AIHW 2020).

In 2018, 49% of older men and 50% of older women had disability, and 15% of older men and 20% of older women had severe or profound disability (ABS 2019; AIHW 2020).

Life expectancy

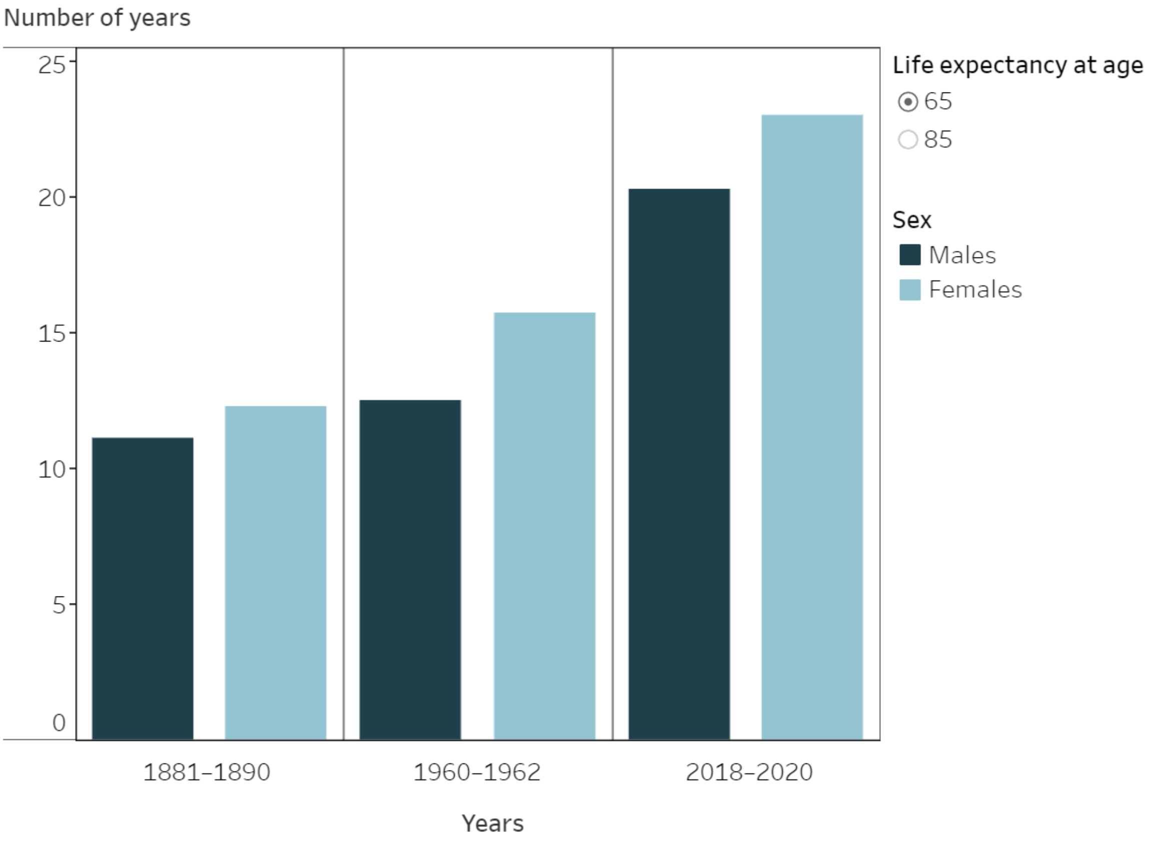
Life expectancy is one way to understand how long, on average, people can be expected to live based on current mortality rates. The measure is not a prediction, rather it is useful for comparisons between population groups and for considering changes over time. It is a common way to assess a population's overall health.

Life expectancy in Australia has improved dramatically for both sexes in the last century. This is particularly the case for life expectancy at birth. Compared with children born in

1881–1890, both boys and girls born in 2018–2020 can expect to live around 34 years longer.

Another way to measure life expectancy is through the remaining life expectancy at a given age. Men aged 65 in 2018–20 could expect to live another 20.3 years (an expected age at death of 85.3 years), and women aged 65 in 2018–20 could expect to live another 23.0 years (an expected age at death of 88.0 years) (Figure 3A.3).

Figure 3A.3: Life expectancy at age 65 and 85 by sex, 1881–1890, 1960–1962 and 2018–2020



Source: AIHW 2022a.
http://www.aihw.gov.au/

Health-adjusted life expectancy

Health-adjusted life expectancy extends the concept of life expectancy by considering the time spent living with ill health due to disease and injury. It reflects the length of time an individual at a specific age could, on average, expect to live in full health. It is most meaningful when compared with life expectancy.

Health-adjusted life expectancy for males and females born in 2018 was 71.5 and 74.1 years, respectively. Between 2003 and 2018, increases in health-adjusted life expectancy for people aged 65 were slightly smaller than those seen for life expectancy alone: health-adjusted life expectancy increased by 1.7 years for men aged 65 (as life expectancy increased by 2.1) and by 0.9 years for women (as life expectancy increased by 1.4 years). There was a small decrease in the proportion of life expectancy as healthy years over time for women (from 75% in 2003 to 74% in 2018), whereas for men there was a small increase (from 75% in 2003 to 76% in 2018) (AIHW 2021a).

Disability-free life expectancy

Increases in life expectancy hopefully accompany an increase in the number of healthy years people live. Disability-free life expectancy is a measure that provides the estimated number of years people can expect to live without disability.

It is important to note that disability does not necessarily equate to poor health or illness. Expected years living with disability should not be considered as being of less value than years without disability (AIHW 2020).

In Australia, the overall disability-free life expectancy has increased in recent years.

Men aged 65 in 2018 can expect to live, on average, another:

- 9 years without disability
- 11 years with some level of disability, including around 3.5 years with severe or profound disability.

Women aged 65 in 2018 can expect to live, on average, another:

- 10 years without disability
- 12 years with some level of disability, including around 5.5 years with severe or profound disability.

For people aged 65 in 2018, this equates to living just over half of their remaining lives with some level of disability (53% for men and 54% for women).

Over time, the number of estimated years living without disability at any age has increased for both men and women. Between 2003 and 2018, the gender gap in the expected years living without disability narrowed in most age groups. The gap for years living without severe or profound disability remained stable for most age groups. In the older age groups, however, the gap for years living without disability and living without severe or profound disability remained relatively stable, changing by no more than 0.2 years across the 65–69, 70–74, 75–79, 80–84 and 85 and over age groups (AIHW 2020).

For more information, see People with disability in Australia 2020.

Causes of death

In Australia in 2020, there were around 132,500 deaths of people aged 65 and over (82% of all deaths) (Table 3A.1). The median age at death was 79 for males and 85 for females (AIHW 2022a).

Table 3A.1: Deaths of older people by sex and age group, 2020

Age group (years)	Men	Women	People	% of total
65–69	6,518	4,084	10,602	8.0
70–74	9,424	6,099	15,523	11.7
75–79	10,870	7,618	18,488	14.0
80–84	12,692	10,721	23,413	17.7
85–89	13,063	13,777	26,840	20.3
90–94	10,065	14,556	24,621	18.6
95–99	3,446	7,608	11,054	8.3
100+	420	1,530	1,950	1.5
Total 65+	**66,498**	**65,993**	**132,491**	**100.0**

Notes

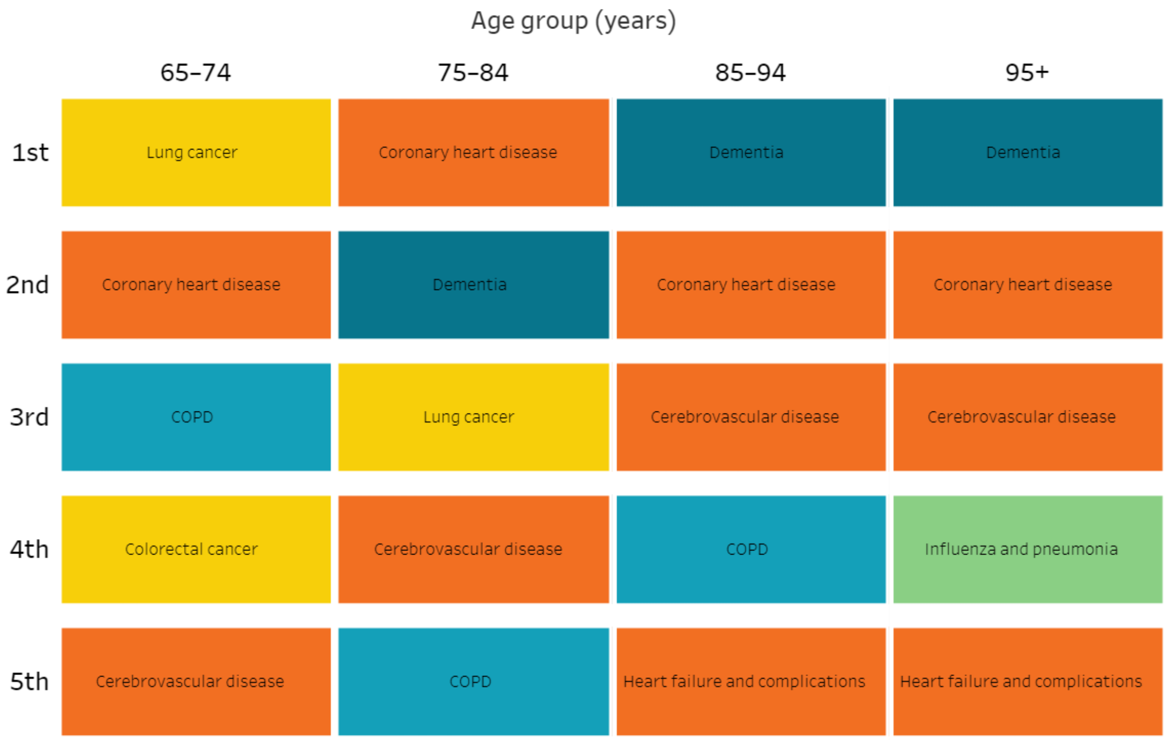
1. Year refers to year of registration of death. Deaths registered in 2020 are based on preliminary data and are subject to further revision by the Australian Bureau of Statistics (ABS).
2. 'Older Australians' refers to people aged 65 and over.

Source: AIHW 2022a.

Coronary heart disease is the overall leading cause of death among older Australians. However, there were differences in the leading cause of death across the older age groups (Figure 3A.4). During 2018–20, the leading cause of death for people aged 65–74 was lung cancer (8,000), followed by coronary heart disease (7,500). Coronary heart disease was the leading cause of death for people aged 75–84 (12,600). For people aged 85 and over, dementia including Alzheimer's disease was the leading cause of death (30,700), followed by coronary heart disease (25,000) (AIHW 2022a).

Men and women also had different leading causes of death. For men, coronary heart disease was the leading cause across all older age groups. For women aged 65–74, the leading cause was lung cancer and for all other older age groups, it was dementia including Alzheimer’s disease (AIHW 2022a).

Figure 3A.4: Five leading causes of death for older Australians by age group, 2016–18



	Age group (years)			
	65–74	75–84	85–94	95+
1st	Lung cancer	Coronary heart disease	Dementia	Dementia
2nd	Coronary heart disease	Dementia	Coronary heart disease	Coronary heart disease
3rd	COPD	Lung cancer	Cerebrovascular disease	Cerebrovascular disease
4th	Colorectal cancer	Cerebrovascular disease	COPD	Influenza and pneumonia
5th	Cerebrovascular disease	COPD	Heart failure and complications	Heart failure and complications

Notes
1. 'Older Australians' refers to people aged 65 and over.
2. 'COPD' refers to chronic obstructive pulmonary disease.

Source: AIHW 2022a.
http://www.aihw.gov.au/

COVID-19 deaths

Australia's older population has been disproportionately impacted by the spread of the COVID-19 virus throughout the country. The risk of serious illness as a result of contracting COVID-19, resulting in hospitalisation, intensive care admission, or death, is much higher in older people in general, and particularly in those with underlying health conditions. This has had devastating consequences in residential aged care settings, as the close proximity between residents increased the risk of virus transmission among people who were already in poorer health than the general population. Although vaccination rollout and improved infection prevention and control methods have reduced the impact of COVID-19 in residential aged care over time, approximately one-third of COVID-19-related deaths in Australia to date have occurred in people living in residential aged care facilities.

For further information related to older Australians and COVID-19, including access to advice and support resources, see the Australian Government's My Aged Care website. For more information regarding COVID-19 outbreaks in Australian residential aged care facilities, see the latest weekly report.

Suicide

Suicide can affect anyone, regardless of age, personal characteristics or family background. Although it is a relatively rare cause of death, it can have devastating and long-lasting effects on those left behind. The numbers and rates of deaths by suicide change over time as social, economic and environmental factors influence suicide risk.

The AIHW recognises that each of the numbers reported here represents an individual.

In 2020, there were 516 deaths from intentional self-harm for people aged 65 and over. Three in 4 of these deaths were among older men (76%, 392 deaths), and 1 in 4 (24%, 124 deaths) were among older females (ABS 2021). The deaths among older people represented 16% of total deaths from intentional self-harm (across all ages) (Table 3A.2).

Table 3A.2: Deaths of older people (65 and over) from intentional self-harm by sex and age group, 2020

Age group (years)	Men	Women	Total
65–69	106	30	136
70–74	89	31	120
75–79	71	24	95
80–84	52	19	71
85+	74	20	94
Total (all age groups)	**2,384**	**755**	**3,139**

Source*:* ABS 2021.

The proportion of deaths by suicide is highest among people of young or middle age, and decreases progressively in older age groups. While the counts are lower in older age groups, deaths by suicide have a significant impact on older age groups. Taking into account the underlying population structure, the highest rates of deaths by suicide were among men aged 85 and over (36.2 deaths per 100,000 population) (ABS 2021).

For more information, see Suicide & self-harm monitoring.

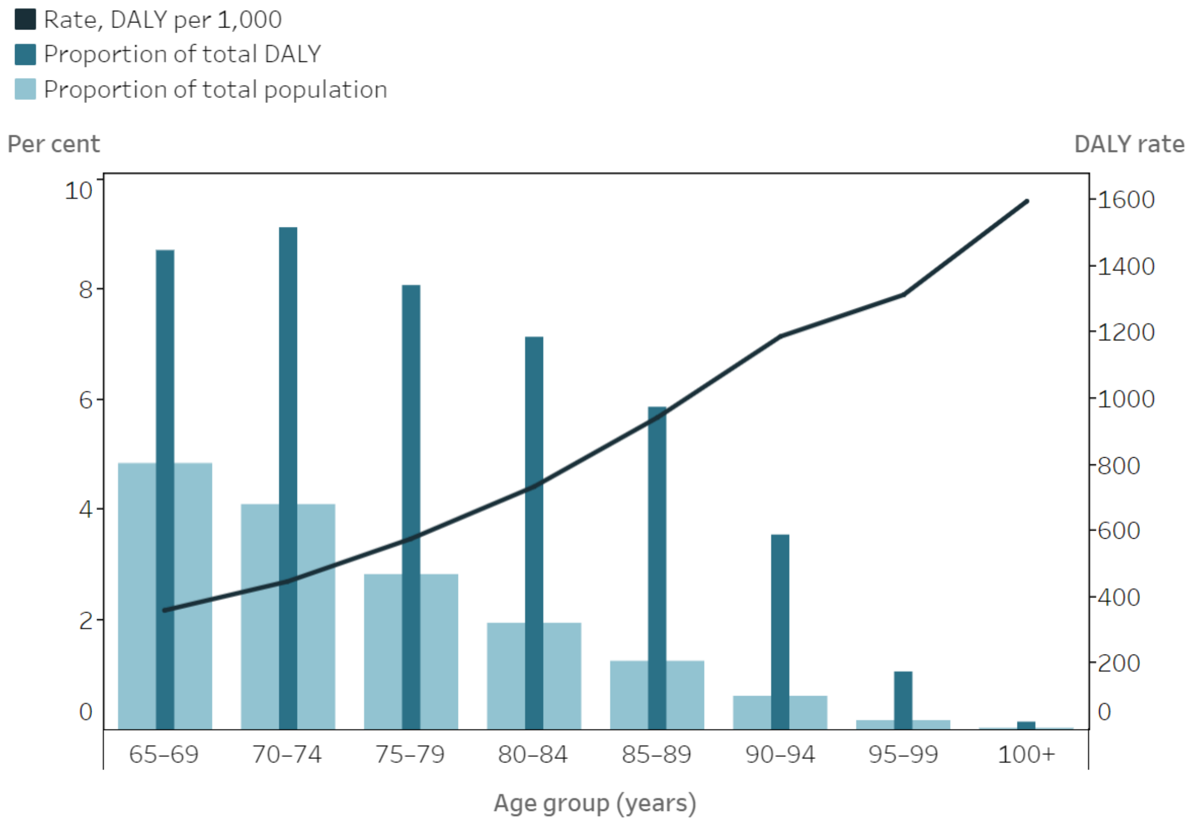
Burden of disease

Burden of disease combines the years of healthy life lost due to living with ill health (YLD or non-fatal burden) with the years of life lost due to dying prematurely (YLL or fatal burden). Total burden is reported using disability-adjusted life years (DALY).

In 2018, older people (aged 65 and over) lost more than 2.1 million years of healthy life (DALY) due to illness or premature death. This has increased since 2003, from 1.7 million DALY. However, in 2018, the Australian population had a higher proportion of older people (16%) than in 2003 (13%). Age-standardised rates of DALY for older people have gone down from 84.3 per 1,000 in 2003, to 69.1 per 1,000 in 2018. In 2018, the years of healthy life lost for older people represented 44% of total DALY in Australia. The YLL accounted for 58% of DALY (1.3 million YLL), with YLD contributing 42% (904,000 YLD) (AIHW 2021a). To learn more about the methodology applied in burden of disease analysis, please refer to *Australian Burden of Disease Study 2018: methods and supplementary material* (AIHW 2021b*)*.

Older Australians contribute to a large share of the total burden of disease and this increases with age (Figure 3A.6). For example, people aged 65–69 made up 5% of the population, but contributed to 9% of the total burden, while people aged 70 and over made up 11% of the population, but contributed to 35% of the total burden.

Figure 3A.6: Older Australians' age distribution of the Australian population and contribution to total burden (DALY), 2018

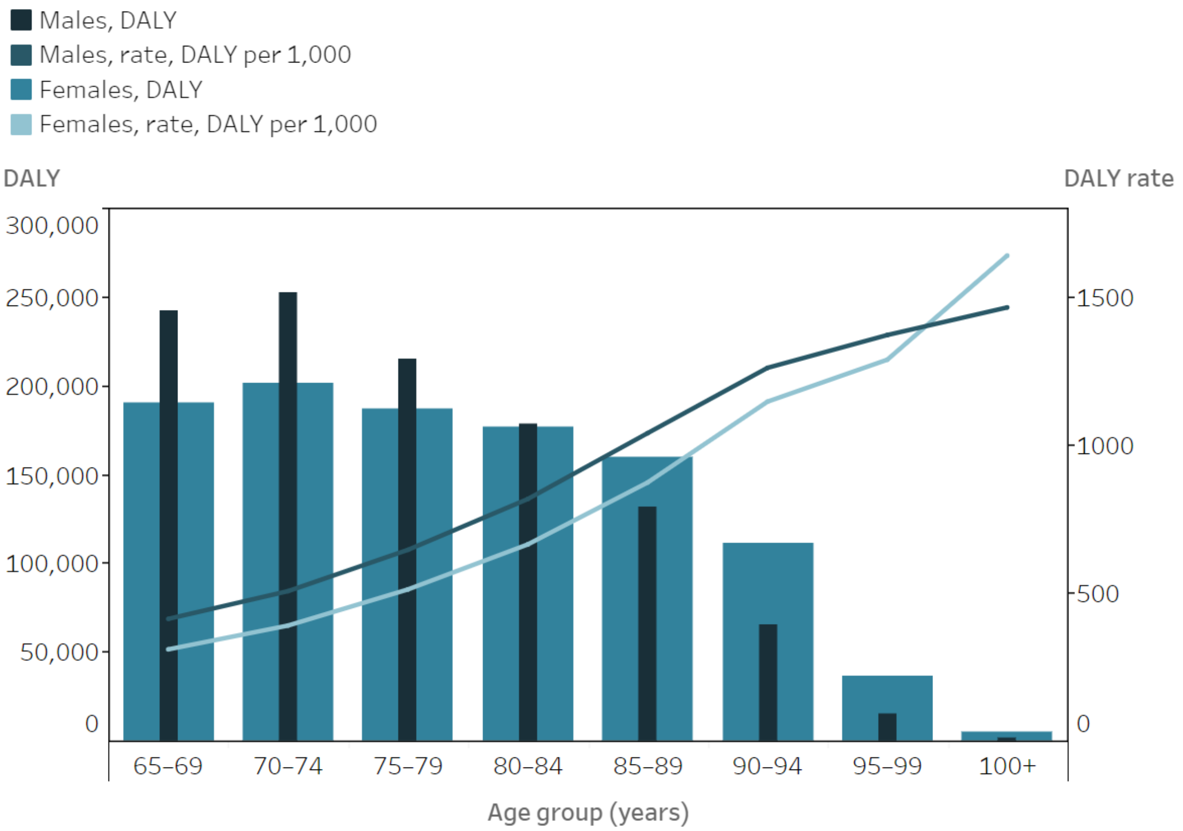


Notes
1. DALY rate is expressed as DALY per 1,000 population.
2. 'Older Australians' refers to people aged 65 and over.

Source: AIHW 2021a.
http://www.aihw.gov.au/

In 2018, the burden was spread relatively evenly between the sexes. Older men (aged 65 and over) accounted for just over half (51%) of the burden, while older women accounted for 49%. Men contributed to more burden than women between the ages of 65 and 84 (around 888,000 DALY compared with 755,000 DALY, respectively), whereas women contributed to more burden than men from the age of 85 (313,000 DALY compared with 214,000 DALY, respectively) (AIHW 2021a) (Figure 3A.7).

Figure 3A.7: Older Australians' total DALY and rates of total burden (DALY per 1,000) by age group and sex, 2018



Notes
1. DALY rate expressed as DALY per 1,000 population.
2. 'Older Australians' refers to people aged 65 and over.

Source: AIHW 2021a.
http://www.aihw.gov.au/

Leading causes of burden of disease (groups)

In 2018, cancer and other neoplasms, cardiovascular diseases, and neurological conditions were the leading disease groups causing total burden (fatal and non-fatal combined) for older Australians, followed by musculoskeletal conditions, and respiratory diseases (Figure 3A.8). Among these top disease groups, the rate of burden per 1,000 people increased with age – except for cancer and other neoplasms where the rate was highest for 80–84 year olds and musculoskeletal conditions where the rate was highest for 75-79 year olds (AIHW 2021a).

Figure 3A.8: Older Australians' leading causes of total burden (DALY '000, proportion of age group) by sex and age group, 2018

Sex

◉ Male

○ Female

	1st	2nd	3rd	4th	5th
65–69	Coronary heart disease	Lung cancer	COPD	Other musculoskeletal	Type 2 diabetes
70–74	Coronary heart disease	COPD	Lung cancer	Type 2 diabetes	Prostate cancer
75–79	Coronary heart disease	COPD	Dementia	Lung cancer	Stroke
80–84	Coronary heart disease	Dementia	COPD	Stroke	Lung cancer
85–89	Coronary heart disease	Dementia	COPD	Stroke	Prostate cancer
90–94	Coronary heart disease	Dementia	COPD	Stroke	Prostate cancer
95–99	Coronary heart disease	Dementia	Prostate cancer	Stroke	COPD
100+	Coronary heart disease	Dementia	Prostate cancer	COPD	Lower respiratory infections

Note: 'Older Australians' refers to people aged 65 and over.

Source: AIHW 2021.
http://www.aihw.gov.au/

Injuries

Most injuries, whether unintentional or intentional, are preventable (WHO 2014). Injuries can be minor with full recovery, or more serious and causing lasting health problems. While some more serious injuries lead to hospital admittance or emergency department visits, others lead to death.

Injuries can happen to anyone, but older people are at particularly high risk of hospitalisation and death for certain injuries. As a result, overall injury hospitalisation and death rates are higher for older people than younger people. In 2019–20, 1 in 3 (33%) hospitalised injury cases involved older Australians (aged 65 and over). There were 173,000 cases of hospitalised injury for older people. This included 103,300 cases of hospitalised injury for women and 69,700 for men, noting that sex is not reported in the remainder of cases. From about the age of 65, injury hospitalisation rates rise considerably from 2,027 per 100,000 for the 65–69 age group to 16,280 per 100,000 for the 95-and-over age group (AIHW 2022b).

For both males and females, rates of hospitalised injury were highest in older people (aged 65 and over), compared with other life-stage age groups. Males had higher rates of hospitalised injury than females in all age groups from 0–64, and were similar for those aged 65–69 (2,037 and 2,017 per 100,000 population, respectively). From ages 70–74 and over, women had higher rates (AIHW 2022b).

In 2019–20, injury death rates were highest for older Australians (aged 65 and over), compared with other life-stage age groups. In 2019–20, there were 7,122 injury deaths among older Australians, 71% of which were due to falls. Almost all (97%) female deaths due to falls involved those aged 65 and over (AIHW 2022b).

Where do I go for more information?

For more information on health status and functioning, see:

- ABS Life tables
- AIHW Australian Burden of Disease Study 2018: interactive data on disease burden

Elsewhere in this report, information about older people's health is available on health risk factors, health service use and selected health conditions.

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Health of people with disability

Find the most recent version of this information at:
https://www.aihw.gov.au/reports/australias-health/health-of-people-with-disability

Disability and health have a complex relationship – long-term health conditions might cause disability, and disability can contribute to health problems. The nature and extent of a person's disability can also influence their health experiences. For example, it may limit their access to, and participation in, social and physical activities.

An estimated 1 in 6 people in Australia (17.7% or 4.4 million people) had disability in 2018, including about 1.4 million people (5.7% of the population) with severe or profound disability (ABS 2019a) (see People with disability in Australia, Defining disability).

In general, people with disability report poorer general health and higher levels of psychological distress than people without disability. They also have higher rates of some modifiable health risk factors and behaviours, such as poor diet and tobacco smoking, than people without disability.

This page looks at the health of people with disability, their health risk factors, and the impacts of COVID-19 on the health of people with disability.

Measuring disability

There are many different concepts and measures of disability, making comparisons across different data sources challenging. The AIHW promotes measures based on the International Classification of Functioning, Disability and Health (WHO 2001), which underpins the disability categories used here.

The data used on this page are primarily from the Australian Bureau of Statistics (ABS) Survey of Disability, Ageing and Carers (SDAC) 2018, National Health Survey (NHS) 2017–18 and Household impacts of COVID-19 Survey 2021.

These survey data are supplemented with administrative data from the National Disability Insurance Scheme (NDIS).

Defining disability

Definitions of disability differ across surveys. The SDAC is the most detailed and comprehensive source of disability prevalence in Australia. To identify disability, the SDAC asks participants if they have at least one of a list of limitations, restrictions or impairments, which has lasted, or is likely to last, for at least 6 months and that restricts everyday activities.

The limitations are grouped into 10 activities associated with daily living, and a further 2 life areas in which people may experience restriction or difficulty as a result of disability – schooling and employment.

The level of disability is defined by whether a person needs help, has difficulty, or uses aids or equipment with 3 core activities – self-care, mobility, and communication – and is grouped for mild, moderate, severe, and profound limitation. People who ‘always’ or ‘sometimes’ need help with one or more core activities, have difficulty understanding or being understood by family or friends, or can communicate more easily using sign language or other non-spoken forms of communication are referred to in this section as ‘people with severe or profound disability’.

The NHS uses the ABS Short Disability Module to identify disability. While this module provides useful information about the characteristics of people with disability relative to those without, it is not recommended for use in measuring disability prevalence.

Disability status in the Household Impacts of COVID-19 Survey is captured using a subset of questions from the ABS’ Short Disability Module. For more information, see People with disability: Household impacts of COVID-19.

Unlike the SDAC, the NHS and the Household Impacts of COVID-19 Survey do not report on people living in institutional settings, such as aged care facilities. However, these two surveys do provide data on people without disability as well as those with disability, enabling comparisons between the two groups.

Profile of people with disability

The disability population is diverse. It encompasses people with varying types and severities of disability across all parts of Australian society. Knowing how many Australians have disability, and their characteristics, can help us to plan and provide the supports, services and communities that enable people with disability to participate fully in everyday life.

While the number of people with disability in Australia has increased to an estimated 4.4 million in 2018 (up from an estimated 4.0 million in 2009), the prevalence rate has decreased over this period (18.5% of the population in 2009 down to 17.7% in 2018) (ABS 2019a).

Overall, the likelihood of experiencing disability increases with age. This means the longer people live, the more likely they are to experience some form of disability. More information on the prevalence of disability is provided in the AIHW report People with disability in Australia, Prevalence of disability.

General health

Adults with disability are more likely to report poorer general health. In 2017–18:

- Adults with disability were less likely to assess their health as ‘very good or excellent’ than adults without disability (24% compared with 65%) (ABS 2019c)
- Adults with severe or profound disability (62%), are almost 9 times as likely as adults without disability (7.0%), and almost twice as likely as adults with other disability (37%) to assess their health as fair or poor (ABS 2019c).

See People with disability in Australia, Health status for more information.

Mental health

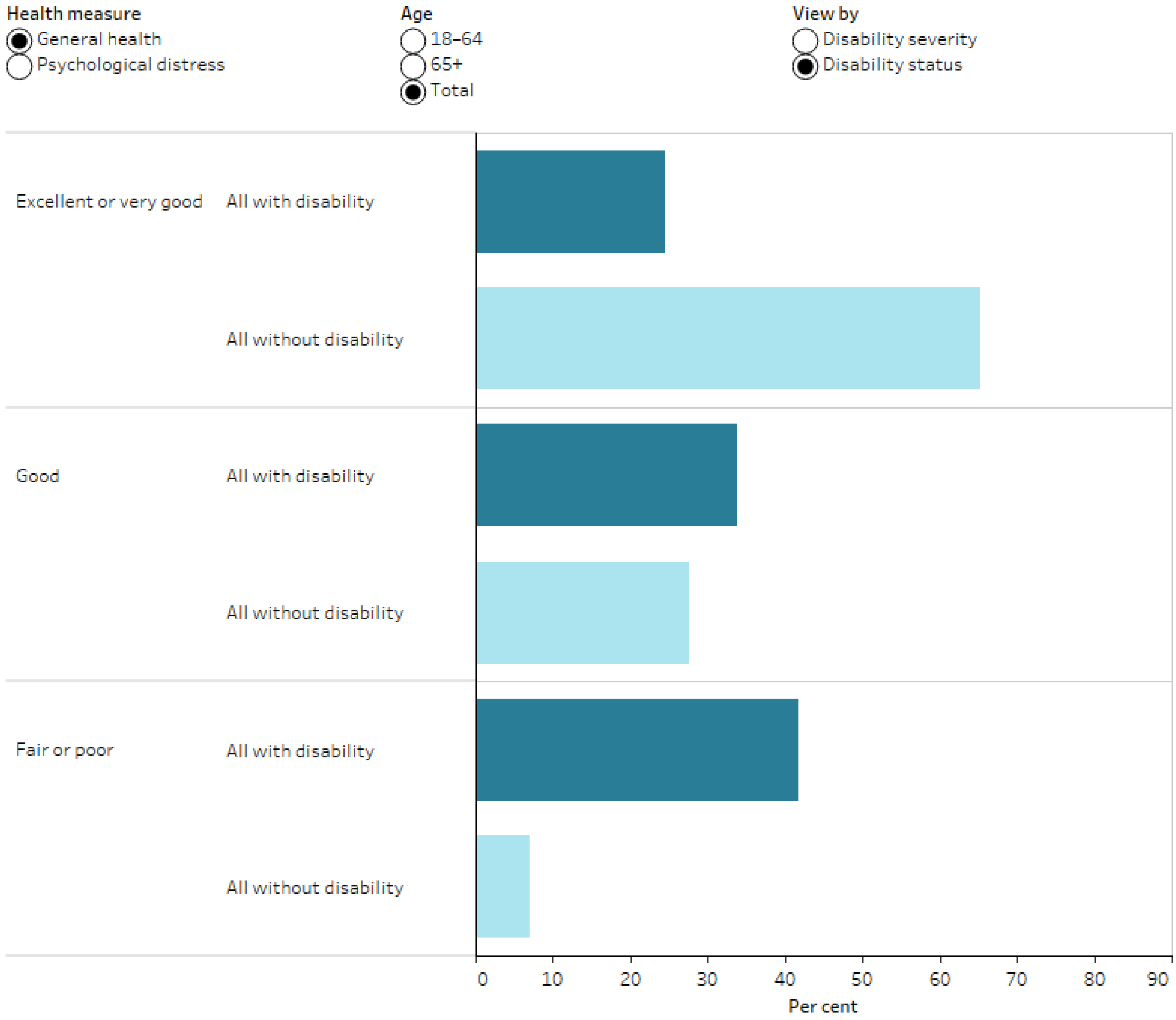
Mental health conditions can be both a cause and an effect of disability, and often involve activity limitations and participation restrictions beyond the ‘core’ areas of communication, mobility and self-care – for example, in personal relationships.

Over 4 in 10 (42%) people with severe or profound disability, and 33% of people with other forms of disability, self-reported anxiety-related problems in the 2017–18 NHS. This compares with 12% of people without disability (ABS 2019b).

An estimated 36% of people with severe or profound disability self-reported that they had mood (affective) disorders such as depression, compared with 32% of people with other forms of disability, and 8.7% of people without disability (ABS 2019b).

Self-reported psychological distress is an important indication of the overall mental health of a population. Higher levels of psychological distress indicate that a person may have, or is at risk of developing, mental health issues. Adults with disability are more likely (32%) to experience high or very high levels of psychological distress than adults without disability (8.0%). This is particularly true for adults with severe or profound disability (40%) (ABS 2019c) (Figure 1).

Figure 1: Self-assessment of health status, by health measure, age, and disability status, 2017–18



* Estimate has a relative standard error of 25–50% and should be used with caution.
Source: ABS 2019c.
http://www.aihw.gov.au

See People with disability in Australia, Health status for more information.

Main conditions of people with disability

For about 3 in 4 (77%) Australians with disability, their main form of disability (that is their main condition or the one causing the most problems) is physical. Musculoskeletal disorders were the most commonly reported (30%) physical disorders, and include conditions such as arthritis and related disorders (13%), and back problems (13%) (ABS 2019a).

Mental or behavioural disorders were reported as the main form of disability by almost one-quarter (23%) of people with disability. The most common mental or behavioural disorders were psychoses and mood disorders (7.5%), and intellectual and development disorders (6.5%) (ABS 2019a).

For more information on the prevalence of disability within specific health conditions, see People with disability in Australia, Chronic conditions and disability.

Health risk factors

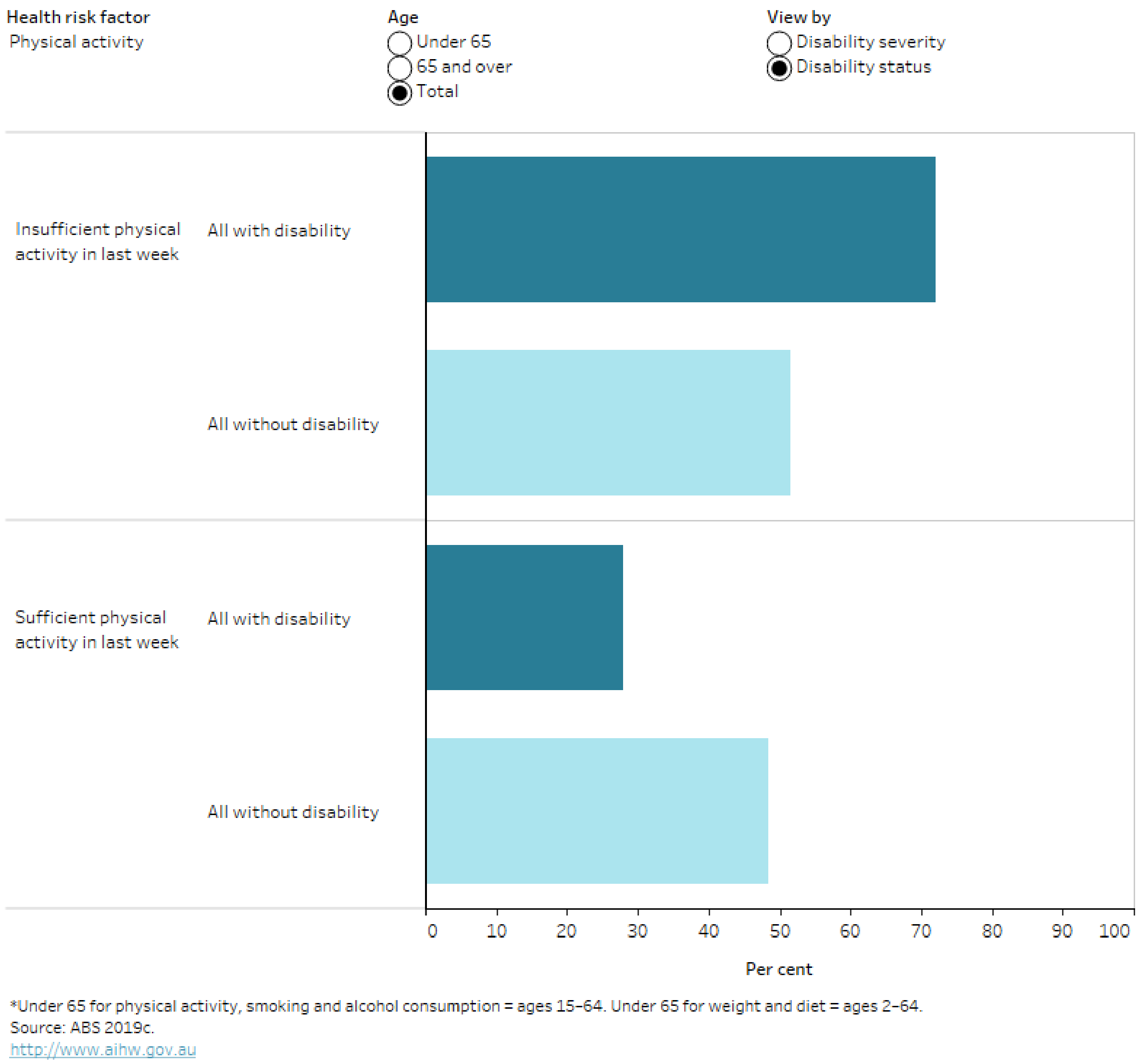
People with disability generally have higher rates of some modifiable health risk factors and behaviours than people without disability. But there can be particular challenges for people with disability in modifying some risk factors, for example, where extra assistance is needed to achieve a physically active lifestyle, or where medication increases appetite or affects drinking behaviours.

In 2017–18, compared with people without disability, people with disability were more likely to report:

- an insufficient level of physical activity in the last week
- that they smoked daily
- being overweight or obese
- eating insufficient serves of fruit and vegetables per day. (Figure 2).

See People with disability in Australia, Health risk factors and behaviours for more information.

Figure 2: Health risk factors, by age, and disability status, 2017–18



Health risk factor
Physical activity

Age
○ Under 65
○ 65 and over
● Total

View by
○ Disability severity
● Disability status

*Under 65 for physical activity, smoking and alcohol consumption = ages 15–64. Under 65 for weight and diet = ages 2–64.
Source: ABS 2019c.
http://www.aihw.gov.au

People with disability and COVID-19

This section looks at the impact of COVID-19 on the health of people with disability compared to people without disability. It draws on the ABS Household Impacts of COVID-19 Surveys conducted between April 2020 and June 2021, and data on the subset of the population who are NDIS participants. Note that population-wide administrative data sources about COVID-19 infections, vaccinations and deaths do not include information about disability status. For information about the impact of COVID-19 on the whole population see 'Chapter 1 The impact of a new disease: COVID-19 from 2020, 2021 and into 2022' in Australia's health 2022: data insights.

COVID-19 vaccinations

Many people with disability are at an increased risk of severe illness from COVID-19, both due to direct impacts of any underlying chronic conditions and to possible challenges with maintaining physical distancing and applying other COVID-19 precautions (Department of Health 2021b). For these reasons, people with disability were one of the priority groups to become eligible for COVID-19 vaccination in the early stages of Australia's COVID-19 vaccine rollout strategy (Department of Health 2021a).

Based on the Household Impacts of COVID-19 Survey data, in June 2021, adults with disability were more likely than those without disability to report:

- having received at least one dose of a COVID-19 vaccine (46% of adults with disability compared with 28% of adults without disability)
- being motivated to get a vaccine because:
  - it was recommended by a general practitioner (GP) or other health professional (38% compared with 28%)
  - they had health conditions which made them more vulnerable to COVID-19 (28% compared with 13%) (ABS 2021b).

See more information on COVID-19 cases and vaccinations in People with disability in Australia, Experiences of people with disability during COVID-19 pandemic and 'Chapter 1 The impact of a new disease: COVID-19 from 2020, 2021 and into 2022' in Australia's health 2022: data insights.

COVID-19 cases among NDIS participants

The National Disability Insurance Agency (NDIA) collaborated with other government agencies (including the Department of Social Services, the NDIS Quality and Safeguards Commission, Services Australia, and state and territory governments) to support NDIS participants through the pandemic.

As of May 2022:

- A total of 12,721 COVID-19 cases had been reported among NDIS participants.
- There were 74 COVID-19 related deaths (0.6% of NDIS participant cases) (Department of Health 2022).

Self-assessed health

Based on the Household Impacts of COVID-19 Survey, in December 2020, results for self-assessed excellent or very good physical health for adults with disability compared with those without disability (25% and 64% respectively) were broadly similar to previous results for general health from the 2017–18 National Health Survey (see 'General health').

Results have varied throughout the COVID-19 pandemic both for adults with and without disability. However, between December 2020 and May 2021, the proportion of adults with disability reporting excellent or very good physical health was consistently lower than for those without disability (25% compared with 64% in December 2020, 21% compared with 50% in January 2021 and 29% compared with 55% in May 2021).

Psychological distress

In November 2020, as well as March and June 2021, the Household Impacts of COVID-19 Survey collected information about negative events or feelings experienced by respondents in the 4 weeks leading up to the interview. This allows identification of levels of psychological distress of adults aged 18 years and over.

Adults with disability were consistently more likely to experience high or very high levels of psychological distress than those without disability (34% compared with 16% in November 2020, 30% compared with 16% in March 2021 and 29% compared with 17% in June 2021).

For more information on experiences of people with disability during the COVID-19 pandemic and their physical and mental health status, see People with disability in Australia, Experiences of people with disability during COVID-19 pandemic.

Use of mental health or support services

Adults with disability were more likely than those without disability to report that they had used at least one mental health or support service between March 2020 and April 2021 (29% of adults with disability, compared with 13% of those without disability).

The most common services used in April 2021 were (more than one service could be reported):

- GP for mental health (20% for adults with disability compared with 8.2% for those without disability)
- psychologist, psychiatrist or other mental health specialist (19% compared with 7.1% for those without disability) (ABS 2021a).

See more information on experiences of people with disability during the COVID-19 pandemic and their use of health services in People with disability in Australia, Experiences of people with disability during COVID-19 pandemic.

Use of telehealth services

In April 2021, adults with disability (21%) were more likely than those without disability (12%) to report having had a telehealth consultation in the previous 4 weeks. For adults with disability, this was a decrease from November 2020 (30%), while remaining similar for those without disability (14% in November 2020) (ABS 2020, 2021a).

Where do I go for more information?

For more information on the health of people with disability, see:

- People with disability in Australia

- Australian Bureau of Statistics (ABS) Disability, Ageing and Carers, Australia: summary of findings, 2018
- ABS National Health Survey: first results, 2017–18
- National Disability Insurance Scheme
- Household impacts of COVID-19 Survey 2021

Visit Disability for more on this topic.

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Health of prisoners

Find the most recent version of this information at:
https://www.aihw.gov.au/reports/australias-health/health-of-prisoners

People in prison are a particularly vulnerable population. They are generally more disadvantaged, with higher health care needs than the wider Australian population. With around 65,000 people cycling through the prison system each year, the health issues of people in prison become health issues for the whole community (ABS 2022).

Data sources

Data for the National Prisoner Health Data Collection (NPHDC) are collected by the AIHW every 3 years and are the main source of national data about the health of people in prison in Australia. The NPHDC presents information about the health experiences of people throughout the prison cycle – from entry, to time spent in prison, to discharge, and after release. It includes information on the operation of prison health clinics and the conditions they manage; the medications dispensed; self-reported information from people as they enter and exit the prison system – known as prison entrants and prison dischargees; and summary information, recorded by the prison clinics.

Like any survey, the NPHDC does have limitations. They include:

- The sample in the NPHDC does not represent the entire prison population. The NPHDC was designed as a census, capturing data on the population of interest at a point in time.
- Not all prisoners participated in the survey − this could be due to staffing constraints within a particular prison, uncertain release/transfer dates, limitations (physical or mental) of the potential participants, and prisoners not providing consent to participate.
- The majority of the data collected for the NPHDC were self-reported.

Profile of people in prison

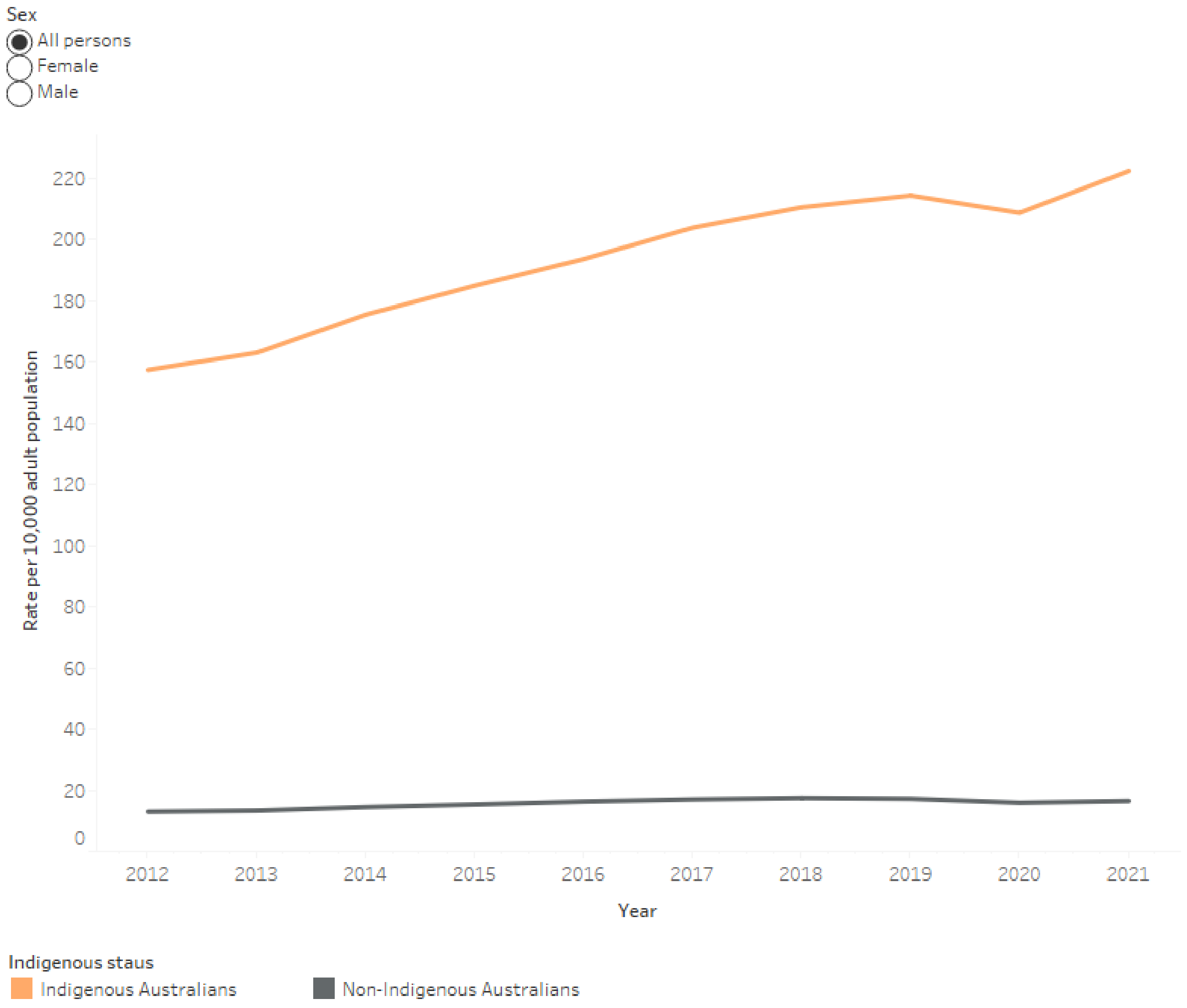
At 30 June 2021:

- There were about 43,000 prisoners in Australia.
- Just over 9 in 10 (92%) prisoners were men.
- Just under 1 in 3 (30%) prisoners were Aboriginal and Torres Strait Islander (ABS 2021).

People in prison are some of the most vulnerable people in society and often come from disadvantaged backgrounds. People who spend time in prison experience higher rates of homelessness, unemployment, mental health disorders, chronic physical disease, communicable disease, tobacco smoking, high-risk alcohol consumption, and illicit use of drugs than the general population (AIHW 2019).

The prison population differs from the general population in several ways. People in prison are mostly male, and Aboriginal and Torres Strait Islander people are over-represented. In 2021, despite Indigenous adults making up only 3% of the total Australian population (ABS 2019a), Indigenous Australian prisoners made up 30% of all prisoners (ABS 2021). Between 2012 and 2021, the age-standardised rate of imprisonment among Indigenous Australians increased from 157 to 222 per 10,000 adults (Figure 1). However, over the same period, the age-standardised rate of imprisonment for non-Indigenous Australians remained relatively stable, increasing only slightly from 13 to 16 per 10,000 adults.

Figure 1: Rates of adult imprisonment by Indigenous status and sex, 2012 to 2021



Note: Age-standardised imprisonment rates adjust crude rates to account for age differences between study populations.
Source: ABS 2021.
http://www.aihw.gov.au/

Impact of COVID-19

From March 2020, a range of measures have been introduced in adult prisons to reduce the spread of COVID-19, including vaccinations, social distancing, virtual visits and the use of personal protective equipment such as face masks. COVID-19 outbreaks have been reported in prisons across Australia.

Given the high level of vulnerability of the prison population, COVID-19 poses a serious risk to the physical health of prisoners. Measures introduced to reduce the spread of COVID-19 are also likely to have had an impact on prisoner's mental, emotional and social wellbeing (Department of Health 2020). However, there is currently limited data available to understand the extent to which COVID-19 has impacted prisoner health. The next NPHDC will take place in 2022 and will include items related to COVID-19. Data are scheduled for release in 2023.

For more information on active COVID-19 cases within prisons in each state and territory, see:

- New South Wales Corrective Services
- Corrections Victoria
- Queensland Corrective Services
- Western Australia Corrective Services
- South Australia Department for Correctional Services
- Tasmania Prison Service
- Australian Capital Territory Corrective Services
- Northern Territory Correctional Services

Mental health

Mental health is fundamental to social wellbeing, and affects individuals, families, and the wider community (ABS 2019b). Mental health disorders are chronic conditions such as depression, anxiety disorders, psychotic disorders, and alcohol and other drug use disorders. These conditions can influence thoughts, feelings, behaviour, stress levels, relationships and decision making.

Of prison entrants surveyed in 2018:

- 2 in 5 (40%) reported having been told they had a mental health disorder at some point during their lives.
- Females (28%) were almost twice as likely as males (15%) to be dispensed mental health-related medication.

- Almost 1 in 5 (18%) were referred to mental health services for observation and further assessment (AIHW 2019).

In the NPHDC, prison dischargees were asked to rate the change in their mental health since entering prison as being a lot better, a little better, the same, a little worse, a lot worse or unknown.

Of prison dischargees surveyed in 2018:

- Almost 2 in 5 (39%) reported their mental health improved while in prison.
- Females were more likely than males to report an improvement in their mental health and wellbeing (46% compared with 38%).
- 1 in 10 males (10%) and less than 1 in 12 females (8%) reported their mental health had deteriorated during their time in prison.

For information on the mental health of Indigenous Australian prisoners, see The health of Aboriginal and Torres Strait Islander people in prison.

Physical health

Chronic diseases are long-lasting conditions with persistent effects. Their social and economic consequences can affect people's quality of life. Some risk factors associated with chronic conditions are considered preventable, including poor diet, insufficient physical activity, overweight and obesity, tobacco smoking, risky alcohol consumption and illicit use of drugs (AIHW 2021).

In the NPHDC, prison entrants were asked whether they had ever been told by a medical professional that they had any of the following chronic physical health conditions: arthritis, asthma, cancer, cardiovascular disease, and diabetes. Asthma was the most reported chronic condition amongst prisoners, with 22% reporting that they have been diagnosed with the condition at some point in their lives (Table 1).

Table 1: Prison entrants' health status, 2018

	Prison entrants ever diagnosed with a condition (%)	Prison entrants with a current condition (%)
Asthma	21.9	15.4
Arthritis	7.3	6.7
Cardiovascular diseases	7.3	4.1
Diabetes	6.5	5.9
Cancer	2.1	0.9

	Prison entrants ever diagnosed with a condition (%)	Prison entrants with a current condition (%)
Any condition	30.4	26.3

Notes

1. Includes unknowns.
2. Proportions are proportions of prison entrants in this data collection only, and not the entire prison population.
3. Excludes New South Wales, which did not provide data for the 2018 NPHDC.
4. 'Any chronic condition' does not represent a sum of the conditions, as one prison entrant might have multiple conditions.

Source: AIHW 2019.

The health of Aboriginal and Torres Strait Islander people in prison

Existing social and health determinants put Indigenous Australians who have spent time in prison at higher risk of poor health due to an increased exposure to behavioural and environmental health risk factors (Shepherd et al. 2020). While most Indigenous Australians entering prison reported good mental health, they were more likely than non-Indigenous Australians to report having some chronic illnesses (AIHW 2019).

Of Indigenous prisoners surveyed in 2018:

- 3 in 4 (75%) entrants described their mental health as excellent, very good, or good.
- 1 in 3 (33%) had been told by a health professional that they had a mental health disorder.
- Less than 1 in 14 (7%) dischargees reported their mental health had deteriorated during their time in prison.

In 2018, asthma was the most reported chronic condition amongst Indigenous prisoners, with 13% reporting that they have been diagnosed with the condition at some point in their lives, followed by diabetes (11%) and cardiovascular disease (8%). Indigenous prisoners were less likely than non-Indigenous prisoners to report currently having asthma (11% compared with 19%) but more likely to report currently having diabetes (9% compared with 4%) and cardiovascular disease (5% compared with 3%).

Strengthening cultural safety for Indigenous Australians' health care can improve their access to and quality of care (Australian Health Ministers' Advisory Council 2016). Indigenous prison dischargees were asked whether they received treatment or consultation from an Aboriginal Community Controlled Health Organisation or Service (ACCHO) or Aboriginal Medical Service (AMS) while in prison. They were also asked whether they had received culturally appropriate care in prison.

Of the Indigenous prisoners surveyed upon discharge from prison:

- 4 in 5 dischargees (80%) reported they always received culturally appropriate health care in prison.
- Less than 1 in 10 (9%) reported receiving treatment or consultation from an ACCHO and/or AMS service while in prison.
- Male Indigenous dischargees were more likely to report always receiving culturally appropriate health care (81%) than female Indigenous dischargees (68%).

Where do I go for more information?

For more information on the health of people in prison, see:

- The health of Australia's prisoners 2018
- Australian Bureau of Statistics (ABS) Prisoners in Australia, 2021
- ABS Corrective services, Australia

Visit Prisoners for more on this topic.

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Health of veterans

This topic summary is part of the Health of veterans report.

Summary

The term ‘veteran’ traditionally described former Australian Defence Force (ADF) personnel who were deployed to serve in war or war-like environments. Veterans are now considered people who have any experience in the ADF including current (permanent), reserve, and former (ex-serving) personnel (Tehan 2017).

Veterans’ information is available from a variety of data sources including administrative data and surveys. The 2021 Census included, for the first time, a question on ADF service. Veterans in the 2021 Census: first result summarises the initial results released by the Australian Bureau of Statistics.

The exact number of Australian veterans is unknown and varies between data sources

As at 31 December 2019, almost 373,500 Australians had served at least one day in the ADF since 1985. Of these, just over 358,000 were still alive of which 59,000 were permanent, 38,700 reserve and nearly 261,000 ex-serving (AIHW 2021).

As at 30 June 2021, the Department of Veterans Affairs (DVA) estimated there were about 613,000 living Australian veterans who had ever served in the ADF, either full time or in the reserves. For more information, see How many Australian veterans are there?

Ex-serving ADF members are typically older

As at 31 December 2019, the median age for permanent ADF members was 31 and for reserve ADF members was 37, whereas the majority of ex-serving members (79%) were aged 40 years and over. DVA clients are generally older than non-DVA clients, with more than half (55%) of all DVA clients being 65 years and over compared to 46% of non-DVA clients in 2017–18. For more information, see Who are veterans?

The majority of male veterans rate their health as good or better

In 2017–18, 78% of males who had served in the ADF rated their health as good or better, with 48% of male veterans considering themselves to be in excellent or very good health. However, this is lower compared with people who had never served in the ADF, with 56% rating their health as excellent or very good. For more information, see Health status.

Male veterans share similar exposure to several health risk factors compared with males who have never served

In 2017–18, males who had ever served in the ADF had similar exposure to several health risk factors compared with males who had never served. This includes similar exposure to smoking, fruit and vegetable consumption and physical activity. However, males who had ever served in the ADF had higher exposure to exceeding lifetime risk guidelines for alcohol consumption, and to being overweight or obese. For more information, see Health risk factors.

Around 1 in 5 males, regardless of whether they have served or not, have a mental or behavioural condition

In 2017–18, similar proportions of males who had or had not served in the ADF had a mental or behavioural condition (22% compared with 18%). For more information, see Health status.

Permanent, reserve and ex-serving ADF males have lower all-cause mortality rates

Age-specific all-cause mortality rates between 2002–2019 for permanent, reserve, or ex-serving ADF males were lower than rates for Australian males, except for ex-serving ADF males aged 16–29 where the rate was higher than Australian males. For more information, see Health status.

Permanent and reserve males have a lower risk of suicide

Permanent and reserve males are about half as likely to die by suicide as Australian males (51% and 48% lower respectively). Ex-serving males are at a higher risk of death by suicide than Australian males (24% higher). For more information, see Health status.

Health of young people

Find the most recent version of this information at:
https://www.aihw.gov.au/reports/children-youth/health-of-young-people

Youth is a key transition period in a person's life. The health of young people can influence how likely they are to achieve better educational outcomes, make a successful transition into full-time work, develop healthy adult lifestyles, and experience fewer challenges forming families and parenting (AIHW 2021b). A recent survey of youth found that physical and mental health was highly valued by young people, with a majority regarding it as 'extremely' or 'very' important (Tiller et al. 2021).

Profile of young people

Who are Australia's young people?

On this page, young people are defined as those aged 12–24. This is consistent with the age breakdowns for the National Youth Information Framework (NYIF) and complements the Children's Headline Indicators. This age range also includes 3 main stages of adolescence: early, middle, and late.

However, definitions of young people will vary between data sources according to different frameworks, policies and legislation. Often, data are available only for those aged 15 and over. In these instances, data for those aged 15–24 will be reported instead. For information about children aged 0–12, see Health of children.

At 30 June 2021, an estimated 3.1 million young people aged 15–24 lived in Australia. Just over half of these people were male (51%, or 1.6 million) and 49% (1.5 million) were female. Young people aged 15–24 made up 12% of the total population (ABS 2021a).

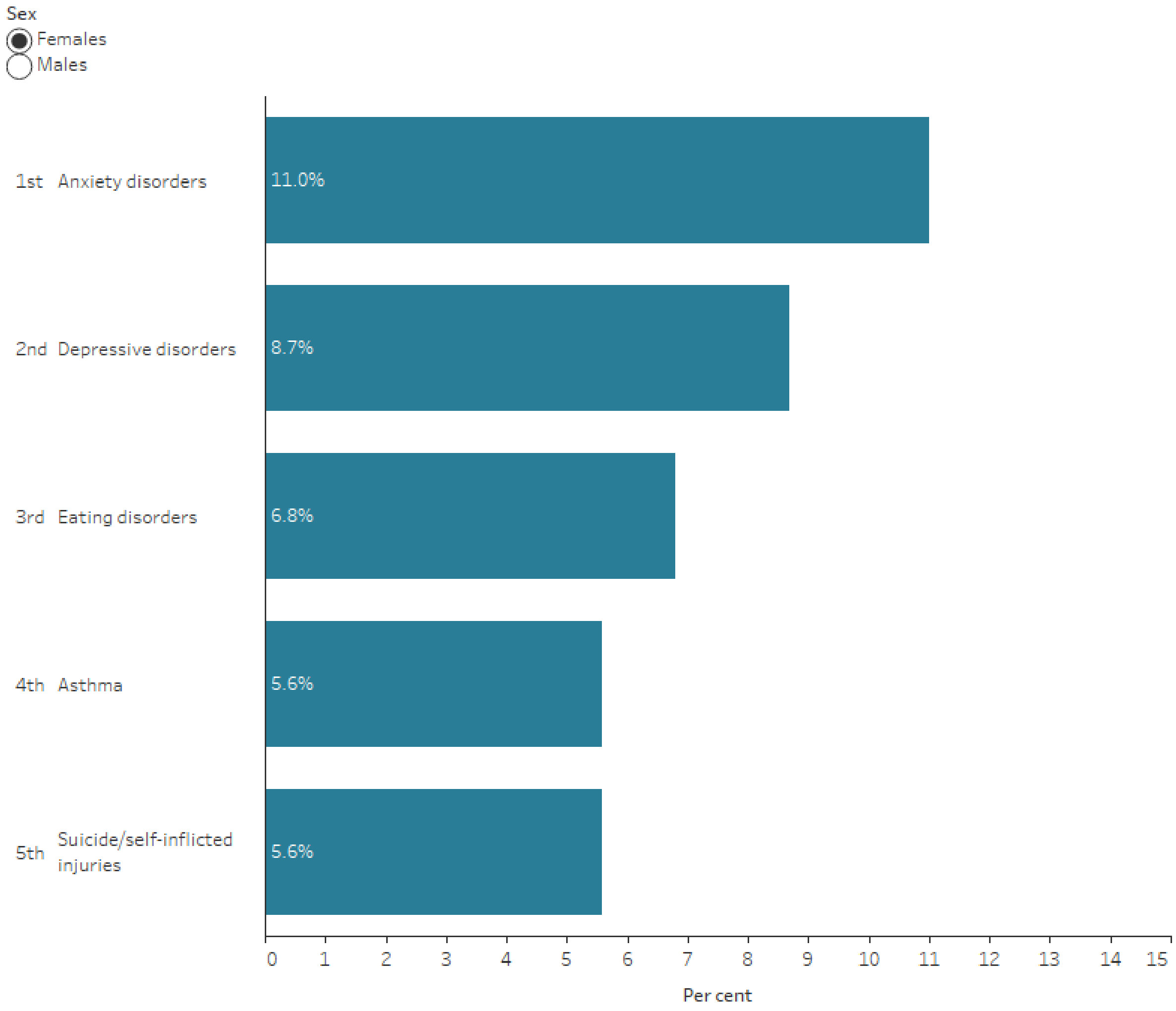
Since early 2020, COVID-19 has emerged as a major health threat to young people in Australia. While COVID-19 affects people in different ways, the social and economic impacts on young people have been substantial. In the initial months following the emergence of COVID-19 in Australia, young people experienced greater levels of psychological distress, loneliness, educational disruption, unemployment, housing stress and domestic violence, compared with pre-pandemic levels. The full impact of COVID-19 is complex and further monitoring is required to understand the longer-term impacts on young people's wellbeing (AIHW 2021d).

Health status

Burden of disease

The burden of disease is the quantified impact of a disease or injury on a population, which captures health loss, or years of healthy life lost through premature death or living with ill-health (see Burden of disease). For young people, the leading causes of total burden varied between males and females aged 15–24. Suicide and self-inflicted injuries were the leading cause of total burden among males, and anxiety disorders were the leading cause among females (Figure 1) (AIHW 2021a).

Figure 1: Leading causes of total burden among people aged 15–24, by sex, 2018



Source: AIHW 2021a.
http://www.aihw.gov.au/

Mental health

Why is the most recent data from 2017–18?

Nationally representative estimates on mental health are derived from the Australian Bureau of Statistics' (ABS) National Health Survey (NHS).

Due to the COVID-19 pandemic, rates of psychological distress were not reported at the time of the NHS 2020–21, the most recent NHS.

The figures presented in this snapshot reflect the latest nationally representative data for rates of psychological distress.

According to self-reported data from the NHS, rates of high or very high psychological distress in young people increased between 2011–12 and 2017–18. In 2011–12, 12% (258,000) of people aged 18–24 experienced high or very high psychological distress compared with 15% (339,000) of young people in 2017–18. In 2017–18, young women (18%) were more likely to experience high or very high psychological distress than young men (12%) (ABS 2012, 2019a).

Findings from the Australian National University Centre for Social Research and Methods COVID-19 Impact Monitoring Survey Program showed that experiences of psychological distress among people aged 18–24 were significantly higher in April 2020 than pre-pandemic levels (February 2017). Rates of psychological distress remained higher on average for young people in the second half of 2020 and during 2021, and this has continued into January 2022. Conversely, reduced levels of psychological distress were observed for older age groups, on average, when compared with pre-pandemic levels (AIHW 2022e; Biddle and Gray 2022) (see 'Chapter 8 Mental health of young Australians' in Australia's health 2022: data insights).

Based on The Australian Child and Adolescent Survey of Mental Health and Wellbeing (also known as the Young Minds Matter survey) undertaken in 2013–14, around 14% of children aged 12–17 met the clinical criteria for one or more mental disorders in the previous 12 months (Lawrence et al. 2015). Anxiety disorders (7.0%) were the most common (Table 1). Young males were more likely than young females to have Attention Deficit Hyperactivity Disorder (ADHD) or conduct disorder, while young females were more likely than young males to have anxiety or a major depressive disorder.

See Mental health.

Table 1: Prevalence of mental disorders among people aged 12–17, by sex, 2013–14

Disorder	Males (%)	Females (%)	Persons (%)
Anxiety disorders	6.3	7.7	7.0
ADHD	9.8	2.7	6.3

Disorder	Males (%)	Females (%)	Persons (%)
Major depressive disorder	4.3	5.8	5.0
Conduct disorder	2.6	1.6	2.1
Any mental disorder[(a)]	15.9	12.8	14.4

(a) Totals are lower than the sum of disorders as young people may have had more than 1 class of mental disorder in the previous 12 months.

Source*:* Lawrence et al. 2015.

In 2013–14, the Young Minds Matter survey found that around 11% of people aged 12–17 had ever deliberately hurt or injured themselves without trying to end their life (self-harmed). Of those young people who had self-harmed, almost three-quarters (73%) had harmed themselves in the previous 12 months. Females aged 16–17 had the highest rates of self-harm, with 17% having harmed themselves in the previous 12 months (Lawrence et al. 2015).

See Suicide and intentional self-harm.

Disability

In 2018, based on self-reported data from the ABS Survey of Disability, Ageing and Carers (SDAC), 9.3% of people aged 15–24 had disability (around 291,000 people) (ABS 2019c). The prevalence of disability was similar for males (9.2%) and females (9.5%). Of young people with disability:

- 3.4% had severe or profound core activity limitations.
- 6.9% had schooling or employment restrictions (ABS 2019c).

The prevalence of young people with disability was similar in 2003 and 2018 (9.0% and 9.3%, respectively), with some fluctuation in the intervening surveys (6.6% in 2009 and 7.8% in 2012) (ABS 2019c).

See Health of people with disability for more information.

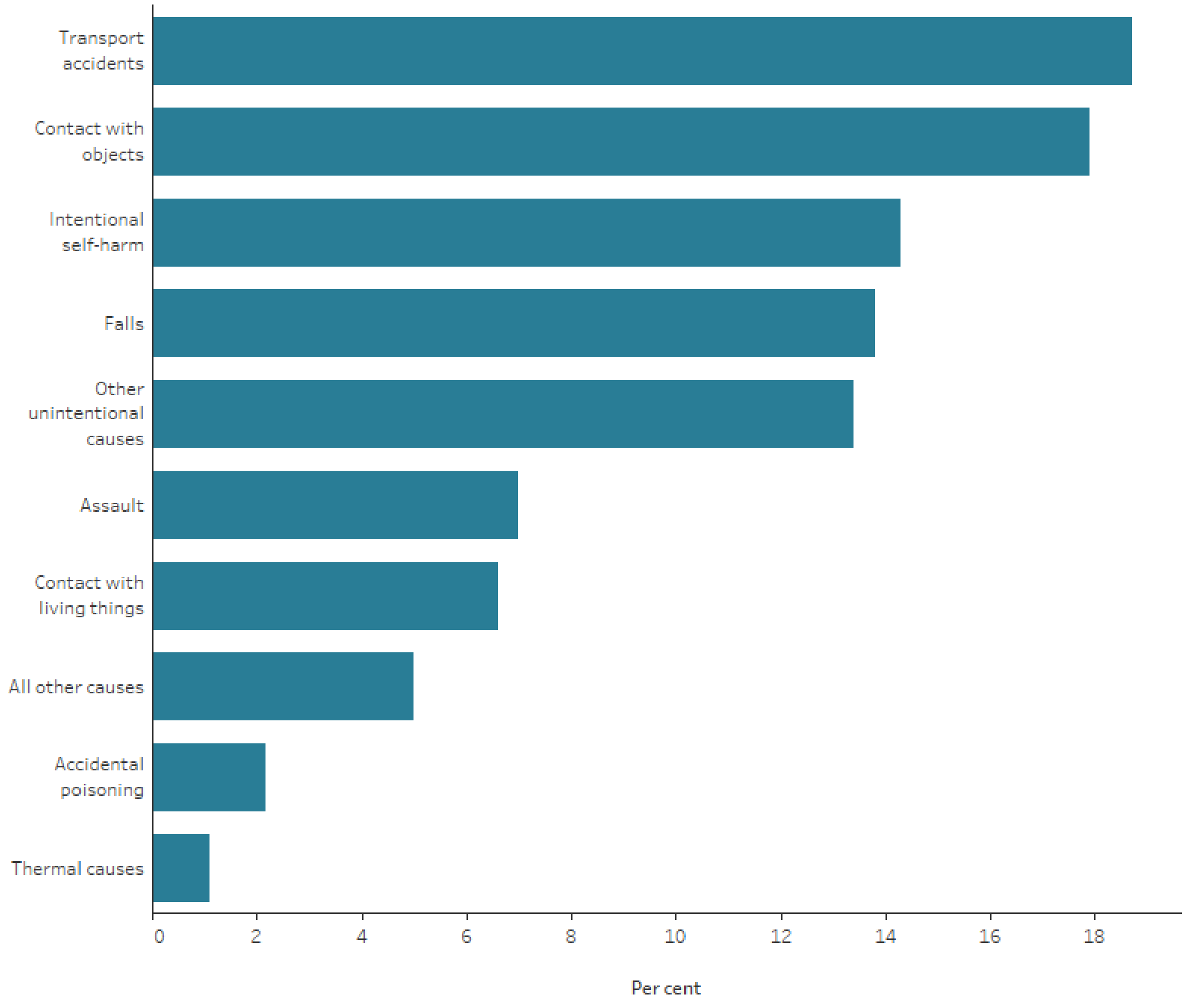
Injuries

In 2019–20, there were around 67,300 hospitalised injury cases among people aged 15–24 due to injury or poisoning – a rate of 2,100 per 100,000 (AIHW 2022c).

See Injury.

In 2019–20 the leading causes of injuries for young people were transport accidents, contact with objects (such as being struck or cut by something other than another human or animal) and intentional self-harm (Figure 2).

Figure 2: Hospitalised injury cases of people aged 15–24, by causes of injury, 2019–20



Note: Definitions of intentional self-harm will differ from those used in the Young Minds Matter Survey.
Source: AIHW 2022c.
http://www.aihw.gov.au/

Deaths

In 2020, the death rate among people aged 15–24 was 38 deaths per 100,000. The death rate among young people fell between 2009 and 2020, from 41 deaths per 100,000 to 38 deaths per 100,000, respectively. Death rates were higher among young males (53 per 100,000) than females (21 per 100,000) (AIHW 2022b).

Injuries were the leading cause of death among young people, accounting for 877 of the 1,200 (73%) deaths for 15–24-year-olds. More than half (52%) of all injury deaths were caused by intentional self-harm (suicide), followed by land transport accidents (24%) and accidental poisoning (10%) (AIHW 2022a, 2022b).

In 2020, young people accounted for 14% of all intentional self-harm deaths. The age-specific rate of intentional self-harm among young people was 14 per 100,000 – an increase from a rate of 9.1 per 100,000 in 2009. The rate of suicide was higher among young males (21 per 100,000) than females (6.7 per 100,000) (AIHW 2022b).

A rise in mental health service use and an increase in severe psychological distress were observed during the COVID-19 pandemic in 2020 and 2021. However, there is no evidence to date that COVID-19 has been associated with an increase in suspected deaths by suicide in the general population (AIHW 2021d, 2022e). See 'Chapter 8 Mental health of young Australians' in Australia's health 2022: data insights.

As of 24 May 2022, there had been 6 COVID-19–related deaths in the 10–19 age group and 24 in the 20–29 age group since the beginning of the COVID-19 response in late January 2020 (Department of Health 2022a). For the most recent data on cases and deaths, see the Department of Health's Coronavirus (COVID-19) case numbers and statistics.

See Causes of death and Suicide and intentional self-harm for more information.

Health risk factors

Overweight and obesity

Why is the most recent data from 2017–18?

Nationally representative estimates on overweight and obesity are derived from the ABS' National Health Survey (NHS).

Due to the COVID-19 pandemic, physical measurements (including height, weight and waist circumference) were not taken at the time of the NHS 2020–21, the most recent NHS.

While self-reported height and weight were collected as part of the survey, self-reported data underestimates actual levels of overweight and obesity based on objective measurements (ABS 2018b).

As self-reported and measured rates of overweight and obesity should not be directly compared, the figures presented in this snapshot reflect the latest nationally representative data based on measured body mass index.

A healthy body weight is an important factor in young people's current and future health, with young people considered overweight or obese more likely to become or remain obese as adults (AIHW 2021c).

Based on measured data from the 2017–18 NHS, it was estimated that:

- More than 1 in 4 (27% or 226,800) 15–17-year-olds were either overweight (18% or 151,300) or obese (9.3% or 78,300).
- Slightly more than 9 in 20 (46% or 1.0 million) 18–24-year-olds were overweight (30% or 676,700) or obese (16% or 347,300) (ABS 2019a).

For further detail of how overweight and obesity is defined and measured, see Overweight and obesity.

Substance use

Data from the 2019 National Drug Strategy Household Survey (NDSHS) are available to report on substance use among people aged 14–24. Self-reported data from the 2019 NDSHS found that 97% of people aged 14–17 and 80% of people aged 18–24 had never smoked tobacco (AIHW 2020).

Fewer young people are taking up smoking

The proportion of people aged 14–17 who had never smoked increased from 82% in 2001 to 97% in 2019.

The proportion of 14–17-year-olds who were daily smokers decreased from 11% in 2001 to 1.9% in 2019. However, the estimate for 2019 should be interpreted with caution as the relative standard error (see Glossary) is between 25% and 50%.

Nationally, there has been an increase in e-cigarette use, and this was most notable in younger age groups (AIHW 2020). In 2019, nearly 2 in 3 (64%) current smokers aged 14–17 or 18–24 reported they had ever used e-cigarettes. While this increased for both age groups since 2016 (51% and 49%, respectively), the increase was only significant for young people aged 18–24. Among non-smokers, the proportion of 14–17-year-olds that had ever used e-cigarettes remained consistent between 2016 and 2019 at around 8.0%; while for 18–24-year-olds, it increased from 13.6% in 2016 to 19.6% in 2019 (AIHW 2020).

Evidence for the long-term health impacts of e-cigarettes is limited. However, a recent literature review by the Australian National University Centre for Epidemiology and Population Health (NCEPH) indicated that e-cigarettes are particularly harmful for young non-smokers, and may increase tobacco smoking uptake (Banks et al. 2022).

In 2019, two-thirds (66%) of people aged 14–17 had never had a full serve of alcohol, compared with only 15% of those aged 18–24. The proportion of 14–17-year-olds consuming 5 or more drinks at least monthly remained stable between 2016 and 2019 (8.0% and 8.9%, respectively) but has declined since 2001 (30%) (AIHW 2020).

The National Health Survey (NHS) 2020–21 reported on smoking and alcohol consumption among 15–24-year-olds. Survey responses were collected online during the COVID-19 pandemic and is a break in time series. Data should be used for point-in-time analysis only and can’t be compared to previous years. Estimates using self-reported data show that in 2020–21, 1.4% of 15–17-year-olds were daily smokers and the majority (73%) reported they had never consumed a full serve of alcohol. In comparison, 8.3% of 18–24-year-olds were daily smokers and 12% had never consumed a full serve of alcohol (ABS 2022a, 2022b).

The 2019 NDSHS showed there were no significant declines among 14–17-year-olds in recent illicit drug use (at least once in the past 12 months) between 2016 and 2019. However, recent use was considerably lower in 2019 (9.7%) than in 2001 (23%), and use of cannabis fell from 21% to 8.2% over this period (AIHW 2020).

For more detailed information about substance use among Australians, see Tobacco, Alcohol and Illicit drug use.

Sexual and reproductive health

In 2018, the sixth National Survey of Australian Secondary Students and Sexual Health found:

- Most students in Years 10, 11 and 12 had engaged in some form of sexual activity, from deep kissing (74%) to sexual intercourse (47%).
- Most sexually active students reported that they had discussed having sex (81%) and protecting their sexual health (77%) prior to sex, and were using condoms (57%) and/or oral contraception (41%).
- One-third (33%) of students reported 'sexting' in the previous 2 months (mostly with a boyfriend, girlfriend, or friend) (Fisher et al. 2019).

A large proportion of students (79%) had accessed the internet to find answers to sexual health information, but the most trusted sources of information were: general practitioners (GP) (89%), followed by mothers (60%) and community health services (55%) (Fisher et al. 2019).

Health care

Mental health services

In 2019–20, people aged 12–24 made up 21% (587,000) of all people receiving Medicare-subsidised mental health-specific services (AIHW 2022d). Across different service providers, people aged 12–24 accounted for:

- 20% (85,800) of people receiving services from psychiatrists
- 22% (496,000) of people receiving services from general practitioners
- 22% (127,000) of people receiving services from clinical psychologists
- 24% (176,000) of people receiving services from other psychologists
- 24% (27,600) of people receiving services from other allied health providers (AIHW 2022d).

See Mental health services.

Immunisations

The National HPV Vaccination Program has been immunising adolescent girls since 2007 and was extended to boys in 2013. Immunisation against the human papillomavirus (HPV) can prevent cervical and other cancers, and other HPV-related diseases.

In 2020, the proportion of 15-year-olds who were fully immunised against HPV was:

- 81% of girls, an increase from 80% in 2019

- 78% of boys, an increase from 77% in 2019 (NCIRS 2021).

As of 30 April 2022, among people aged 16–24:

- 91% had received one dose of the COVID-19 vaccination.
- 89% had been fully vaccinated (Department of Health 2022b).

Females (90%) were slightly more likely than males (87%) to be fully vaccinated against COVID-19. For the most recent vaccination data, see the Department of Health's COVID-19 vaccination – vaccination data (Department of Health 2022b).

See Immunisation and vaccination. For more information on the health impact of the pandemic, See 'Chapter 1 The impact of a new disease: COVID-19 from 2020, 2021 and into 2022' in Australia's health 2022: data insights.

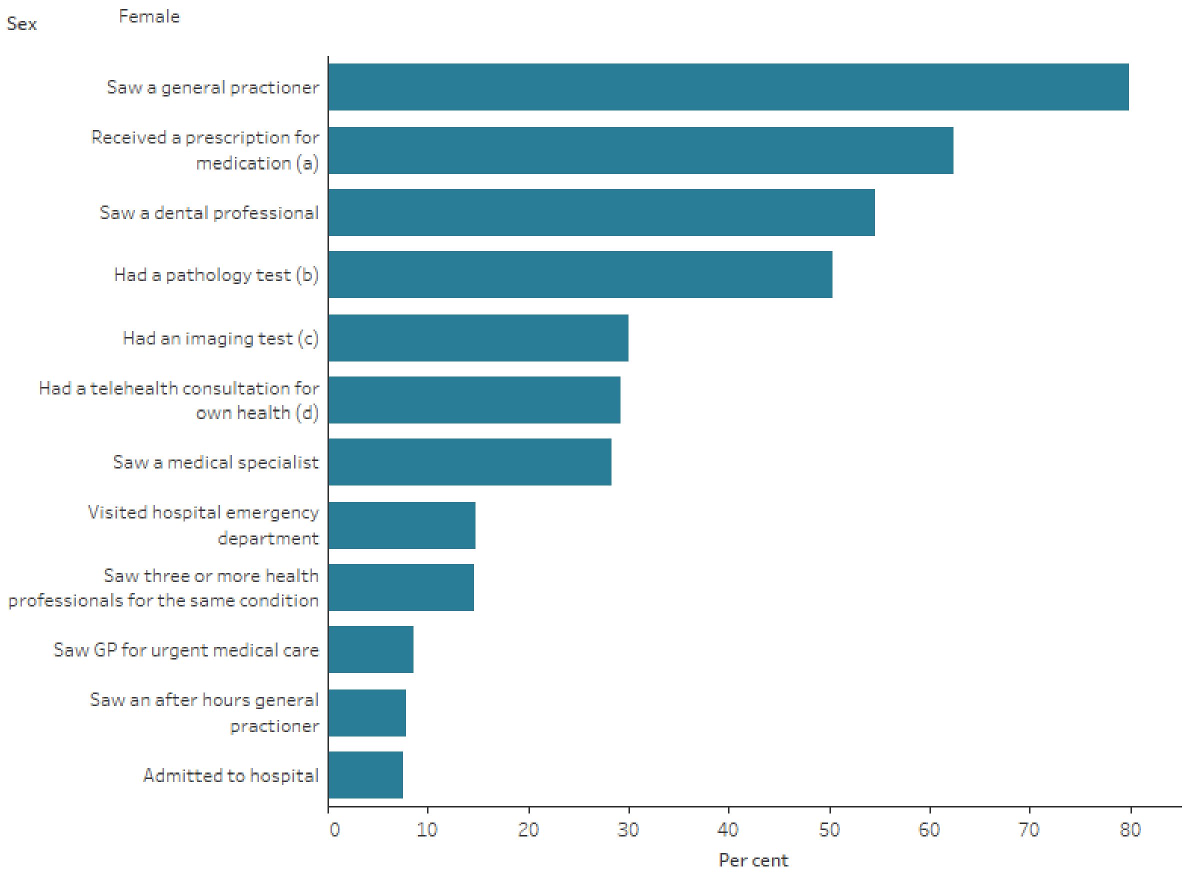
Patient experiences

The ABS Patient Experiences in Australia survey collects information about access and barriers to a range of health care services. The 2020–21 survey included new questions to try and better understand the impact of COVID-19 with particular focus on the introduction of telehealth appointments.

Among people aged 15–24, females (29%) were more likely than males (14%) to have used a telehealth appointment for their own health in the last 12 months before the survey. The most common health service used by young people was a GP (Figure 3).

In 2020–21, most young people who saw a GP said the GP always: listened carefully (71%), showed respect (79%), and spent enough time with them (72%). Additionally, fewer young people reported waiting longer than they felt was acceptable to get an appointment in 2020–21 (13%) compared with 2018–19 (19%) (ABS 2019b, 2021b).

Figure 3: Experience of health services in the last 12 months for people aged 15–24, by sex, 2020–21



Notes
(a) Includes only prescriptions received from a GP.
(b) Excludes tests conducted in hospital.
(c) Excludes tests conducted in hospital and dental imaging tests.
(d) Telehealth service refers to an appointment with a health professional over the phone, by video conferencing or through other communication technologies.
Source: ABS 2021b.
http://www.aihw.gov.au/

Where do I go for more information?

For more information on the health of young people, see:

- Australia's children
- National Youth Information Framework (NYIF) indicators
- Australia's youth
- Aboriginal and Torres Strait Islander adolescent and youth health and wellbeing 2018

Visit Children & youth for more on this topic.

If you or someone you know needs help please call:

Lifeline 13 11 14

Suicide call back service 1300 659 467

Kids Helpline 1800 55 1800

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Profile of Australia's population

Find the most recent version of this information at:
https://www.aihw.gov.au/reports/australias-health/profile-of-australias-population

This page was written by the Centre for Population at Treasury for the AIHW and is part of Australia's health and Australia's welfare.

Australia's population story has historically been one of strong growth. Australia's population (see Glossary) was 25.7 million at 30 June 2021, having grown around 1.3% a year on average over the 30 years since it was 17.3 million at 30 June 1991. Australia's population is concentrated in the major cities, which are home to 72% of the total population. By contrast, 26% live in inner and outer regional Australia, with the remainder (around 2%) living in *Remote and very remote* areas (see Demographic snapshot 2020–21).

Over this period:

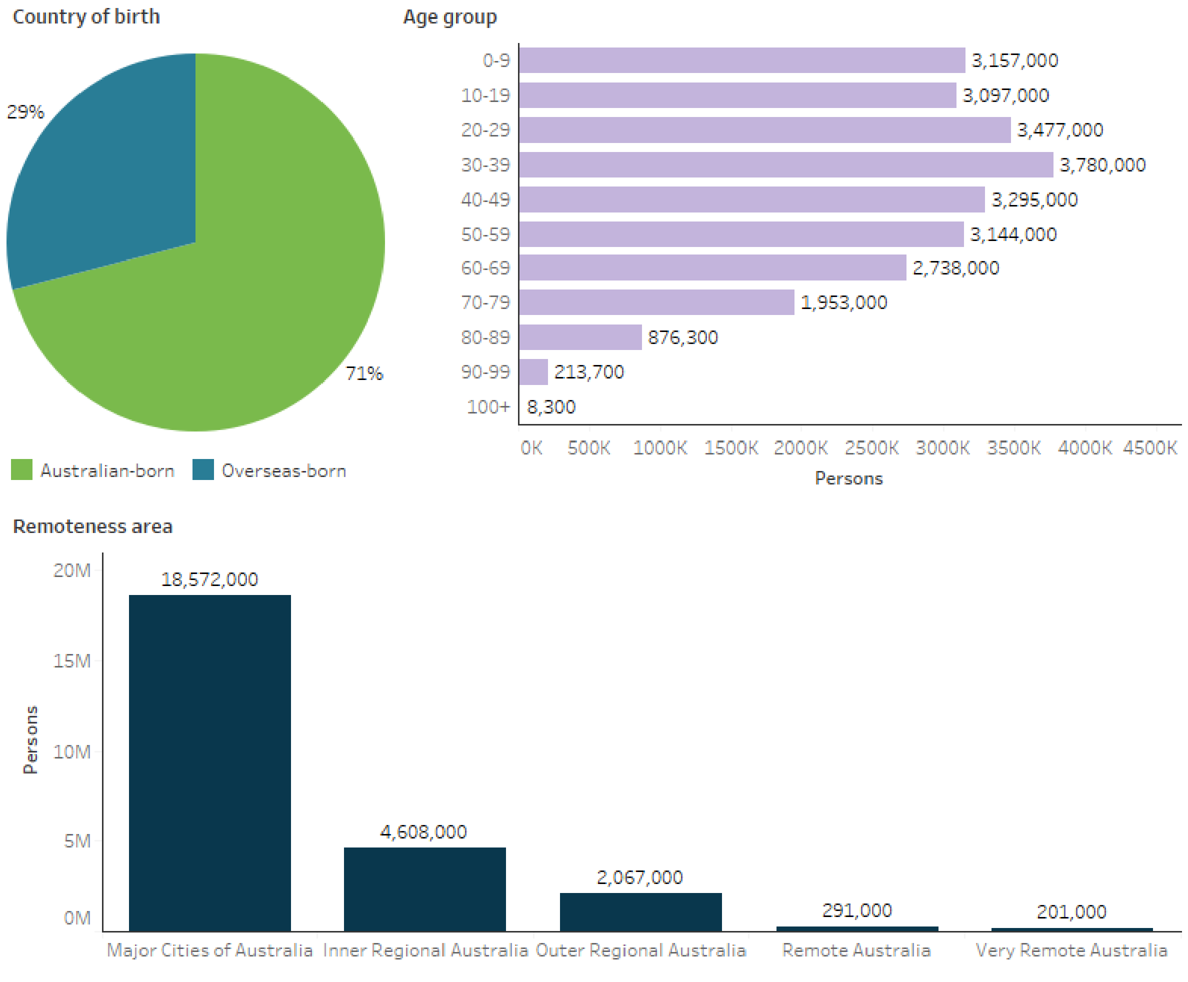
- Net overseas migration was the main driver of population growth, increasing from a *net inflow* of around 86,000 people in 1990–91 to 193,000 people in 2019–20, directly contributing around half of total population growth over the whole period. The introduction of international border restrictions in response to the pandemic led to the first *net outflow* of migrants from Australia since World War II (-90,000 people in 2020–21). The share of Australian residents born overseas was 29% at the end of 2020–21 (see Demographic snapshot 2020–21).
- Natural increase (number of births minus number of deaths) decreased from 142,000 people in 1990–91 to 135,000 people in 2020–21, contributing the other half of population growth over this period:
    - Fertility rates have declined, from 1.88 babies per woman in 1990–91 to 1.62 in 2020–21
    - Life expectancies at birth have continued to increase, from 74.4 years for males and 80.3 years for females in 1991, to 81.2 years for males and 85.3 years for females in the three-year period between 2018 to 2020.
    - The number of deaths has grown faster than the number of births over this period, reflecting the declining fertility rate and ageing of the population.
- Australia's population has grown older, with the median age increasing from 32.4 years at 30 June 1991 to 38.2 years at 30 June 2021. Along the age distribution, the 30–39 age band are the largest cohort (see Demographic snapshot 2020–21).

Most recently, Australia's population growth has been affected by the pandemic, and the measures taken to limit the spread of the disease. International border restrictions significantly lowered net overseas migration, leading Australia's population growth to fall to 0.2% in 2020–21.

The results on this page largely reflect the impacts of the pandemic in Australia in 2020–21. They do not cover the periods relating to outbreaks of the Delta and Omicron variants of COVID-19 in the second half of 2021 and in 2022.

Other longer-term trends present before the pandemic continue to affect the size and distribution of the population, such as the ongoing decline in the fertility rate, the decline in the rate of internal migration, and the slower rate of mortality improvement observed in recent years.

Demographic snapshot 2020-21



Note: Remoteness Areas divide Australia into 5 classes of remoteness on the basis of a measure of relative access to services. Remoteness Areas are intended for the purpose of releasing and analysing statistical data to inform research and policy development in Australia.
Source: ABS 2022a, ABS 2022b, ABS 2022c.
http://www.aihw.gov.au/

Census of population and housing 2021

On 28 June 2022, the Australian Bureau of Statistics released data from the 2021 Census of population and housing. Based on the 2021 Census:

- Australia’s population was 25,766,605 people at 31 December 2021
- annual growth was 128,000 people (0.5%)
- annual natural increase was 138,500 and net overseas migration was -3,600 (ABS 2022d).

Following each Census, the ABS uses new information to update population estimates, known as the Estimated Resident Population (ERP) for Australia and its states and territories. The revised estimates released by the ABS on 28 June are preliminary rebased population estimates, final population estimates will be available in June 2023, see Methodology used in rebased population estimates, June 2021 for more detail).

Results presented on the rest of this page were prepared by the Centre for Population prior to the release of estimates based on the 2021 Census. Updated figures based on revised estimates from the 2021 Census, will be included in future updates.

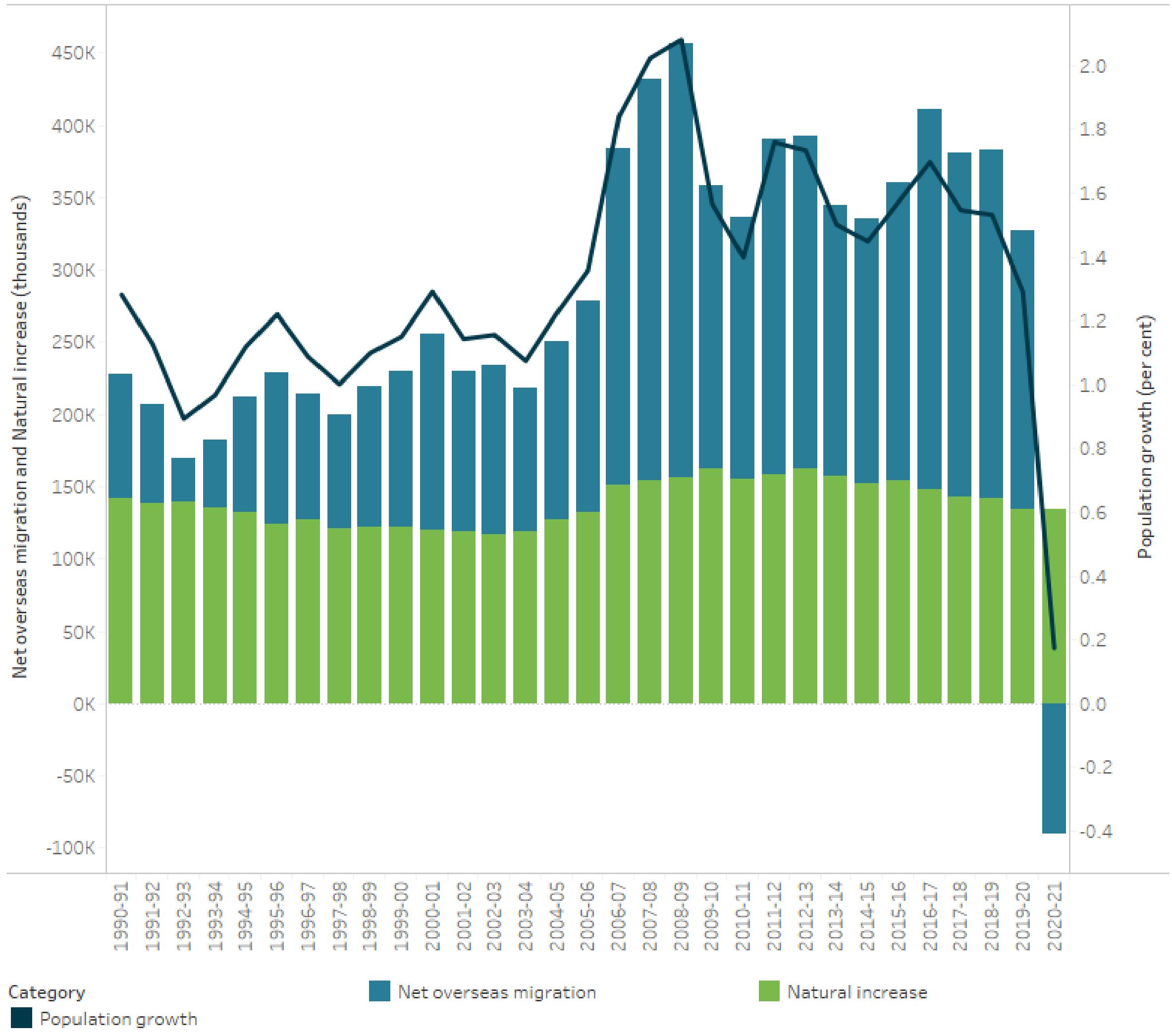
Overview of past population growth and trends

Australia’s population growth from 30 June 1991 to 30 June 2021 averaged 1.3% a year. As shown in Figure 1, natural increase has been relatively steady, while there have been fluctuations in net overseas migration. Natural increase was briefly the main driver of population growth during the early 1990s, but net overseas migration has consistently contributed more to population growth from 2005–06 until the pandemic (2020–21). When averaged over the whole period, both natural increase and net overseas migration both contributed around half of population growth.

More than two-thirds (68%) of Australia’s population lived in the 8 capital cities at 30 June 2021, increasing from 65% at 30 June 1991. Over this period, most capital cities grew faster than their respective rest-of-state areas up until 2020–21 when regional areas grew at a faster rate than capital cities for the first time since 1993–94.

Population growth in Australia has varied widely across cities and regions and has been shaped by flows of internal and overseas migration and varied contributions from natural increase.

Figure 1: Components of population change, Australia, 1990–91 to 2020–21



Source: ABS 2022a.
http://www.aihw.gov.au/

Natural increase

Since the late 2000s, natural increase has added around 150,000 people a year to the Australian population. Over the past 30 years, the total fertility rate has fallen from 1.88 babies per woman in 1990–91 to 1.62 in 2020–21. Life expectancies at birth have increased and are among the highest in the world. Despite these improvements, the number of deaths has grown faster than the number of births. While the level of natural increase has been steady over this period, it has become smaller as a proportion of the population.

The full impact of the COVID–19 pandemic on births is not yet fully observable in official statistics. Early data suggests that the pandemic has not had an adverse impact on Australia's births. The September 2021 release of the Australian Bureau of Statistics' *National, State and Territory population* data shows that annual births registered over the year ending 30 September 2021 was 304,000, an increase of 7,700 births from the year ending 30 September 2020. This is similar to the number of births in the equivalent period in 2019 (304,000 births).

In Australia, doctor-certified COVID-19-related deaths in 2021 (149,000) were higher than the number of doctor-certified deaths in 2020 (142,000) and the average number of deaths over the previous 5 years (141,000) (ABS 2022e). However, age standardised death rates (Glossary) for total doctor-certified deaths in 2021 were below the 2015–19 historical average. This suggests that the increase in deaths in 2021 in Australia (when compared with 2015–19) reflects a larger and older population rather than an increase in mortality. Across the majority of 2020 and 2021, weekly deaths due to respiratory diseases were lower than the average from 2015 to 2019. For more information on COVID-19 see 'Chapter 1 The impact of a new disease: COVID-19 from 2020, 2021 and into 2022' in Australia's health 2022: data insights.

Net overseas migration

Net overseas migration was the main driver of Australia's population growth in the years prior to the pandemic (Figure 1). The introduction of international border restrictions in early-2020 lowered net overseas migration to 193,000 persons in 2019–20, below the 5-year average of 227,000 persons. Net overseas migration declined further to -90,000 persons in 2020–21, which was the first recorded net outflow since World War II. Despite the easing of international and domestic restrictions, significant uncertainty remains around the extent to which future migration patterns will be affected.

Net interstate migration

Australia has high rates of internal migration (the number of people who move within Australia as a proportion of the total population), although this has been declining over time (ABS 2018).

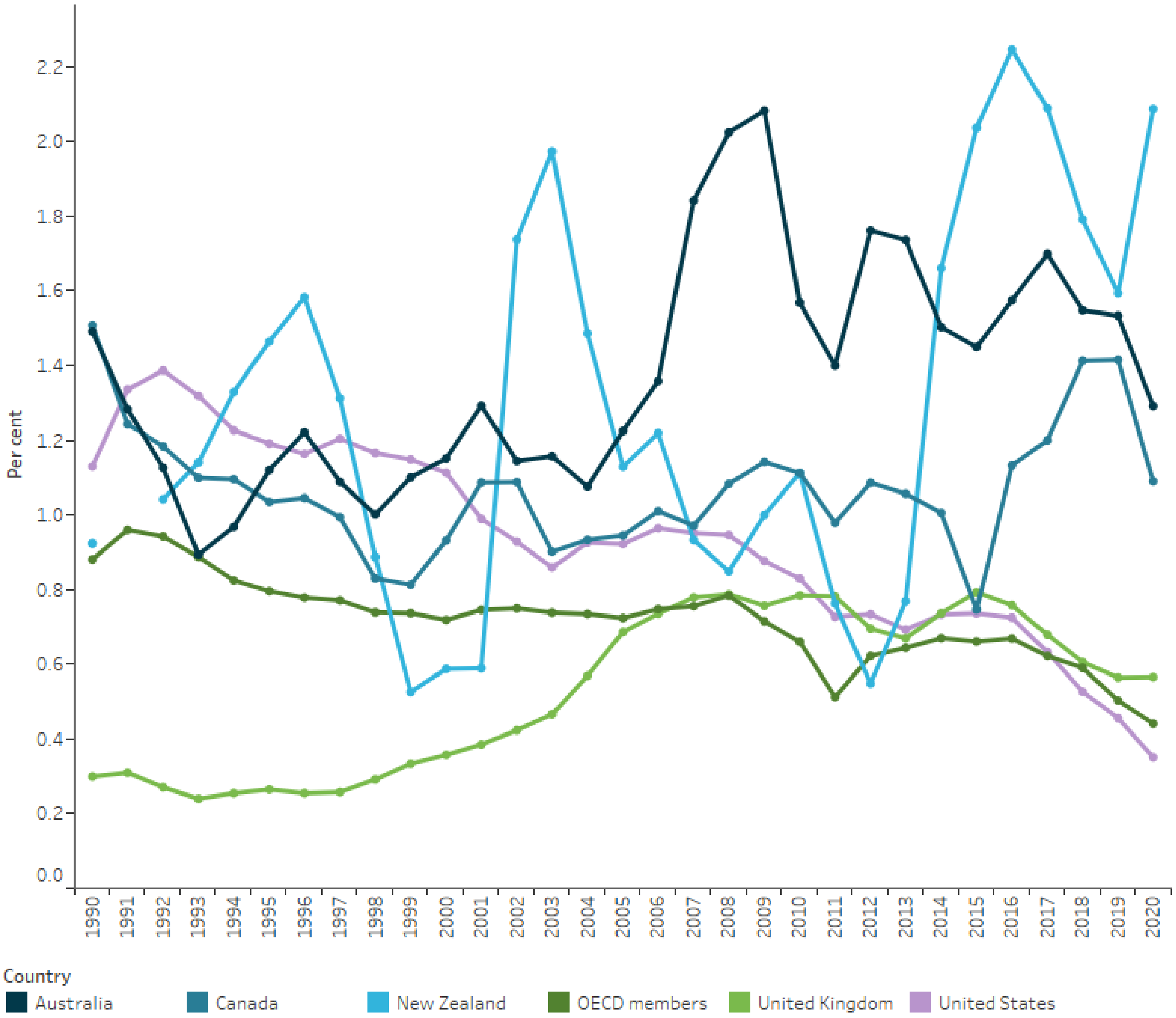
The rate of interstate migration – or the number of people who move interstate as a proportion of the total population – tends to decline in times of economic shocks and recessions, and recover afterwards.

In the first year of the COVID-19 pandemic, fewer people moved interstate in Australia, with a 9% drop in the number of interstate moves from 2018–19 (404,000) to 2019–20 (369,000).

Australia's population in a global context

Prior to the pandemic, Australia's population growth rate was higher than that of most developed countries. In 2019 it was 1.5%, which is well above the Organisation for Economic Co-operation and Development's country average of 0.5% (Figure 2).

Figure 2: Population growth by country, 1990 to 2020



Note: Data for Australia is in financial year format (year ending 30 June), other series are presented in calendar year.
Source: ABS 2022a, and World Bank 2020.
http://www.aihw.gov.au/

In 2020, Australia's total fertility rate was higher than that of Italy, Japan, Canada, and Germany, but lower than France, New Zealand, and the United States. Australia and other developed countries have generally experienced declines in fertility since the end of the baby boom of the mid-1960s (World Bank 2020).

In 2020, Australia's life expectancy at birth for males and females was the seventh highest in the world (World Bank 2020).

Population ageing

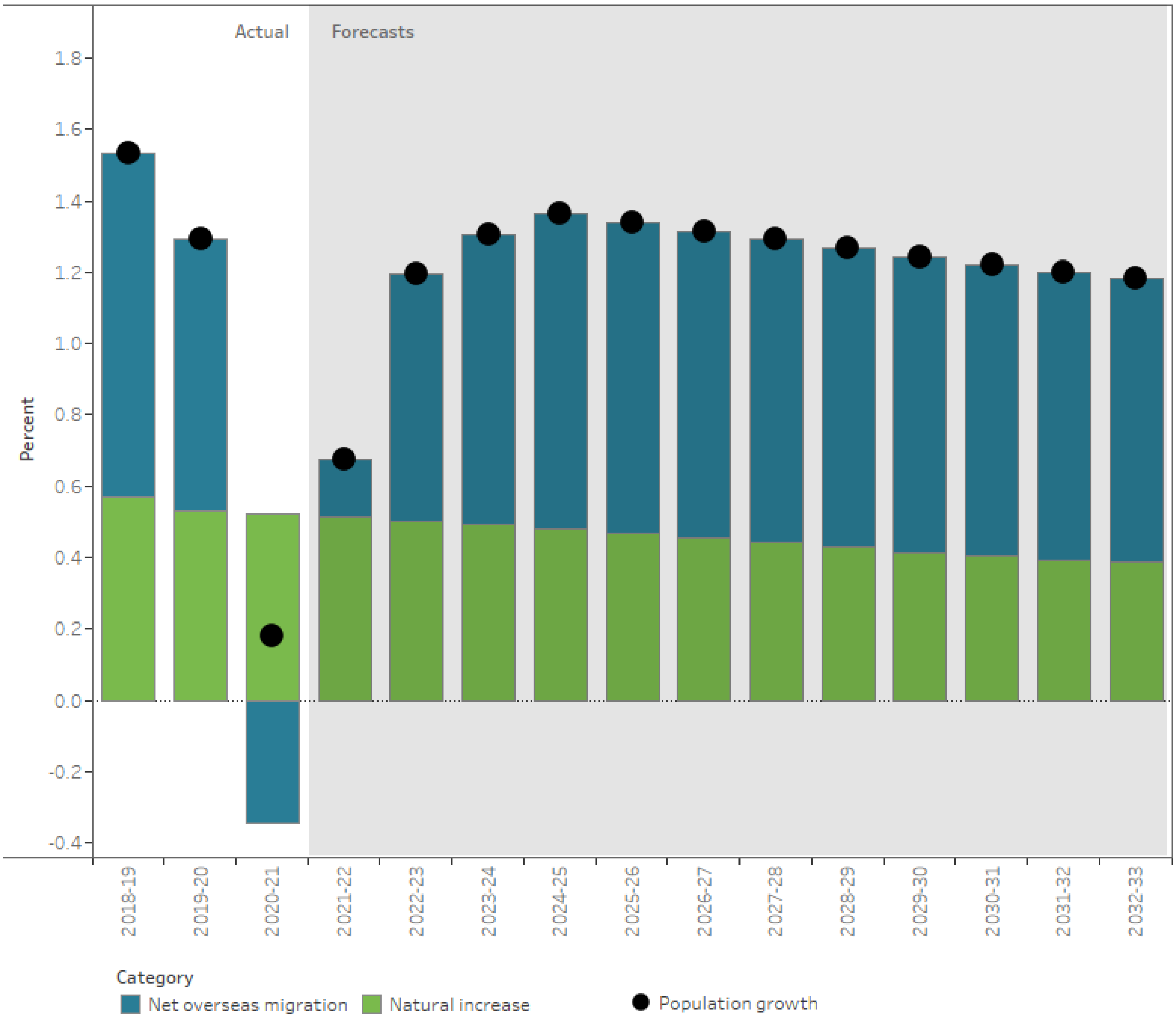
Australia's overall population has been growing older over time, with the share of people aged 65 and over increasing from 11% in 1990–91 to 17% in 2020–21. Australia's population ageing has been driven by low fertility and increasing life expectancy.

Australian capital cities tend to be younger and age more slowly than the rest-of-state areas. This is mainly because capital cities have historically attracted a larger share of net overseas migrants, who tend to be younger than the overall population. In addition, younger people tend to move into capital cities from the rest-of-state areas to pursue educational and job opportunities. These trends more than offset fertility rates generally being higher and life expectancies generally being lower in rest-of-state areas.

Australia’s future population

Australia’s population growth and geographic distribution has been heavily influenced by the effects of the COVID-19 pandemic. This is expected to continue over the next few years. The size of the population is expected to be around 884,000 people or 1.7% smaller by 2030–31 compared with what was projected prior to the onset of the pandemic. Figure 3 illustrates the population growth projections in the 2022–23 Budget.

Figure 3: Projected population growth and components, Australia, 2018–19 to 2032–33



Source: ABS 2021; Treasury 2022
http://www.aihw.gov.au/

Future population growth is projected to increase from 0.2% in 2020–21 (the slowest recorded financial year growth since 1916–17), to 0.7% in 2021–22 and 1.2% in 2022–23.

Australia's population growth is forecast to peak at 1.4% in 2024–25, when net overseas migration is assumed to have fully recovered to pre-pandemic trends, before gradually declining to around 1.2% by 30 June 2033. By this time, Australia's population is projected to be 29.8 million.

Natural increase drove all of Australia's population growth in 2020–21 and is also projected to drive most of Australia's population growth in 2021–22. Net overseas migration is forecast to return to being the largest contributor to population growth from 2022–23.

Natural Increase

Consistent with the observed long-run trend, natural increase is projected to continue to decline over the next ten years from around 135,000 people in 2020–21 to around 113,000 in 2032–33. This decline is the result of an increase in the number of babies being born being outweighed by a larger rise in the number of annual deaths due to an older population.

The total fertility rate is expected to continue its long run declining trajectory from 1.66 babies per woman in 2021–22 to 1.62 babies per woman by 2030–31. This decline reflects the trend of women having children later in life and having fewer children when they do.

Australia's future mortality is assumed not to be affected by the COVID-19 pandemic and the effect of mortality on population growth is expected to continue as previously anticipated. Total deaths are forecast to rise gradually from 163,000 in 2020–21 to 184,000 in 2025–26, and again to 213,000 by 2032–33, in line with the increasing size and ageing of the Australian population.

Net interstate migration

The COVID-19 pandemic reduced net internal migration across Australia as state governments temporarily closed domestic borders, locked down major cities and restricted travel in some regional areas. The number of people migrating interstate nationally fell 9% in 2019–20 and is assumed to slow again in 2021–22. However, with the easing of movement restrictions, the level of interstate migration is assumed to pick up, increasing by 6% in 2022–23 and in 2023–24 as well, where it is forecast to return to pre-pandemic levels. The distribution of interstate migration is also assumed to return to pre-pandemic historical averages by 2023–24.

Net overseas migration

Net overseas migration is the component of population change that has been most affected by the pandemic owing to international travel restrictions put in place to limit the spread of the virus. With the reopening of Australia's international border on 15 December 2021, net overseas migration is forecast to increase to a net inflow of 41,000 persons in 2021–22 before returning to 235,000 persons and stabilising at pre-pandemic trends by 2024–25.

States and territories

Population growth is forecast to recover in most states and territories in 2021–22, mostly due to the reopening of international borders and return of overseas migration. Queensland is forecast to be the fastest growing state in 2021–22 and 2022–23, supported by strong net interstate migration from the other states and territories. From 2023–24 onwards, Victoria is expected to become the fastest growing state driven by strong net overseas migration and a return to positive net internal migration. All states and territories are forecast to return to pre-pandemic population trends by 2023–24.

Where do I go for more information?

For detailed discussion of Australia's population see:

- Centre for Population – 2021 Population Statement
- Centre for Population – 2020 Population Statement

For the latest population projections see:

- Centre for Population – 2022–23 Budget: Australia's Future Population

For longer term population projections see:

- Australian Treasury – 2021 Intergenerational Report

This page was written by the Australian Government Centre for Population.

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Rural and remote health

Find the most recent version of this information at:
https://www.aihw.gov.au/reports/rural-remote-australians/rural-and-remote-health

Around 7 million people – or 28% of the Australian population – live in rural and remote areas, which encompass many diverse locations and communities (ABS 2022c). These Australians face unique challenges due to their geographic location and often have poorer health outcomes than people living in metropolitan areas. Data show that people living in rural and remote areas have higher rates of hospitalisations, deaths, injury and also have poorer access to, and use of, primary health care services, than people living in *Major cities.*

Defining rural and remote

This report uses the the Australian Statistical Geography Standard Remoteness Structure, 2016 (ABS 2021d) which defines remoteness areas in 5 classes of relative remoteness:

- *Major cities*
- *Inner regional*
- *Outer regional*
- *Remote*
- *Very remote.*

These remoteness areas are centred on the Accessibility/Remoteness Index of Australia, which is based on the road distances people have to travel for services (ABS 2021d).

This report uses the term ‘rural and remote’ to cover any area outside of Australia’s *Major cities*. Due to small population sizes, data for “*Outer regional and remote”* and “*Remote and very remote”* areas are sometimes combined for reporting.

Profile of rural and remote Australians

The majority of Australians live in *Major cities* compared with rural and remote areas. As at 30 June 2021, the proportion of Australians by area of remoteness was:

- 72% in *Major cities*
- 18% in *Inner regional* areas
- 8.0% in *Outer regional* areas
- 1.1% in *Remote* areas
- 0.8% in *Very remote* areas (ABS 2022c).

Aboriginal and Torres Strait Islander people

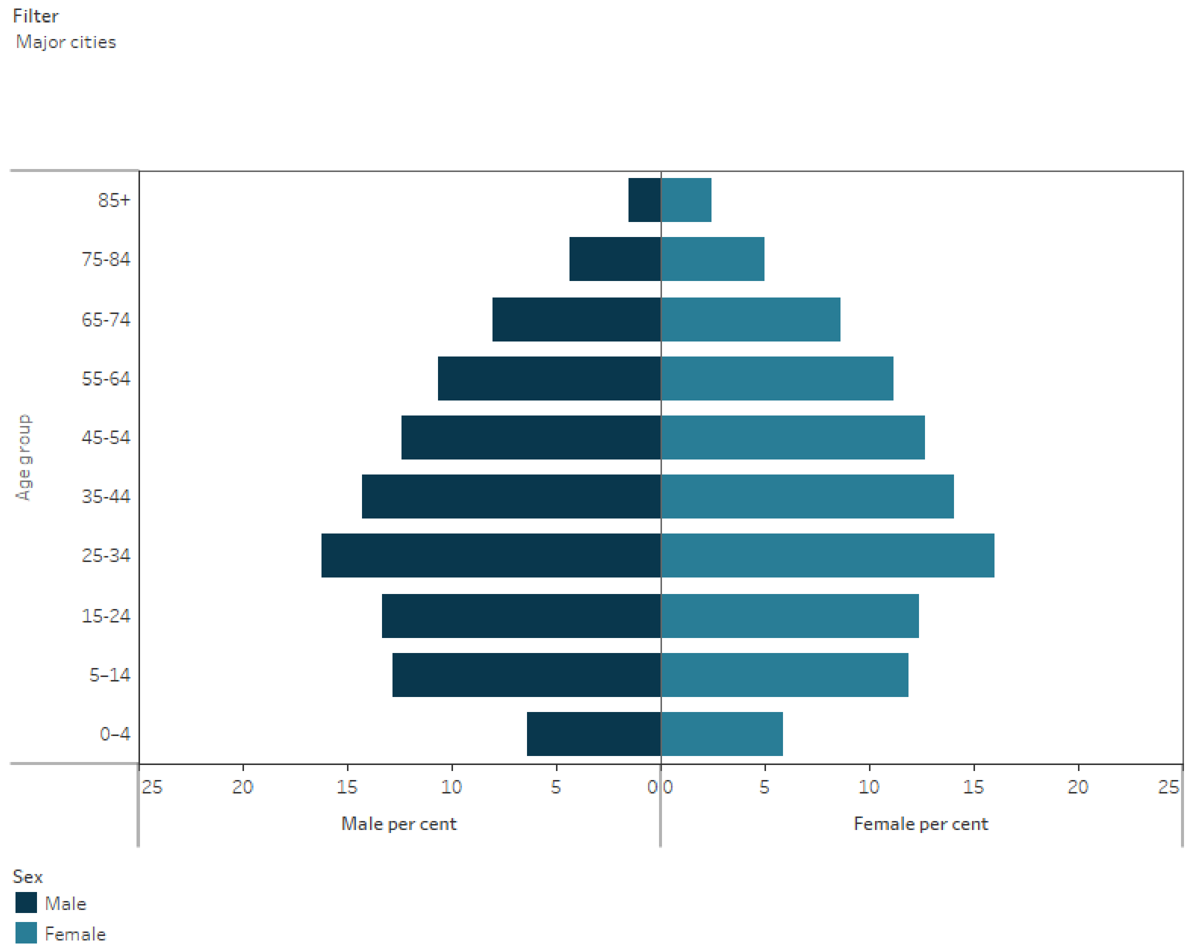
Aboriginal and Torres Strait Islander people are more likely to live in urban and regional areas compared with more remote areas. However, the proportion of the total population who are Indigenous increases with remoteness from 1.8% in *Major cities*, to 32% in *Remote and very remote* areas based on estimated Indigenous population projections for 2021 (AIHW 2021i). Indigenous Australians have lower life expectancies, higher burden of disease, poorer self-reported health and a higher likelihood of being hospitalised than non-Indigenous Australians (AIHW 2022a; AIHW and NIAA 2020, 2021).

See Indigenous Australians

Age

On average, people living in *Remote* and *Very remote* areas are younger than those in *Major cities*. Figure 1 shows the age and sex breakdown of each of the remoteness areas for 2020.

Figure 1: Australian population, by age groups, sex and area of remoteness, 2020



Note: Percents for each remoteness area includes those from Other Territories.
Source: AIHW analysis of ABS 2022a; Table S1.
http://www.aihw.gov.au/

Education

In 2021, people aged 20–64 living in rural and remote areas were less likely than those in *Major cities* to have completed Year 12 or a non-school qualification. Around half the people living in *Inner regional* (57%), *Outer regional* (54%) and *Remote and very remote* areas (57%) had completed Year 12, compared with three-quarters (77%) of those in *Major cities* (ABS 2021e).

Similarly, a smaller proportion of people aged 20–64 living in *Inner regional* (23%), *Outer regional* (18%) and *Remote and very remote* areas (19%) had completed a bachelor’s degree or above, compared with those in *Major cities (*41%) (ABS 2021e). Young people from rural and remote areas may be more likely to move to metropolitan areas to study and subsequently stay after completing their studies (Mackey 2019). The education levels of people living in rural and remote areas are also influenced by factors such as decreased study options, the skill and education requirements of available jobs and the earning capacity of jobs in these communities (Lamb and Glover 2014; Regional Education Expert Advisory Group 2019).

Employment and income

Labour force data shows, in general, people aged 15 and over living in metropolitan (greater capital city) areas are more likely to be employed than people living outside these areas (ABS 2022b). This may be due to lower opportunities and access to work outside metropolitan areas and the smaller range of employment and career opportunities in these areas (ABS 2022b; NRHA 2013).

People living in rural and remote areas also generally have lower incomes but pay higher prices for goods and services (NRHA 2014). In 2017–18, Australians living outside capital cities had, on average, 19% less household income per week compared with those living in capital cities, and 30% less mean household net worth (ABS 2022b).

Since March 2020, the impact of the COVID-19 pandemic has had a number of effects on a variety of health and non-health related activities, including employment.

See 'Chapter 4 The impacts of COVID-19 on employment and income support in Australia' in Australia's welfare 2021: data insights.

Health risk factors

Why is the most recent risk factor and chronic condition data from 2017–18?

Nationally representative estimates on risk factors and chronic conditions are derived from the Australian Bureau of Statistics' (ABS) National Health Survey (NHS).

Previous versions of the NHS have primarily been administered by trained ABS interviewers and were conducted face-to-face. The 2020–21 NHS was conducted during the COVID-19 pandemic. To maintain the safety of survey respondents and ABS Interviewers, the survey was collected via online, self-completed forms.

Non-response is usually reduced through Interviewer follow up of households who have not responded. As this was not possible during lockdown periods, there were lower response rates than previous NHS cycles, which impacted sample representativeness for some sub-populations. Additionally, the impact of COVID-19 and lockdowns might also have had direct or indirect impacts on people's usual behaviour over the 2020–21 period.

Furthermore, there were changes to some modules used to collect information on risk factors as part of the 2020–21 NHS.

Due to these changes, results from the NHS 2020–21 are not comparable with previous surveys. The AIHW are conducting further analyses to understand the impact of these changes for specific population groups before updating these data.

Health risk factors such as smoking, overweight and obesity, diet, high blood pressure, alcohol consumption and physical activity can influence health outcomes and the likelihood of developing disease or health disorders.

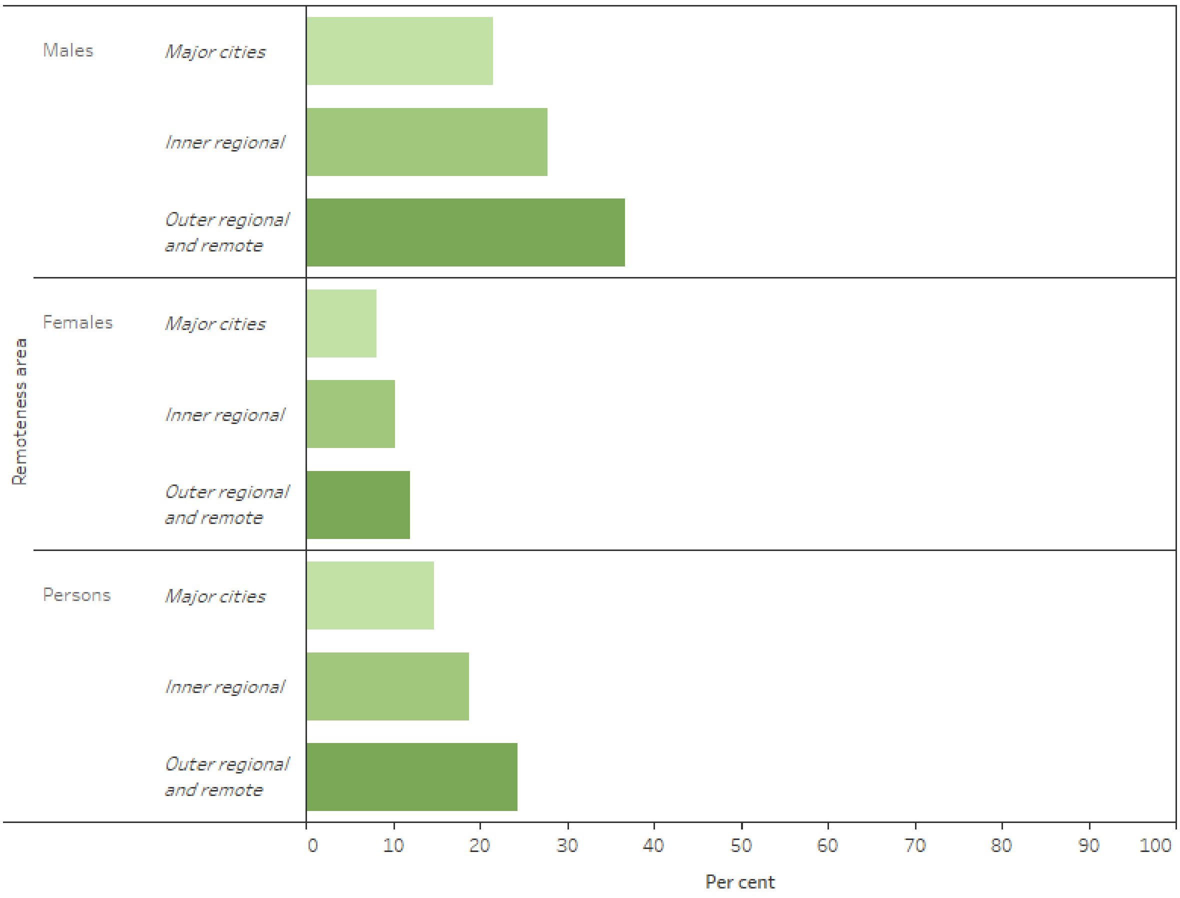
In 2017–18, based on self-reported data from the NHS and after adjusting for age, people living in *Inner regional* and *Outer regional and remote* areas were more likely to engage in risky behaviours, such as smoking and consuming alcohol at levels that put them at risk of life-time harm, compared with people living in *Major cities* (Figure 2; Table S2.

More recent data for daily tobacco smoking from the National Drug Strategy Household Survey 2019 shows the age-standardised rate of daily smoking for people aged 14 and over increases with remoteness area, from 9.8% for those living in *Major cities* to 19.2% for those living in *Remote and very remote* areas (AIHW 2020b).

See [Alcohol, tobacco & other drugs]

Figure 2: Prevalence of health risk factors, by remoteness area, 2017–18

Health risk factor
Exceeded lifetime alcohol risk guideline



Hover for notes

Source: AIHW analysis of ABS 2019; Table S2.
http://www.aihw.gov.au/

Age standardisation

Health status, outcomes and service use are associated with age. This means that comparisons between population groups can be confounded by differences in their age distributions. Age-standardised rates are often used to compare outcomes for populations with different age structures, such as remoteness areas. As the purpose of this web report is comparisons between remoteness areas, age-standardised results have been used throughout. Unadjusted (crude) rates for health risk factors and chronic conditions are available in the supplementary data tables, and are often available in the referenced and/or linked reports.

Family, domestic and sexual violence

Family, domestic and sexual violence is a major health and welfare issue in Australia. The ABS 2016 Personal Safety Survey estimated that 2.2 million adults had been victims of physical and/or sexual violence from a partner since the age of 15 (ABS 2017).

People living outside *Major cities* were 1.4 times as likely to have experienced partner violence than those living in *Major cities*. Additionally, people living in *Remote* and *Very remote* areas were 24 times as likely to be hospitalised for domestic violence as those in *Major cities* (AIHW 2019).

See Family, domestic and sexual violence.

Health status and outcomes

Impact of COVID-19

The COVID-19 pandemic has impacted rural and remote communities in a multitude of ways. While the largest proportion of COVID-19 cases occurred in *Major cities* and decreased with increasing remoteness, a high proportion of residents in *Very remote* areas were affected by COVID-19. See ‘Chapter 1 The impact of a new disease: COVID-19 from 2020, 2021 and into 2022' in Australia's health 2022: data insights. Health impacts from COVID-19 can be more severe for those with underlying chronic conditions or higher prevalence of risky health behaviours. With many of those increasing with remoteness, rural and remote communities are particularly vulnerable to enhanced health inequalities from COVID-19 (Lakhani et al. 2020). Additionally, some rural and remote communities face further challenges with the pandemic without the same resources available in urban centres, and longer travel distances required to access testing and vaccination (Carter et al. 2022). However, populations living in regional and remote areas are likely to have benefitted from the introduction of new Medicare Benefits Schedule telehealth services that came into effect in response to the pandemic.

See ‘Chapter 2 Changes in the health of Australians during the COVID-19 period’ in Australia's health 2022: data insights, and Impacts of COVID-19 on Medicare Benefits Scheme and Pharmaceutical Benefits Scheme: quarterly data.

Chronic conditions

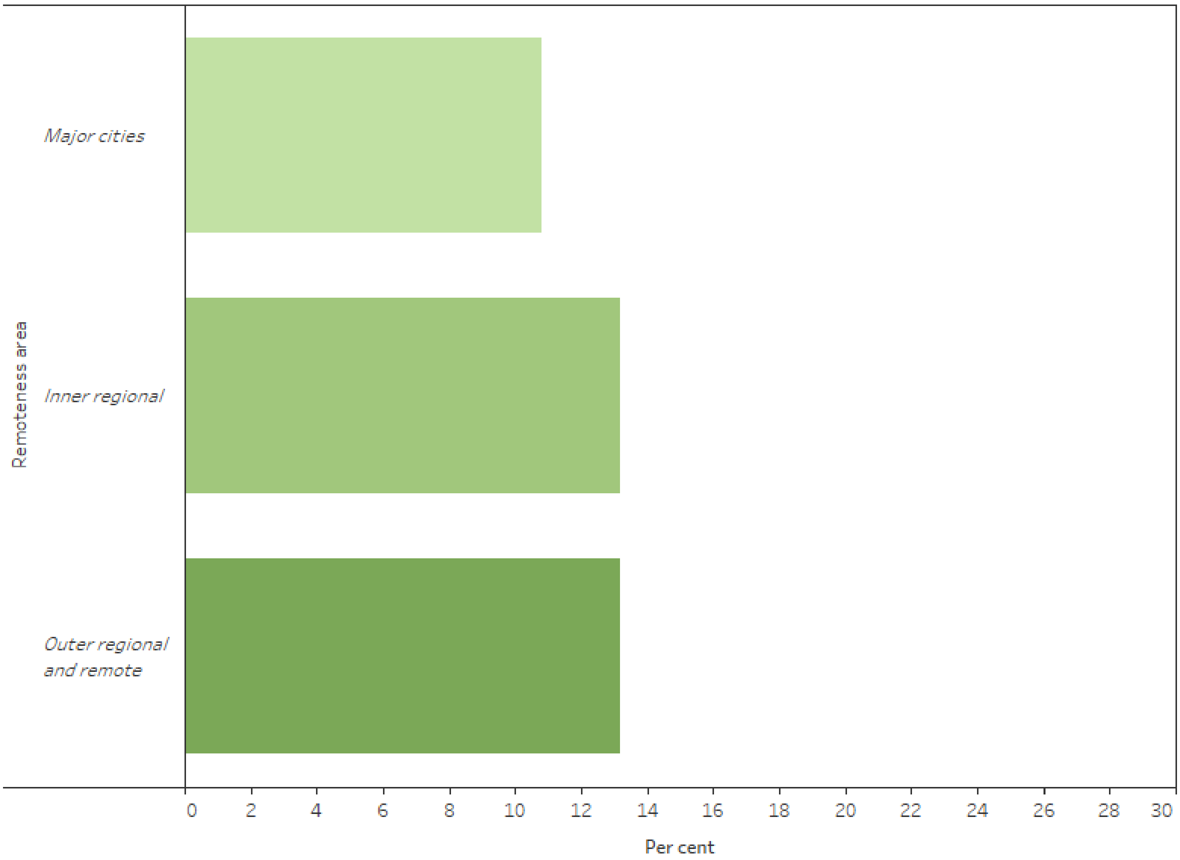
Chronic conditions are long-lasting and have persistent effects throughout a person's life. They are becoming increasingly common and are influenced by a wide variety of factors.

In 2017–18, based on self-reported data from the NHS and after adjusting for age, people living outside *Major cities* had higher rates of arthritis, asthma and diabetes, while mental and behavioural conditions were higher in *Inner regional* areas compared with *Outer regional and remote* areas and *Major cities.* However, rates of all other conditions were similar across remoteness areas (Figure 3; Table S3). Additionally, the prevalence of multimorbidity – the presence of 2 or more chronic conditions in a person at the same time – was similar across remoteness areas (AIHW 2020a).

See Chronic disease and Chronic conditions and multimorbidity.

Figure 3: Prevalence of selected chronic conditions, by remoteness area, 2017–18

Chronic condition
Asthma



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Source: AIHW analysis of ABS 2019; Table S3.
http://www.aihw.gov.au/

Cancer

The age-standardised incidence rate of all cancers combined was highest in *Inner regional* and *Outer regional* areas in 2012–2016 (513 and 512 per 100,000 people, respectively), slightly lower in *Major cities* and *Remote* areas (both 487 cases per 100,000 people), and lowest in *Very remote* areas (422 cases per 100,000 people) (AIHW 2021f).

However, the incidence rate for all cancer for *Very remote* areas may be influenced by lower population screening participation rates, later detection of a cancer and lower life expectancy due to death from other causes (AIHW 2022b; Fox and Boyce 2014). *Very remote* areas had the highest incidence rate for cervical cancer, liver cancer, cancer of unknown primary site, uterine cancer and head and neck cancers (including lip).

In the period 2012–2016, people living in *Major cities* had the highest 5-year observed survival for all cancers combined (63%) while *Very remote* areas had the lowest (55%) (AIHW 2021f).

See Cancer in Australia 2021 and Cancer

Burden of disease

Burden of disease refers to the quantified impact of living with and dying prematurely from a disease or injury.

In 2018, after adjusting for age, the total burden of disease and injury in Australia increased with increasing remoteness. *Major cities* experienced the least burden per population, while *Remote and very remote* areas experienced the most. The rate of disease burden in *Remote and very remote areas* was 1.4 times as high as that for *Major cities.*

This pattern was mostly driven by fatal burden (years of life lost due to premature death). In *Remote and very remote* areas, fatal burden rates were 1.8 times as high as that of *Major cities,* while non-fatal burden rates – the rates of burden from living with ill health as measured by years lived with disability – were 1.1 times as high. Kidney and urinary diseases, injuries and infections were disease groups with noticeably higher rates of burden in *Remote and very remote* areas, compared with *Major cities* (more than twice as high) (AIHW 2021d).

See Australian Burden of Disease Study and Burden of disease.

Deaths

People living in rural and remote areas are more likely to die at a younger age than their counterparts in *Major cities*. They have higher mortality rates and higher rates of potentially avoidable deaths than those living in *Major cities.*

In 2020, age-standardised mortality rates increased as remoteness increased for males and females:

- Males living in *Very remote* areas had a mortality rate 1.3 times as high as those living in *Major cities*.
- Females living in *Very remote* areas had a mortality rate 1.5 times as high as those living in *Major cities*.

  Males had a higher mortality rate than females in all remoteness areas, with the highest difference in *Remote* areas– at 1.5 times higher (AIHW 2022b) (Table 1).

See Causes of death.

Table 1: Median age at death, mortality rate, and rate ratio, by sex and remoteness area, 2020

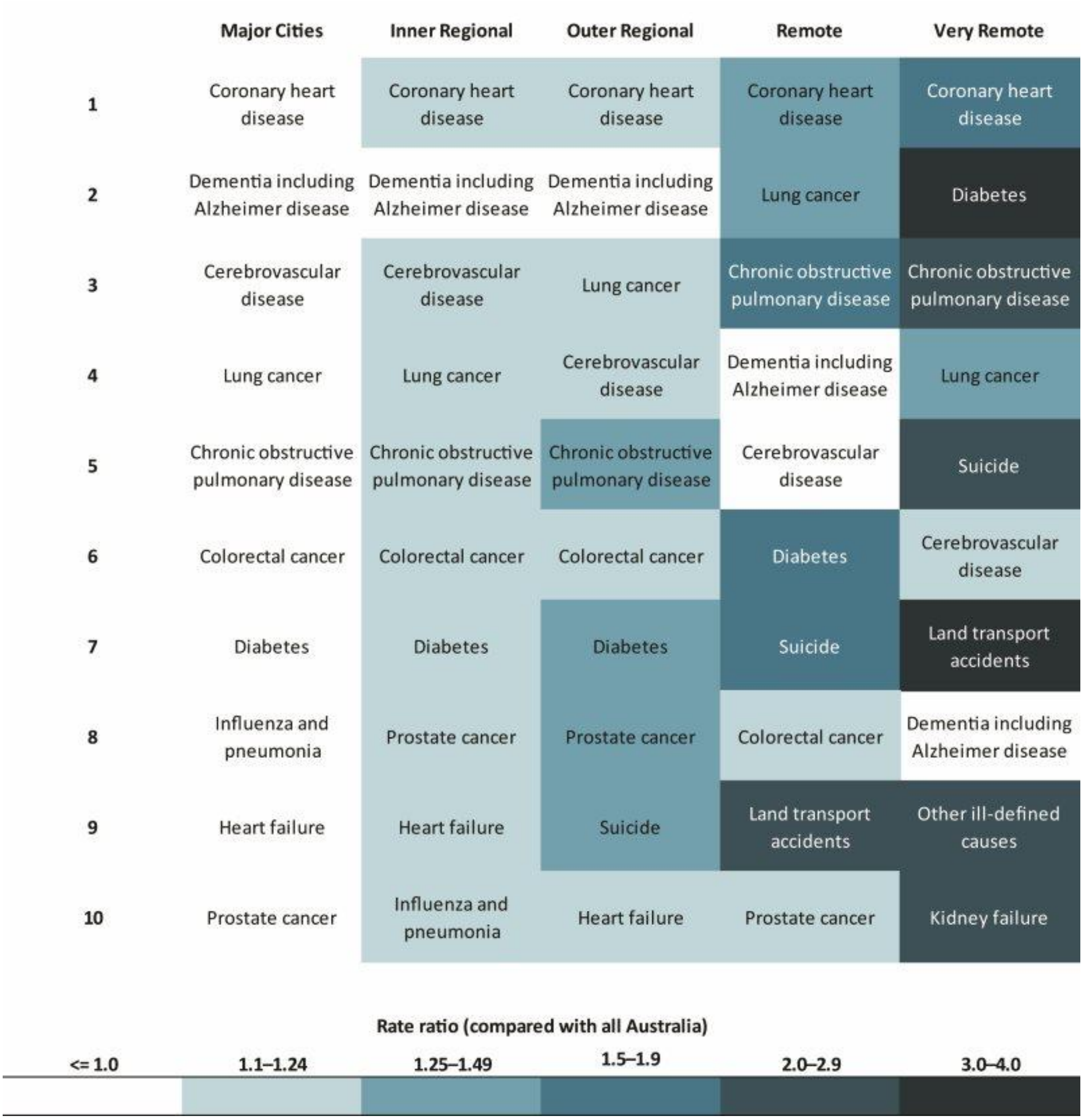
	Major cities	Inner Regional	Outer Regional	Remote	Very remote
Median age at death (Males)	79.6	78.7	76.8	73.1	65.7
Age-standardised rate (deaths per 100,00) (Males)	545.9	630.7	668.1	703.3	712.7
Rate ratio (Males)	0.94	1.09	1.15	1.21	1.23
Median age at death (Females)	85.2	84.3	82.7	78.3	66.2
Age-standardised rate (deaths per 100,00) (Females)	388.6	435.9	461.0	468.7	569.5
Rate ratio (Females)	0.95	1.07	1.13	1.15	1.40

Source: AIHW 2022b.

Leading causes of death 2016–2020

Figure 4 shows the 10 leading causes of death for each remoteness area for the period 2016–2020, with comparison to mortality rates for Australia overall (AIHW 2022b).

- Coronary heart disease was the leading cause of death across all remoteness areas. Age-standardised rates were higher in *Very remote* (1.6 times) and *Remote* areas (1.3 times) than for Australia overall.
- The top 7 causes of death were the same for *Major cities*, *Inner regional* and *Outer regional* areas.
- Land transport accidents were a leading cause of death in *Remote* and *Very remote* areas. The rate of dying due to land transport accidents was nearly 3 times as high for *Remote* areas and nearly 4 times as high for *Very remote* areas, compared with Australia overall (AIHW 2022b).



	Major Cities	Inner Regional	Outer Regional	Remote	Very Remote
1	Coronary heart disease	Coronary heart disease	Coronary heart disease	Coronary heart disease	Coronary heart disease
2	Dementia including Alzheimer disease	Dementia including Alzheimer disease	Dementia including Alzheimer disease	Lung cancer	Diabetes
3	Cerebrovascular disease	Cerebrovascular disease	Lung cancer	Chronic obstructive pulmonary disease	Chronic obstructive pulmonary disease
4	Lung cancer	Lung cancer	Cerebrovascular disease	Dementia including Alzheimer disease	Lung cancer
5	Chronic obstructive pulmonary disease	Chronic obstructive pulmonary disease	Chronic obstructive pulmonary disease	Cerebrovascular disease	Suicide
6	Colorectal cancer	Colorectal cancer	Colorectal cancer	Diabetes	Cerebrovascular disease
7	Diabetes	Diabetes	Diabetes	Suicide	Land transport accidents
8	Influenza and pneumonia	Prostate cancer	Prostate cancer	Colorectal cancer	Dementia including Alzheimer disease
9	Heart failure	Heart failure	Suicide	Land transport accidents	Other ill-defined causes
10	Prostate cancer	Influenza and pneumonia	Heart failure	Prostate cancer	Kidney failure

Rate ratio (compared with all Australia)

<= 1.0 | 1.1–1.24 | 1.25–1.49 | 1.5–1.9 | 2.0–2.9 | 3.0–4.0

Notes

Rates are age-standardised to the 2001 Australian standard population.

Leading causes of death are listed in order of number of deaths in each remoteness area from 2016–2020.

Boxes are coloured based on rate ratio comparing each region to Australia overall.

Source AIHW 2022b; Table S4.

Potentially avoidable deaths

The rate of potentially avoidable deaths – deaths under the age of 75 from conditions that are potentially preventable through primary or hospital care, such as cancer screening and transport accidents – increased as remoteness increased. For more details on examples and definitions of potentially avoidable deaths see Potentially avoidable deaths, 2021.

In 2020, 17% of all deaths in Australia were potentially avoidable. For males and females, the rate increased with remoteness. After adjusting for age, the rates of potentially avoidable deaths were:

- 3.0 times as high for females in *Very remote* areas compared with females in *Major cities* (181 per 100,00 population compared with 61)
- 2.1 times as high for males in *Very remote* areas compared with males in *Major cities* (235 per 100,000 population compared with 111) (AIHW 2022b).

See Mortality Over Regions and Time (MORT) books.

Life Expectancy

Estimates of life expectancy at birth represent the average number of years that a newborn baby can expect to live, assuming current age-specific death rates are experienced through their lifetime. In 2018–2020, life expectancy at birth was lower for those living outside of metropolitan areas (Table 2; ABS 2021b).

Table 2: Life expectancy by sex for Greater capital city and Rest of state 2018–2020

	Males	Females	Persons
Greater Sydney	82.7	86.4	84.5
Rest of NSW	79.3	84.2	81.7
Greater Melbourne	82.6	86.3	84.4
Rest of Vic.	79.4	84.3	81.8
Greater Brisbane	81.6	85.7	83.6
Rest of Qld	80.2	84.9	82.5
Greater Adelaide	81.4	85.6	83.4

	Males	Females	Persons
Rest of SA	79.6	84.4	82.0
Greater Perth	82.3	86.4	84.3
Rest of WA	79.0	84.3	81.6
Greater Hobart	80.6	84.9	82.7
Rest of Tas.	79.4	83.9	81.6
Greater Darwin	80.2	84.8	82.5
Rest of NT	73.0	77.4	75.1

Source: ABS 2021b.

Access to health care

People living in rural and remote areas face barriers to accessing health care, due to challenges of geographic spread, low population density, limited infrastructure, and the higher costs of delivering rural and remote health care.

Primary health care

Medicare claims data from 2020–21 show that the number of non-hospital non-referred attendances per person, such as general practitioner (GP) visits, were lower in *Remote* and *Very remote* areas (4.7 and 3.4 per person respectively), than in *Outer regional* areas (6.1 per person), *Inner regional* areas and *Major cities* (6.8 per person for each area) (Department of Health 2022).

However, bulk-billing rates were highest in *Very remote* areas (91%) and *Major cities* (90%) and slightly lower but similar in regional areas (87% in both *Inner regional* and *Outer regional* areas) and lowest in *Remote* areas (86%) (Department of Health 2022).

People living in *Remote* and *Very remote* areas also have lower rates of bowel, breast and cervical cancer screening (AIHW 2021e, 2021g, 2021h).

See General practice, allied health and other primary care services and Indigenous Australians and the health system.

Health workforce

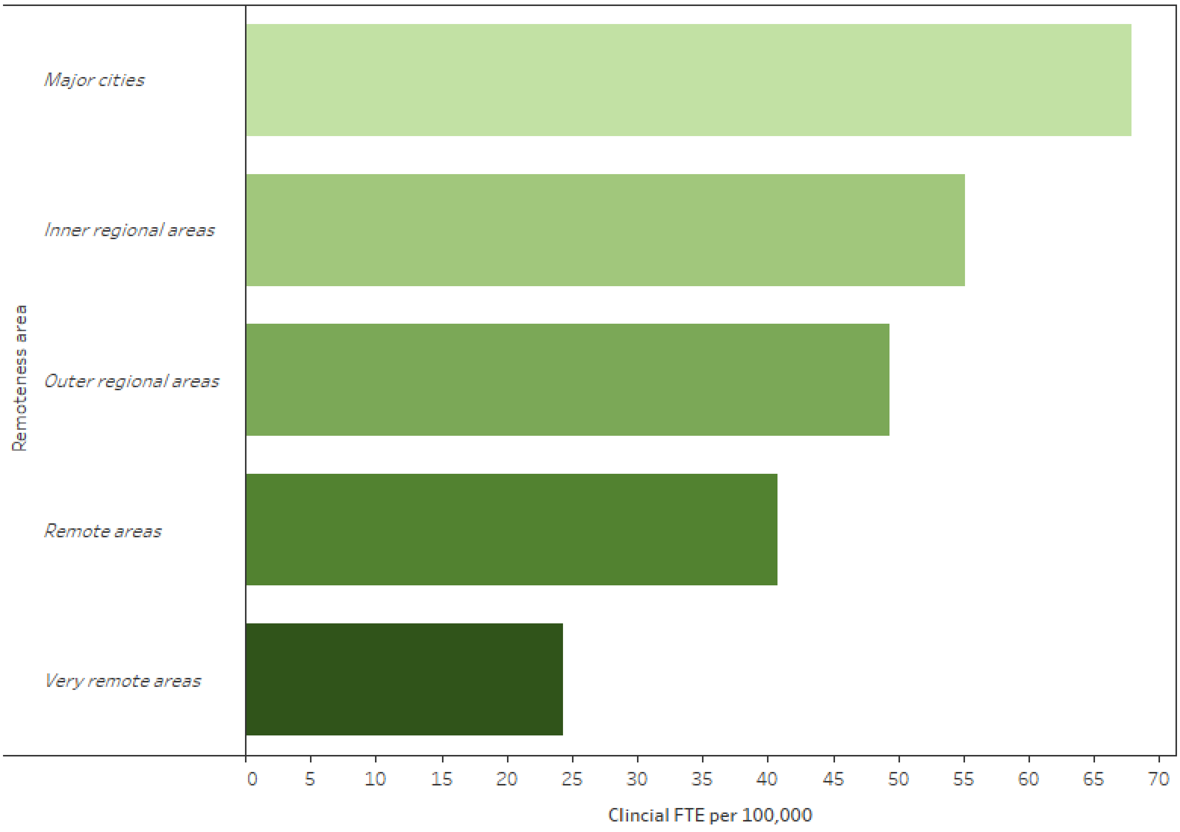
Australians living in *Remote* and *Very remote* areas experience health workforce shortages, despite having a greater need for medical services and practitioners with a broader scope of practice (AMA 2017). For most health professionals including specialists (all doctors other than GPs who require a referral from another doctor) dentists, pharmacists, and other allied health professionals, there is a marked decline in the rate of clinical full-time equivalent (FTE) practitioners per 100,000 population once outside *Major cities* with the notable exception of nurses and midwives. The FTE rate for nurses and midwives is higher in *Remote* and *Very remote* areas compared with *Major cities*, *Inner regional* and *Outer regional* (Department of Health 2020) (Figure 5; Table S5).

Although the FTE rate for GPs increases with increasing remoteness, care should be taken in interpreting the data, as work arrangements in these areas have the potential to be more complicated (NRHA 2017). For example, there may be poor differentiation between general practice for on-call hours, activity for procedures and hospital work for GPs working in rural and remote areas, which affects the accuracy of statistics on GP supply and distribution (Walters et al. 2017).

See Health workforce.

Figure 5: Employed health professionals, clinical full-time equivalent (FTE) rate, by remoteness area, 2020

Type of health professional
Occupational therapists



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Sources: ABS 2021c; Department of Health 2020; Table S5.
http://www.aihw.gov.au/

Hospitalisations

In 2019–20, people living in *Very remote* areas were hospitalised at almost twice the rate as people living in *Major cities* and those in *Remote areas* at 1.4 times the rate. There was no difference in rate of hospitalisations for regional areas compared with *Major cities* (AIHW 2021a). People in *Major cities* had higher rates of rehabilitation care compared with people living in other remoteness areas (18 hospitalisations per 1,000 population compared with 13 for *Inner regional* areas, 8 for *Outer regional* areas, 4 for *Remote* areas and 3 for *Very remote* areas). In part, this may reflect the distribution of private hospitals across remoteness areas, as private hospitals accounted for 80% of rehabilitation care separations (AIHW 2021b).

See Hospitals.

Potentially preventable hospitalisations

Potentially preventable hospitalisations (PPH) are for conditions where hospitalisation could have potentially been prevented through the provision of appropriate individualised preventative health interventions and early disease management, usually delivered in primary care and community-based settings. When compared with *Major cities*, the rate of PPH in 2019–20 was:

- 2.6 times as high for people living in *Very remote* areas
- 1.8 times as high for people living in *Remote* areas
- slightly higher in *Inner regional* and *Outer regional* areas (1.1 and 1.3 times as high respectively) (AIHW 2021c).

Where do I go for more information?

For more information on rural and remote health please see:

- Australian Burden of Disease Study: impact and causes of illness and death in Australia 2018
- Mortality Over Regions and Time (MORT) books
- Admitted patients
- National Rural Health Alliance

Visit Rural and remote Australians for more on this topic.

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Indigenous health

These topic summaries present information on the health status of Aboriginal and Torres Strait Islander people, as well as the determinants of health and use of health services that are specific to the Indigenous population.

Determinants of health for Indigenous Australians

Find the most recent version of this information at:
https://www.aihw.gov.au/reports/australias-health/social-determinants-and-indigenous-health

Health is related to an individual's environment and circumstances such as where they live, their education level, income and living conditions along with their access to and use of health services (WHO 2017). For Aboriginal and Torres Strait Islander people, factors such as cultural identity, family and kinship, country and caring for country, knowledge and beliefs, language and participation in cultural activities and access to traditional lands are also key determinants of health and wellbeing (AIHW and NIAA 2020). These factors are interrelated and combine to affect the health of individuals and broader communities.

Determinants and the health gap

An AIHW analysis of results from the Australian Bureau of Statistics (ABS) health survey data estimated that around one-third (34%) of the health gap between Indigenous and non-Indigenous Australians was due to social determinants (employment and hours worked, highest non-school qualification, level of schooling completed, housing adequacy and household income) and just under one-fifth (19%) of the gap was due to 'health risk factors' (risky alcohol consumption, high blood pressure, overweight and obesity status, inadequate fruit and vegetable consumption, physical inactivity and smoking). The remaining health gap (of around 47%) includes differences in access to health services and the impact of cultural and historical factors on health (AIHW 2018).

There is significant interaction and overlap between social determinants and health risk factors. For example, in 2018–19, among Indigenous Australian adults, the proportion who did not smoke was higher among those who:

- were employed, compared with those not employed (including those not in the labour force) (66% compared with 48%, respectively)
- had completed Year 12 or equivalent, compared with those with a Year 10 or lower level of school qualification (71% compared with 49%, respectively) (ABS 2019).

Closing the Gap

In July 2020, a new National Agreement on Closing the Gap was endorsed by the Australian governments and the Coalition of Aboriginal and Torres Strait Islander Peak Organisations. This agreement provides a framework to address the entrenched inequality faced by Aboriginal and Torres Strait Islander people so that their life outcomes are equal to all Australians. The National Agreement has 17 targets including a range of health outcome measures and related determinants. Specifically, the outcome areas relate to education, employment, health and wellbeing, justice, safety, housing, land and waters, and languages (NIAA 2020).

While most of the available data and therefore the analysis focus on the socio-economic and environmental factors, an examination of cultural and historical factors and the impact of colonisation on the health and wellbeing of Indigenous Australians is also important.

Cultural and historical factors

Colonisation has had a devastating impact on Aboriginal and Torres Strait Islander communities and culture. Violence and epidemic disease caused an immediate loss of life, and the occupation of land by settlers and the restriction of Aboriginal people to ‘reserves’ disrupted their ability to support themselves. Together with the forcible removal of Indigenous children from their families and communities, Indigenous Australians have suffered ongoing inter-generational trauma. These factors are recognised as having a fundamental impact on the disadvantage and poor physical and mental health of Indigenous peoples worldwide, through social systems that maintain disparities (see, for example, ANU 2020; Paradies 2016; Paradies and Cunningham 2012).

In contrast, Aboriginal and Torres Strait Islander cultural identity and participation in cultural activities, access to traditional lands along with connection to family and kinship, are recognised as protective factors and can positively influence overall health and wellbeing (AIHW 2017). For example, ABS survey data show that Indigenous Australians who lived on their homelands or traditional Country were more likely to assess their own health as excellent/very good/good (78%) than those who were not allowed to visit their homelands or traditional Country (47%) (ABS 2019).

The importance of culture is recognised in the new National Aboriginal and Torres Strait Islander Health Plan 2021-2031 which sets the policy direction for Indigenous health and wellbeing. The plan notes that implementation across each priority area will need a holistic approach that considers the cultural determinants across the life-course. For example, it notes that to ensure the health and wellbeing of Indigenous Australians, contemporary housing must embed culturally-responsive design, including consideration of kinship, family and community living arrangements (Department of Health 2021).

Socio-economic and environmental factors

The component of the Aboriginal and Torres Strait Islander Health Performance Framework reporting against the determinants of health (Tier 2), covers a range of measures including environmental factors, socio-economic factors and community capacities. Information presented here focuses on those measures where there is more available data on education, employment, income, housing, child protection and justice (AIHW 2020).

Education, employment and income

A person's educational qualifications can influence their health status and health outcomes. Specifically, higher levels of education can directly impact a person's health through a greater understanding and application of health information, in addition to better prospects for employment and income which can help people access good quality housing, health food and health care services.

Levels of educational attainment among Indigenous Australians have improved substantially over the past decade. Between 2008 and 2018–19:

- The proportion of Indigenous Australians aged 20–24 who had attained at least a Year 12 or equivalent qualification increased – from 45% to 66% (an estimated 73,900 Indigenous Australians aged 20–24).
- The proportion of Indigenous adults aged 20–64 whose highest education was a certificate III or above increased – from 27% (an estimated 66,000 people) to 45% (an estimated 183,500 people) (ABS 2019).

The employment rate – the number of employed people as a proportion of the working age population – for Indigenous Australians aged 15–64 was 49% (an estimated 243,800 people) in 2018–19. The employment rate (excluding the Community Development Employment Program) remained stable between 2008 and 2018–19, at around 49% (SCRGSP 2020).

The employment rate remains much lower among Indigenous Australians than non-Indigenous Australians (49% compared with 76%) and the employment gap is largest among those aged 25–54 and in more remote areas (AIHW and NIAA 2020b).

An adequate income is fundamental to being able to live a healthy life – it gives a person greater access to nutritious food, better housing, and health and other services, as well as a greater ability for social participation (Galobardes et al. 2006). Based on AIHW analysis of the Census of Population and Housing 2016:

- More than 1 in 3 (37% or 105,400) Indigenous Australian adults lived in households with equivalised gross household incomes (which adjust for differences in income based on differences in household sizes) in the lowest 20% of incomes nationally.
- Average weekly equivalised household income of Indigenous adults was highest among those living in *Major cities* and lowest among those living in *Very remote* areas (AIHW and NIAA 2020).

The Aboriginal and Torres Strait Islander Health Performance Framework provides detailed information on the socio-economic factors including literacy and numeracy, education outcomes for young people and participation and attainment of adults, employment and both individual and household income.

Housing

Adequate housing – that is, housing that provides space for all members of the household and is in good structural condition with adequate working facilities – is essential to good health. Housing that is overcrowded or lacks facilities for washing and cleaning increases the risk of infectious disease (Ware 2013).

Indigenous Australians have less access to affordable or secure housing than other Australians and are considerably more likely to live in overcrowded conditions, or to experience homelessness (AIHW 2019). While there have been improvements in overcrowding, home ownership and a reduction in homelessness, there is a continued need for public policy that aims to ensure access to affordable, safe and sustainable housing for Indigenous Australians (AIHW and NIAA 2020a).

According to ABS health survey data, in 2018–19, nearly 1 in 5 (18% or an estimated 145,300) Indigenous Australians were living in overcrowded housing (housing that needs one or more additional bedrooms to adequately house household members). The 2018-19 rate represents a decline in overcrowding since 2004-05 when almost 27% of Indigenous Australians lived in overcrowded households (AIHW and NIAA 2020a).

Functional housing encompasses basic facilities, infrastructure, and habitability. Poorly maintained infrastructure and inadequate basic facilities can lead to the spread of infectious and bacterial diseases.

- In 2018–19, 1 in 3 (33%) Indigenous households were living in housing with one or more major structural problems, such as major cracks in walls or floors, sinking or moving foundations, or major electrical or plumbing problems. This was a similar proportion to 2012–13.
- Those living in *Remote and very remote* areas were most likely to live in overcrowded housing or homes with major structural problems (AIHW 2020b).

The Aboriginal and Torres Strait Islander Health Performance Framework provides detailed information on housing among Indigenous Australians on housing tenure, overcrowding and homelessness including results from the ABS Census of Population and Housing.

Child protection and justice systems

Experience of maltreatment during childhood has serious and long-term impacts on social and emotional wellbeing and health (Emerson et al. 2015). Indigenous Australians experience of child welfare policies has historically been traumatic, with the policy of forcible removal of children known as the Stolen Generations (HREOC 1997).

Child protection continues to be a very significant issue for Aboriginal and Torres Strait Islander communities:

- In 2019–20, 55,300 Indigenous children received child protection services, a rate of 166 per 1,000 Indigenous children – 8 times the rate for non-Indigenous children (21 per 1,000 non-Indigenous children).

- Children from *Remote* areas were more likely to be the subject of a substantiation, or be in out-of-home care than those from *Major cities* (AIHW 2021).
- The number of Indigenous children receiving child protection services rose between 2016–17 and 2019–20, from 49,200 to 55,300. This was reflected in the rate, which rose from 151 to 166 per 1,000 Indigenous children in the same period. For non-Indigenous children, the rates declined slightly from 22 to 21 per 1,000 children, with minor fluctuations during the period (AIHW 2021).

Most Indigenous Australians have never been imprisoned (ABS 2016). But they have had contact with the criminal justice system – as both offenders and victims – at much higher rates than non-Indigenous Australians (SCRGSP 2016):

- Although only about 6% of young people aged 10–17 in Australia are Indigenous, half (2,448 or 50%) of young people aged 10–17 under youth justice supervision on an average day in 2018–19 were Indigenous.
- Almost half (48%) of those aged 10–17 under community-based supervision were Indigenous, while over half (58%) of those in detention were Indigenous (AIHW 2020).
- As at 30 June 2021, 13,039 Indigenous adults were in prison at a rate of 2,412 per 100,000 population. Indigenous prisoners made up 30% of all prisoners, with 78% having experienced prior adult imprisonment (ABS 2021).

Health risk factors

Health risk factors, including overweight and obesity, alcohol consumption, smoking, dietary behaviours and physical inactivity, increase the likelihood of a person developing a chronic disease, or interfere with the management of existing conditions. Many health risk factors are preventable and modifiable and significant reduction is associated with improved health outcomes.

Overweight and obesity

A poorer quality diet – lacking in important nutrients and high in processed food – can contribute to obesity. Diet can be affected by what foods are affordable and readily available. For example, fresh fruit and vegetables can be difficult to access by people with low incomes and in more remote areas (Thurber et al. 2017).

Excess weight is a major risk factor for many diseases, such as cardiovascular disease, type 2 diabetes, kidney disease, some musculoskeletal conditions, and cancers. In 2018–19, 71% (381,800) of Aboriginal and Torres Strait Islander people aged 15 and over were overweight or obese (Figure 1). This was higher than in 2012–13 (66%). The rise was driven by an increase in non-remote areas (ABS 2013, 2019).

Alcohol consumption

Between 2001 and 2018–19, there was an increase in the proportion of Indigenous Australians aged 18 and over reporting that they ‘had not consumed alcohol in the last 12 months or have never consumed alcohol’, from 19% to 26%.

In 2018–19, survey data estimated that a greater number (37%) of Indigenous Australians aged 18 and over in *Remote* areas reported that they did not consume alcohol in the last 12 months or have never consumed alcohol than did Indigenous adults in the non-remote areas (23%).

Harmful use of alcohol is a problem for the Australian community as a whole. Long-term excessive alcohol consumption is associated with a variety of adverse health and social consequences. High levels of alcohol consumption can increase the risk of lifetime harm. This happens when more than two standard drinks are consumed on average every day. Exceeding alcohol risk guidelines can contribute to the risk of cancer, chronic liver disease and cardiovascular disease, among other health outcomes (NHMRC 2020).

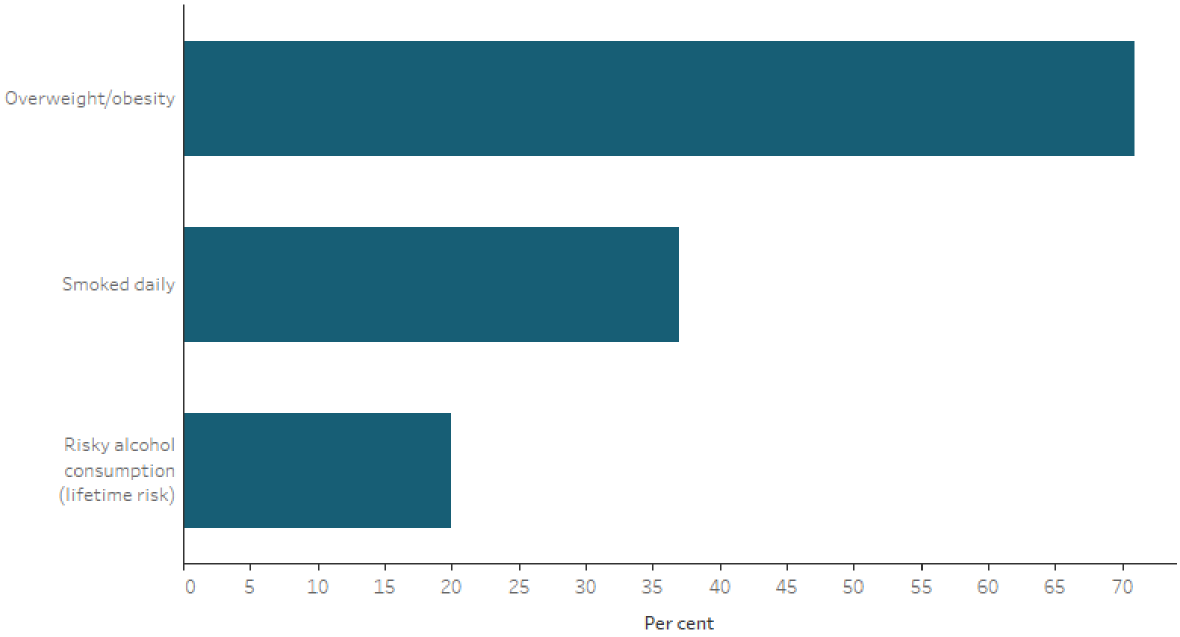
About 1 in 5 (20% or 97,100) Indigenous adults reported drinking alcohol at levels exceeding the lifetime risk guideline in the previous week (Figure 1). This was the same as in 2012–13 (AIHW and NIAA 2020a).

Tobacco smoking

Smoking is a major risk factor for cardiovascular disease, cancer, and respiratory disease (AIHW 2022). The proportion of Indigenous Australians aged 15 and over who smoke every day has fallen substantially over the past decade. In 2018–19, 37% of Indigenous Australians aged 15 and over (about 200,400) smoked every day, compared with 45% in 2008 (Figure 1). The largest falls in daily smoking rates have occurred among younger Indigenous Australians.

In 2018–19, 85% of Indigenous Australians aged 15–17 reported that they had never smoked, compared with 72% in 2008. The decline in daily smoking rates among Indigenous adults has occurred in non-remote areas – there has been no significant change over this period in daily smoking rates among Indigenous adults in remote areas (AIHW and NIAA 2020a).

Figure 1: Prevalence of selected health risk factors among Aboriginal and Torres Strait Islander people, 2018–19



Note: Data for overweight/obesity and daily smoking includes Indigenous Australians aged 15+, data for alcohol consumption includes Indigenous Australians aged 18+.
Source: ABS 2019.
http://www.aihw.gov.au

Where do I go for more information?

For more information, see:

- Aboriginal and Torres Strait Islander Health Performance Framework
- Australian Bureau of Statistics National Aboriginal and Torres Strait Islander Health Survey, 2018–19
- Australia's health 2018 ‘Chapter 6.7 Sizes and sources of the Indigenous health gap’

Visit Indigenous Australians for more on this topic.

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Indigenous Australians and the health system

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Access to appropriate, high-quality and timely health care throughout life is essential for improving health outcomes for Aboriginal and Torres Strait Islander people (Indigenous Australians). Some aspects of health system performance for Indigenous Australians have improved the last decade. Barriers affecting their access, however, remain, as observed in their disparities in their level of access compared with non-Indigenous Australians.

This page presents measures of health system performance for Indigenous Australians drawn from the Aboriginal and Torres Strait Islander Health Performance Framework (Indigenous HPF).

Measures of health system performance

The Indigenous HPF monitors progress against 68 measures organised under 3 tiers: health status and outcomes; determinants of health; and health system performance.

The Indigenous HPF Tier 3 - Health system performance includes 22 measures organised into 6 domains relating to health system effectiveness, responsiveness, accessibility, continuity, capability, and sustainability (Table 1).

Table 1: Indigenous HPF Tier 3 measures of health system performance for Indigenous Australians

Domain	Description	Measures
Effective, appropriate, efficient	Effective – the care, intervention or action achieves the desired outcome. Appropriate – the care, intervention or action is relevant to the client's needs and is based on established standards.	Antenatal care (3.01) Immunisation (3.02) Health promotion (3.03) Early detection and early treatment (3.04) Chronic disease management (3.05)

Domain	Description	Measures
	Efficient – the desired results are achieved with the most cost effective use of resources.	Access to hospital procedures (3.06) Selected potentially preventable hospital admissions (3.07) Cultural competency (3.08)
Responsive	The service provides respect for persons and is client oriented, including respect for dignity, confidentiality, participation in choices, promptness, quality of amenities, access to social support networks, and choice of provider.	Discharge against medical advice (3.09) Access to mental health services (3.10) Access to alcohol and drug services (3.11) Aboriginal and Torres Strait Islander people in the health workforce (3.12) Competent governance (3.13)
Accessible	Ability of people to obtain health care at the right place and right time irrespective of income, cultural background or physical location.	Access to services compared with need (3.14) Access to prescription medicines (3.15) Access to after-hours primary health care (3.16)
Continuous	The ability to provide uninterrupted, coordinated care or service across programs, practitioners, organisations and levels over time.	Regular general practitioner or health service (3.17) Care planning for chronic diseases (3.18)
Capable	An individual or service's capacity to provide a health service based on skills and knowledge.	Accreditation (3.19) Aboriginal and Torres Strait Islander people training for health-related disciplines (3.20)

Domain	Description	Measures
Sustainable	System's or organisations' capacity to provide infrastructure such as workforce, facilities and equipment, and be innovative and respond to emerging needs (research, monitoring).	Expenditure on Aboriginal and Torres Strait Islander health compared to need (3.21) Recruitment and retention of staff (3.22)

It is important, however, to remember that health outcomes are very much affected by factors outside the health system. For more information on these factors, see Determinants of health for Indigenous Australians and Indigenous health and wellbeing.

Health system performance over time

Measures of the performance of the health system for Indigenous Australians drawn from the Indigenous HPF show mixed results over the most recent decade, with improvements seen in some measures but not all.

Improvements in health system performance for Indigenous Australians over the last decade include:

- increases in the number of services providing primary health care to Indigenous Australians
- an increase in Indigenous women accessing antenatal care in their first trimester of pregnancy
- increased immunisation rates for Indigenous children (with the vast majority being fully immunised at 5 years)
- increases in the rates of Indigenous health checks and use of general practitioner (GP) management plans for chronic diseases
- increased access to hospital procedures, however, Indigenous Australians are less likely than non-Indigenous Australians to receive a medical or surgical procedure (Table 2).

Table 2: Key trends over time in health system performance for Indigenous Australians

Health system performance measure	Trend
Antenatal care (3.01) – proportion of Indigenous women accessing antenatal care in their first trimester of pregnancy	√
Immunisation (3.02) – proportion of Indigenous children fully immunised at age 5	√

Health system performance measure	Trend
Early detection and early treatment (3.04) – rate of Indigenous health checks (per 1,000 population)	√
Chronic disease management (3.05) – rate of claims for GP management plans for chronic disease (per 1,000 population)	√
Access to hospital procedures (3.06) – proportion of hospitalisations for Indigenous Australians where a procedure was recorded	√
Selected potentially preventable hospital admissions (3.07) – rate of potentially preventable hospitalisations among Indigenous Australians (per 1,000 population)	✗
Discharge against medical advice (3.09) – rate at which Indigenous hospital patients leave hospital without completing treatment (per 1,000 population)	✗
Access to services compared with need (3.14) – proportion of Indigenous Australians who needed to go to a health provider in the previous 12 months but didn't	≈

Notes:

3. √ = improved; ✗ = not improved; ≈ = little or no change.
4. Trend based on analysis of change over time for the relevant time period. These periods vary by measure. See Indigenous HPF for detail. Trends may differ from that presented in Chapter 3'The effect of the COVID-19 pandemic on Indigenous Australians' use of health services' in Australia's health 2022: data insights because of differing time periods and type of data presented.

Areas of health system performance that have worsened for Indigenous Australians over the most recent decade include increases in the rate of preventable hospitalisations and in the rate of people taking their own leave from hospital before completing treatment.

Barriers to accessing health services

Barriers to accessing health services for Indigenous Australians include services not being available in their area (especially for those living in remote areas), services being too far away and they do not have transport, cost, waiting times, and the availability of culturally safe and responsive health services.

A culturally safe and responsive health system

Improving the cultural safety and cultural responsiveness of the health system can improve access to, and the quality of, health care for Indigenous Australians. A culturally safe health system is one that respects Indigenous cultural values, strengths and differences, and addresses racism and inequity. It also requires health professionals and health services to be culturally responsive, to take action to overcome racism and power imbalances and to have active engagement with Indigenous clients/patients to ensure that the system meets their needs (Coalition of Peaks 2020; Dudgeon et al. 2010; IAHA 2019).

To measure progress in achieving cultural safety in the Australian health system, the AIHW has developed the Cultural safety in health care for Indigenous Australians: monitoring framework. For the purposes of this framework, cultural safety is defined with reference to the experiences of Indigenous health care users, of the care they are given, and their ability to access services and to raise concerns.

Impact of COVID-19

Lockdowns, other restrictions and changes to the health system as a result of COVID-19 affected the need for, access to, and use of a broad range of health services by Indigenous Australians. For more information, see 'Chapter 3 Changes in Aboriginal and Torres Strait Islander people's use of health services in the early part of the COVID-19 pandemic’ in Australia’s health 2022: data insights, 'Chapter 1 The impact of a new disease: COVID-19 during 2020, 2021 and into 2022’ in Australia’s health 2022: data insights, and Aboriginal and Torres Strait Islander specific primary health care: results from the nKPI and OSR collections: impact of COVID-19.

Where do I go for more information?

For detailed information on the performance of the health system for Indigenous Australians, see the AIHW’s and the National Indigenous Australians Agency’s (NIAA’s) Aboriginal and Torres Strait Islander Health Performance Framework and linked reports.

For more information on Indigenous Australians’ use of health services, see also:

- Indigenous health checks and follow-ups
- Aboriginal and Torres Strait Islander specific primary health care: results from the nKPI and OSR collections
- Cultural safety in health care for Indigenous Australians: monitoring framework.

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Indigenous health and wellbeing

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For Aboriginal and Torres Strait Islander people, good health is more than the absence of disease or illness; it is a holistic concept that includes physical, social, emotional, cultural and spiritual wellbeing, for both the individual and the community.

This page highlights some of the key issues in Indigenous health and includes links to more detailed information.

Life expectancy and deaths

Life expectancy and deaths are widely used as indicators of population health. Given current mortality patterns, Indigenous males born in 2015–2017 could expect to live 71.6 years, and Indigenous females 75.6 years (ABS 2018). In general, life expectancy is lower in remote areas, with Indigenous males and females living in *Major cities* expected to live around 6 years longer than those living in *Remote* and *Very remote* areas.

Indigenous death rates have been falling in most age groups over the past 10 years, with the median age at death increasing from 56.5 in 2010 to 61.0 in 2020 (ABS 2021b). In 2020, the leading causes of death among Indigenous Australians were coronary heart disease, diabetes, chronic lower respiratory diseases, cancers of the lung, bronchus and trachea, and intentional self-harm (ABS 2021a).

In the last few years, cancers have overtaken cardiovascular diseases as the most common group of diseases causing deaths among both Indigenous and non-Indigenous Australians. Between 2006 and 2018, the age-standardised death rate for cardiovascular disease among Indigenous Australians fell from 323 to 229 per 100,000, while the cancer death rate rose from 205 to 235 per 100,000 (AIHW 2020).

The Aboriginal and Torres Strait Islander Health Performance Framework provides detailed information on life expectancy and deaths among Indigenous Australians, including infant and child mortality, leading causes of death, avoidable and preventable deaths, and changes over time.

Burden of disease

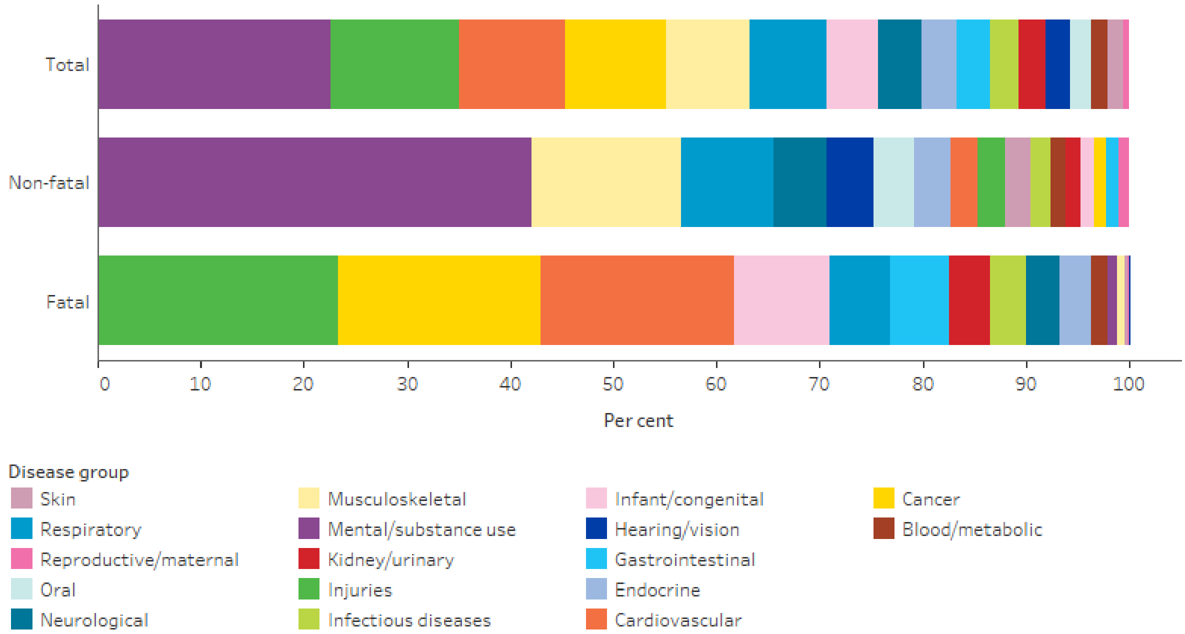
Conditions that generally cause illness and disability, rather than death, can have a major impact on the health of individuals and communities – for example, depression, arthritis, hearing loss, and asthma. One way of combining the fatal and non-fatal effects of diseases in a comparable way is through burden of disease analysis. This measures the impact of different diseases and injuries in terms of the number of years of healthy life lost due to illness or premature death.

The Australian Burden of Disease Study: impact and causes of illness and death in Aboriginal and Torres Strait Islander people 2018 found that, in 2018, Indigenous Australians as a whole lost almost 240,000 years of healthy life due to ill-health and premature death – equivalent to 289 years for every 1,000 people. The leading 5 disease groups contributing to burden in Indigenous Australians in 2018 were:

- mental & substance use disorders (such as anxiety, depression, and drug use)
- injuries (such as falls, road traffic injuries, and suicide)
- cardiovascular diseases (such as coronary heart disease and rheumatic heart disease)
- cancer and other neoplasms (such as lung cancer and breast cancer) and
- musculoskeletal conditions (such as back pain & problems and osteoarthritis).

Respiratory diseases also contributed substantially to non-fatal burden, and infant & congenital conditions to fatal burden (Figure 1).

Figure 1: Disease group contribution to total, fatal and non-fatal burden among Indigenous Australians, 2018



Source: AIHW 2022.
http://www.aihw.gov.au/

Coronary heart disease (see Glossary) was the leading individual disease contributing to burden among Indigenous Australians in 2018, responsible for 5.8% of total burden. The burden due to coronary heart disease has fallen substantially since 2003, driven by a decrease in fatal burden. Considerable effort has been made to improve cardiac care for Indigenous Australians in recent years through the Better Cardiac Care measures for Aboriginal and Torres Strait Islander people.

Comparison of burden of disease results for Indigenous and non-Indigenous Australians shows that, overall, Indigenous Australians experience burden at 2.3 times the rate of non-Indigenous Australians, but that the absolute gap narrowed between 2003 and 2018.

Social and emotional wellbeing

Social and emotional wellbeing is the foundation of physical and mental health for Indigenous Australians. It is a holistic concept that encompasses the importance of connection to land, culture, spirituality and ancestry, and how these affect the wellbeing of the individual and the community (Gee et al. 2014).

Indigenous Australians’ experience of social and emotional wellbeing varies across different cultural groups as well as across individuals. The concept of social and emotional wellbeing also recognises that a person’s wellbeing is influenced by the social determinants of health, engendered through the inequity of government policies, institutional racism, the effects of colonisation and other past events. See Determinants of health for Indigenous Australians for more information.

Social and emotional wellbeing is not the same as mental health and mental illness, but they can interact and influence each other (PM&C 2017). The *National Strategic Framework for Aboriginal and Torres Strait Islander Peoples’ Mental Health and Social and Emotional Wellbeing 2017–2023* recognises this distinction and proposes a model of social and emotional wellbeing with 7 overlapping domains (Gee et al. 2014; PM&C 2017).

For many Indigenous Australians, good mental health is indicated by feeling a sense of belonging, having strong cultural identity, maintaining positive interpersonal relationships, and feeling that life has purpose and value (Dudgeon et al. 2014; Dudgeon & Walker 2015). Conversely, poor mental health can be affected by major stressors such as removal from family, incarceration, death of a close friend or family member, discrimination and unemployment, as well as stressors from everyday life (Gee et al. 2014; PM&C 2017).

In 2018–19, based on self-reported survey responses, an estimated 24% of Indigenous Australians reported having a diagnosed mental health or behavioural condition and 3 in 10 (31%) Indigenous adults reported ‘high or very high’ levels of psychological distress (ABS 2019).

Furthermore, disruptions to family and kinship connections, including inter-generational trauma, have been linked to increased suicide and suicidal behaviour in Indigenous communities (Dudgeon et al. 2021).

For further information on the Framework and social and emotional wellbeing, see the Indigenous Mental Health & Suicide Prevention Clearinghouse.

Suicide and self-harm

Reducing deaths by suicide and suicidal behaviour among Indigenous Australians is an issue of major concern for many Indigenous communities and a public health priority for all Australian governments. Data from 2016–2020 show that the rate for suicide of

Indigenous Australians is almost twice the rate of non-Indigenous Australians, with the differences being greater for people aged under 45 (AIHW 2021a). Suicide was the fifth leading cause of death among Indigenous Australians in 2020, accounting for 5.5% of all deaths, and the 14th leading cause of death for all Australians (1.9% of all deaths). It was also the leading cause of death for Indigenous children aged 5–17 (ABS 2021a).

Suicide and self-harm behaviours arise from a complex web of personal, social and historical factors (Dudgeon et al. 2017), but they can be prevented. More about suicide prevention among Aboriginal and Torres Strait Islander people can be found on the Indigenous Mental Health and Suicide Prevention Clearinghouse.

Hearing health, eye health and oral health

Oral and hearing health problems are two issues that particularly affect Indigenous children, especially those living in remote areas.

Otitis media (inflammation and/or infection of the middle ear) is the main condition contributing towards hearing loss in Indigenous children. Experiencing hearing loss in childhood can affect speech and language development, and may lead to behavioural problems, early school leaving, limited employment options and increased contact with the criminal justice system (Burns & Thomson 2013).

Indigenous children are more likely than non-Indigenous children to experience tooth decay and to be hospitalised for dental problems (AIHW 2020). Several factors contribute to the poorer oral health of Indigenous children, including social disadvantage and lack of access to appropriate diet and dental services.

Specific programs such as the Northern Territory Remote Aboriginal Investment Oral Health Program, the Northern Territory hearing health outreach program, and the Queensland Deadly Ears program aim to diagnose and treat these problems and reduce their impact on the Indigenous community.

Vision loss has a profound impact on a person's quality of life and ability to perform everyday activities, for example, by limiting opportunities for physical mobility, work, education and social engagement (Razavi et al. 2018). Preventable vision problems, such as trachoma, diabetic retinopathy and cataracts (see Glossary), affect Indigenous Australians aged 40 and over at much higher rates than non-Indigenous Australians of the same age. The Indigenous eye health measures annual report provides an evidence base for monitoring changes in Indigenous eye health, identifying inequalities and highlighting potential gaps in service provision.

It's not the same for everyone everywhere

On average, Indigenous Australians living in remote areas having higher rates of disease burden and lower life expectancy compared with those in non-remote areas. Key contributors to this include differences in educational and employment opportunities, in access to health services, in housing circumstances, and in other factors that support healthy behaviours (such as the availability and cost of fresh fruit and vegetables). But areas of relative advantage and disadvantage also exist within these regions. Local areas and communities may experience different issues and outcomes to others and have different needs and priorities. Looking at variations across smaller geographic areas can help to highlight specific areas of need, so that programs and services can be directed where they will be of most benefit.

Local insights for local needs

The Regional Insights for Indigenous Communities (RIFIC) website brings together a range of regional statistics about the health and wellbeing of Aboriginal and Torres Strait Islander people and communities. It aims to help communities set priorities and participate in joint planning with governments and service providers.

The Stolen Generations and their families are a particular group of Aboriginal and Torres Strait Islander people who experience greater disadvantage than other Indigenous Australians. Analysis of data from the 2014–15 National Aboriginal and Torres Strait Islander Social Survey showed that people who reported being removed from family were more likely than those who did not to have been imprisoned or arrested in the previous 5 years, to have low income, to have poor self-assessed health, to have poor mental health, and to have experienced homelessness in the previous 10 years. This disadvantage persisted through the generations, with adult descendants and co-resident children also experiencing poorer health and wellbeing outcomes compared to other Indigenous Australians (AIHW 2019a, 2019b).

The Stolen Generations

Between approximately 1910 and 1972, thousands of Indigenous children were forcibly removed from their families and communities as a part of government policies across Australian jurisdictions. The *Bringing them Home* report (HREOC 1997) estimated that this practice affected between 1 in 10 and 1 in 3 Indigenous children during that period.

In 2018–19, there were an estimated 33,600 Stolen Generations survivors across Australia. Around 1 in 3 Indigenous Australian adults were estimated to be descendants of the Stolen Generations (AIHW 2021a).

What about the burden due to COVID-19?

The analyses done for the most recent burden of disease study produced estimates for the year 2018, and therefore did not include COVID-19.

For more information on the impact of COVID-19 on Aboriginal and Torres Strait Islander people, see Chapter 1 'The impact of a new disease: COVID-19 from 2020, 2021 and into 2022' and Chapter 3 'Changes in Aboriginal and Torres Strait Islander people's use of health services in the early part of the COVID-19 pandemic' in Australia's health 2022: data insights.

Where do I go for more information?

For more information on Indigenous health and wellbeing, see:

- Aboriginal and Torres Strait Islander Health Performance Framework
- Australian Burden of Disease Study: impact and causes of illness and death in Aboriginal and Torres Strait Islander people 2018
- Indigenous Mental Health & Suicide Prevention Clearinghouse
- Department of Health Aboriginal and Torres Strait Islander health

Visit Indigenous Australians for more on this topic.

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Profile of Indigenous Australians

Find the most recent version of this information at:
https://www.aihw.gov.au/reports/australias-health/profile-of-indigenous-australians

Aboriginal and Torres Strait Islander people are the Indigenous peoples of Australia. They are not one group, but rather comprise hundreds of groups that have their own distinct set of languages, histories and cultural traditions (AIHW 2015). The health and welfare of Indigenous Australians living in the big cities are different to those living in the Torres Strait, which are different again to those living on the outskirts of Alice Springs or those living in remote communities.

This page provides some demographic information on the Indigenous population, as well as information on languages and cultures. Some information is also included on Closing the Gap.

Indigenous identification in data collections

The Australian Government defines Indigenous Australians as people who: are of Aboriginal or Torres Strait Islander descent; identify as being of Aboriginal or Torres Strait Islander origin; and are accepted as such in the communities in which they live or have lived.

In most data collections, a person is considered to be Indigenous if they identified themselves, or were identified by another household member, as being of Aboriginal or Torres Strait Islander origin. For a few data collections, information on acceptance of a person as being Indigenous by an Indigenous community may also be required.

Population size and location

In 2016, an estimated 798,400 Aboriginal and Torres Strait Islander people were in Australia, representing 3.3% of the total Australian population (ABS 2019b).

Among the Indigenous Australian population in 2016:

- 91% identified as being of Aboriginal origin (an estimated 727,500 people).
- 4.8% identified as being of Torres Strait Islander origin (an estimated 38,700 people).
- 4.0% were of both Aboriginal and Torres Strait Islander origin (an estimated 32,200 people) (ABS 2018a).

Based on the Australian Bureau of Statistics (ABS) projections, the number of Indigenous Australians in 2022 was estimated to be around 896,300. The Indigenous Australian population is projected to reach about 1.1 million people by 2031 (ABS 2019c).

About Indigenous populations estimates

The ABS produces Estimated Resident Populations (ERPs) for Indigenous Australians every 5 years (the Census years), with the latest available relating to 2016. The ABS also produces 'backcast estimates' for years before the Census year and 'projections' for future years, based on the latest Census year estimates along with assumptions about births, deaths and migration (see Estimates and Projections, Aboriginal and Torres Strait Islander Australians for details).

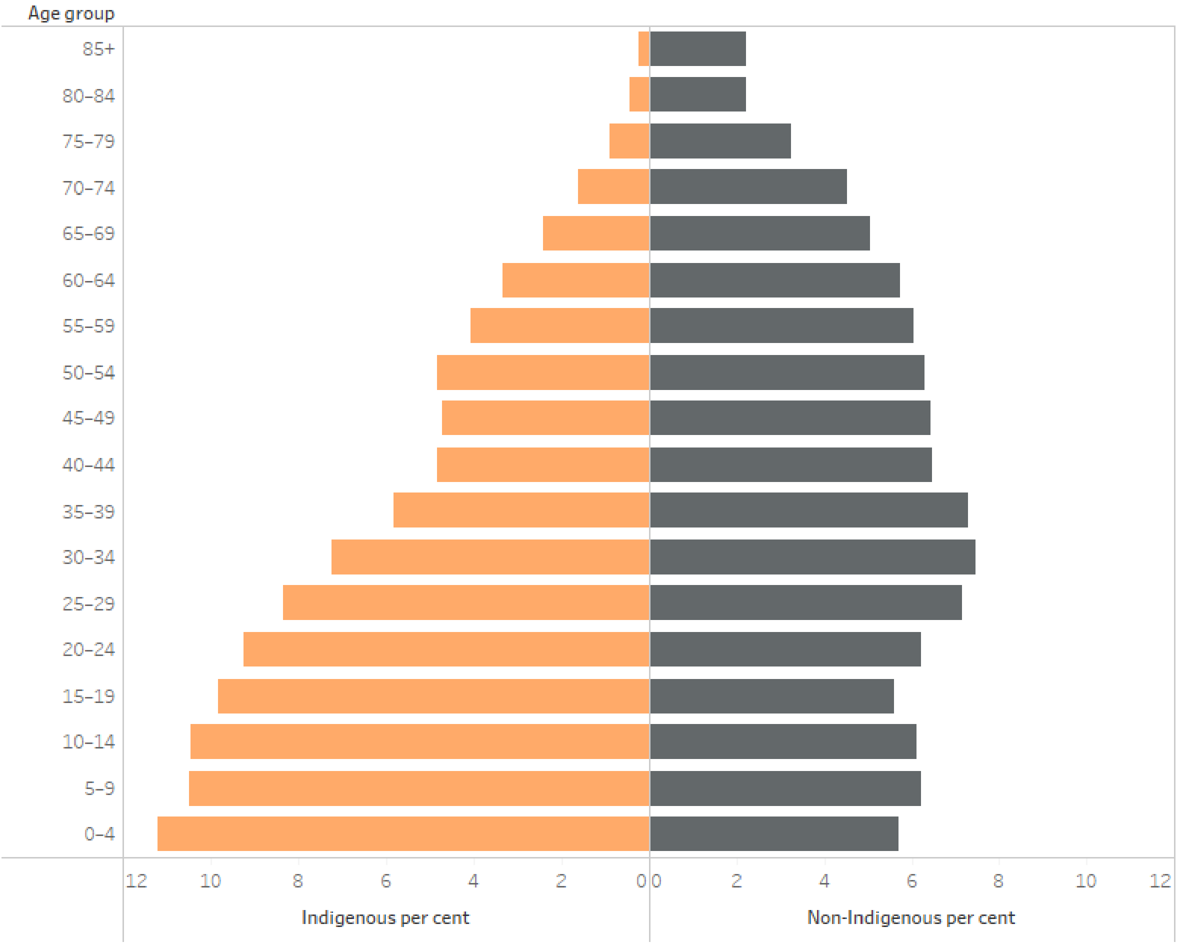
This page uses ERP data for the 2016 Indigenous population, and ABS 2016 Census-based projections (Series B) for 2022 of the Indigenous population where available. Note that these projections, first published by the ABS in 2019, do not account for any impacts of the COVID-19 pandemic.

Age distribution

The Indigenous population has a relatively young age structure. In 2016, the median age was 23.0 years, compared with 37.8 for non-Indigenous Australians (ABS 2018a).

In 2022, a projected 32% of Indigenous Australians are aged under 15 (compared with 18% of non-Indigenous Australians), and only 5.6% of Indigenous Australians are aged 65 and over (compared with 17% of non-Indigenous Australians) (Figure 1).

Figure 1: Australian population distribution projection, by Indigenous status and age group, 2022



Notes

1. Data for Indigenous population are 2016 Census-based projections (series B) for 30 June 2022.
2. Non-Indigenous estimates were derived by subtracting Indigenous population projections for 2022 from the ERP for the total population at 30 June 2021.

Source: ABS 2019c, 2022a.

http://www.aihw.gov.au

Geographic distribution

Indigenous Australians live in all parts of the nation, from cities to remote tropical and desert areas. Indigenous Australians are more likely to live in urban and regional areas than remote areas, though the proportion of the total population who are Indigenous is generally higher in more remote areas.

Based on projections for 2022, among Indigenous Australians:

- 38% (344,800) live in *Major cities*.
- 44% (395,900) live in *Inner and outer regional* areas.
- 17% (155,600) live in *Remote and very remote* areas combined (Figure 2, ABS 2019b).

The proportion of the total population who were Indigenous increased with remoteness, from 1.09% in *Major cities*, to 32% in *Remote and very remote* areas.

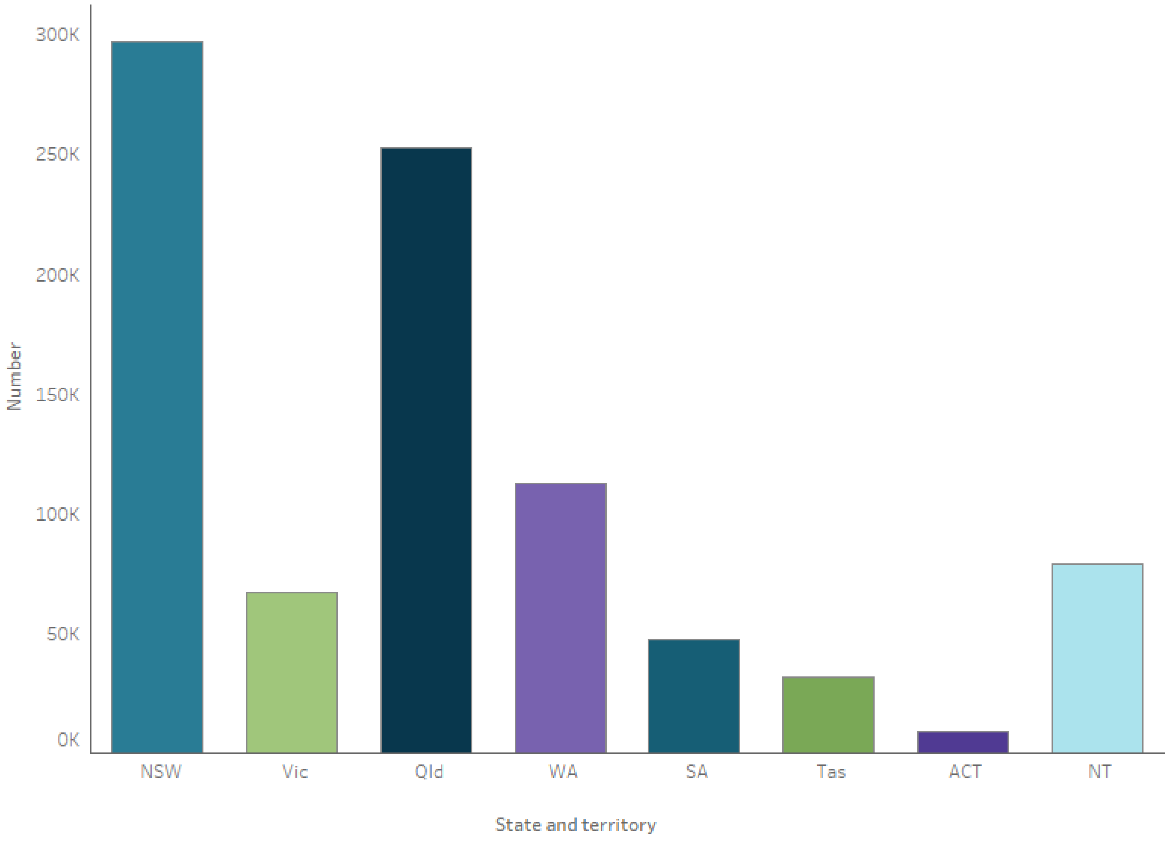
In 2022, an estimated 33% of Indigenous Australians (297,400 people) live in New South Wales and 28% (252,700 people) in Queensland (Figure 2).

The Northern Territory has the highest proportion of Indigenous residents among its population – an estimated 32% (79,000 people) in 2022 (Figure 2).

Figure 2: Estimated Indigenous population by geography, 2022

Select indicator
● Number of Indigenous Australians
○ Proportion that is Indigenous

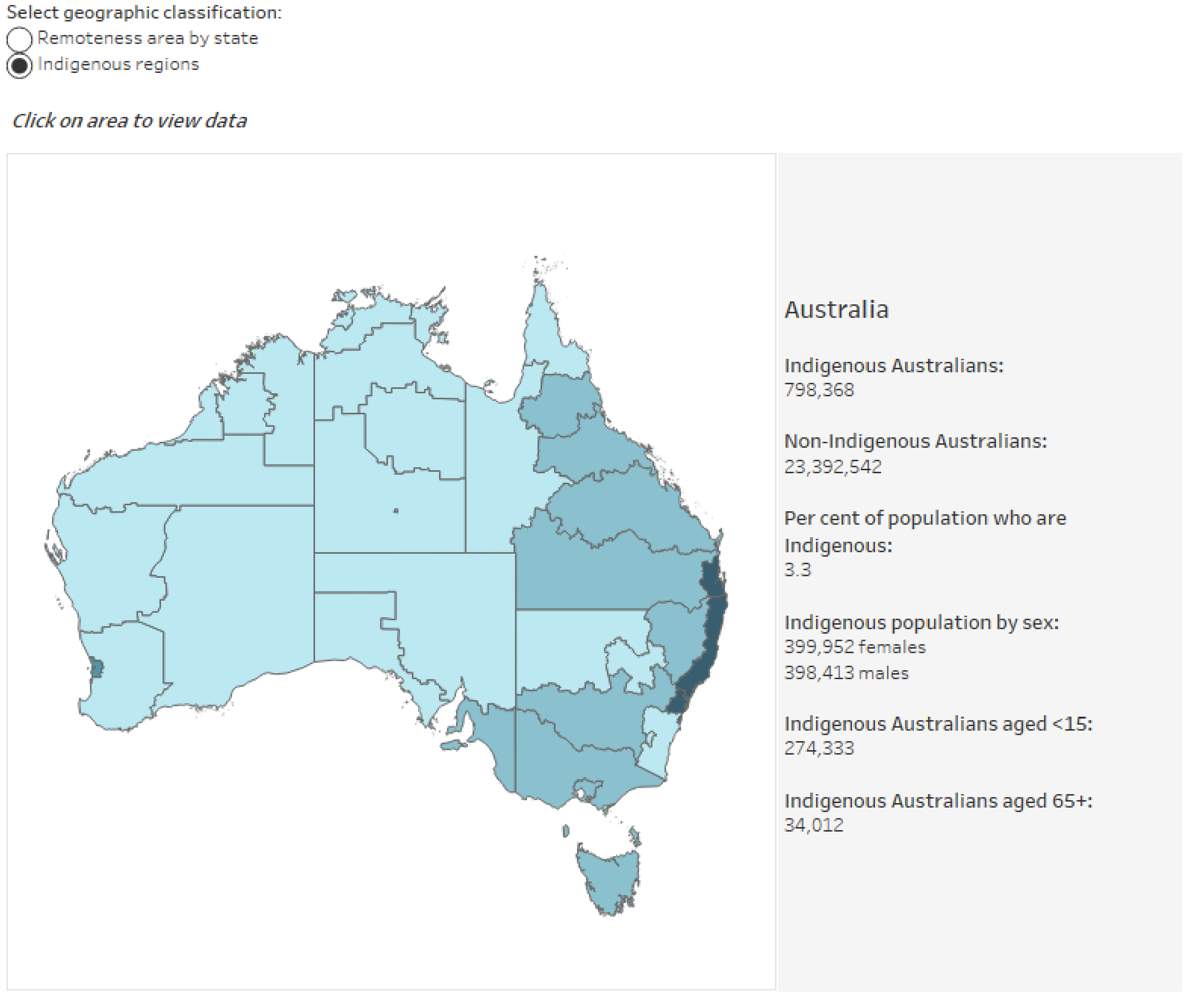
Select geography
● State and territory
○ Remoteness area



Notes
1. Number of Indigenous Australians is based on ABS 2016 Census-based projections (series B) for 30 June 2022.
2. Proportion that is Indigenous calculated using 2021 ERP for the total population at 30 June 2021 as the denominator.
Source: ABS 2019c, 2022a, 2022b.
http://www.aihw.gov.au/

Looking at smaller geographies, the majority of Indigenous Australians live on (or near to) the East coast of Australia (Figure 3).

Figure 3: Geographic distribution of the Indigenous population, by selected small geographies, 30 June 2016



Select geographic classification:
○ Remoteness area by state
● Indigenous regions

Click on area to view data

Australia

Indigenous Australians:
798,368

Non-Indigenous Australians:
23,392,542

Per cent of population who are Indigenous:
3.3

Indigenous population by sex:
399,952 females
398,413 males

Indigenous Australians aged <15:
274,333

Indigenous Australians aged 65+:
34,012

Note: Darker colours indicate larger numbers of Indigenous Australians.
Source: AIHW analysis of ABS 2018.
http://www.aihw.gov.au/

Language and culture

Indigenous communities pass on knowledge, tradition, ceremony and culture from one generation to the next through language, performance, protection of significant sites, storytelling and the teachings of Elders. Cultural factors such as connection to community, land and spirituality are important for the social and emotional wellbeing of Indigenous Australians (Bourke et al. 2018).

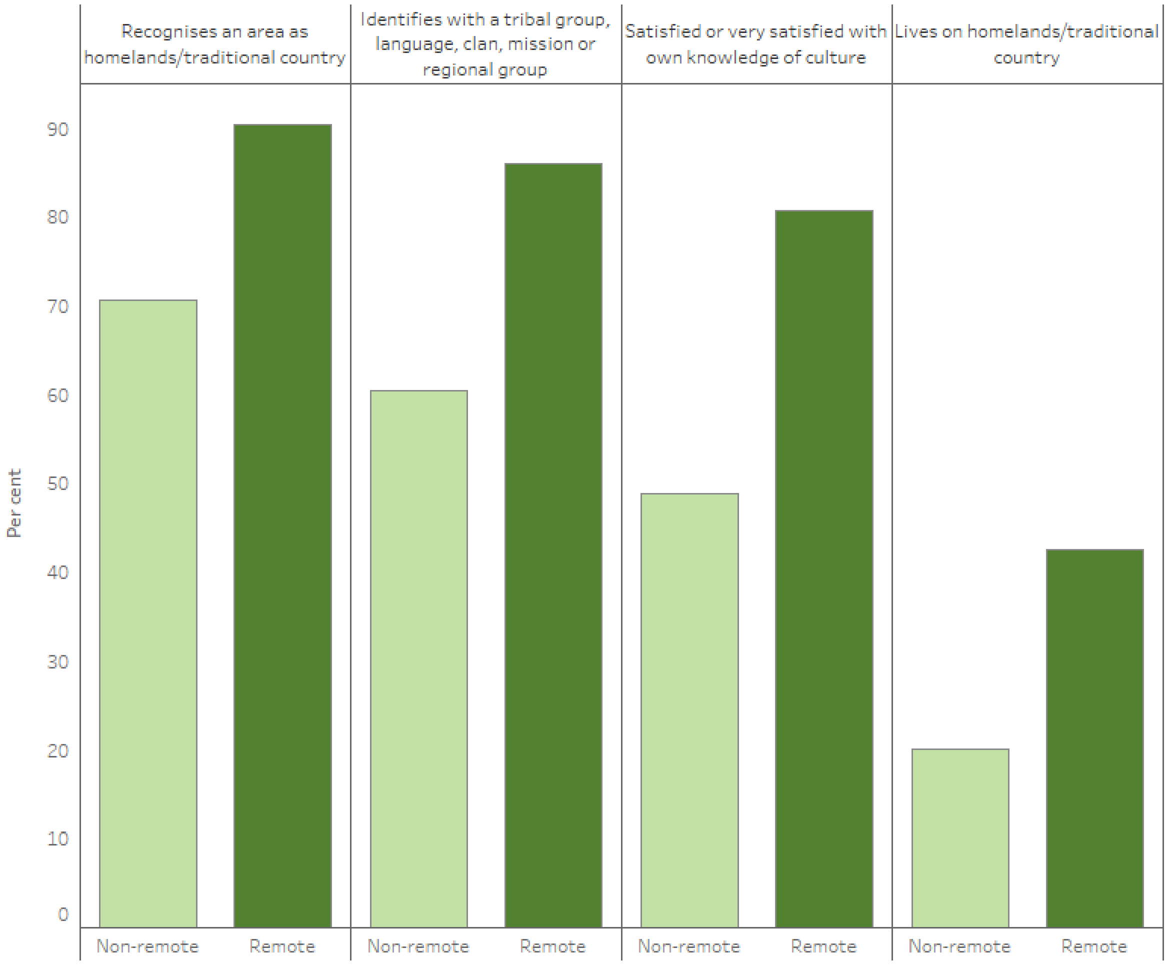
In the 2016 Census of Population and Housing, 1 in 10 (9.8%) Indigenous Australians reported that they spoke an Indigenous language at home, with over 150 different Indigenous languages being spoken (ABS 2019a). The most common Indigenous language spoken at home was Kriol (11%), followed by Yumplatok (Torres Strait Creole) (9.4%) and Djambarrpuyngu (6.7%) (ABS 2019a).

Data from the 2018–19 National Aboriginal and Torres Strait Islander Health Survey show that Indigenous Australians have strong connections to their family, community and culture.

Figure 4 shows that in 2018–19, among Indigenous Australians aged 15 and over:

- 74% (357,400 people) recognised an area as a homeland/traditional country – this was 91% in remote areas compared with 71% in non-remote areas.
- 66% (314,200 people) identified with a tribal group, language, clan, mission or regional group – this was 86% in remote areas compared with 61% in non-remote areas.
- 24% (130,500 people) lived on their homeland – this was 43% in remote areas compared with 20% in non-remote areas (ABS 2019c).

Figure 4: Selected measures of cultural connectedness among Indigenous Australians aged 15 and over, by remoteness, 2018–19



Note: Remoteness classified as per Australian Statistical Geography Standard 2016. 'Non-remote' includes *Major cities*, *Inner regional* areas and *Outer regional* areas. 'Remote' includes *Remote* areas and *Very remote* areas.
Source: ABS 2019b.
http://www.aihw.gov.au/

Where do I go for more information?

For more information on Indigenous Australians, see:

- Indigenous Health Performance Framework
- Australian Bureau of Statistics Aboriginal and Torres Strait Islander Peoples
- National Agreement on Closing the Gap

Visit Indigenous Australians for more on this topic.

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Glossary

Aboriginal and Torres Strait Islander health worker: An Aboriginal and/or Torres Strait Islander with a minimum qualification in the field of primary health care work or clinical practice. This includes Aboriginal and Torres Strait Islander health practitioners who are one speciality stream of health worker. Health workers liaise with patients, clients and visitors to hospitals and health clinics, and work as a team member to arrange, coordinate and deliver health care in community health clinics.

Aboriginal Community Controlled Health Organisation (ACCHO): An organisation operated by the local **Indigenous** community, and controlled through a locally elected board, to deliver comprehensive, holistic and culturally appropriate health care to the community. ACCHOS vary in size and composition, from large organisations with multiple medical and other practitioners who provide a range of services, through to small organisations that rely on nurses and/or Aboriginal health workers to provide most services.

Aboriginal or Torres Strait Islander: A person who identifies themselves as being of Aboriginal or Torres Strait Islander origin. See also **Indigenous**.

abstainer (alcohol): A person who has not consumed alcohol in the previous 12 months.

Accessibility/Remoteness Index of Australia: Classification of the level of accessibility to goods and services (such as to general practitioners, hospitals and specialist care) based on proximity to these services (measured by road distance).

acquired immune deficiency syndrome (AIDS): A syndrome caused by the human immunodeficiency virus (HIV). If HIV is untreated, the body's immune system is damaged and is unable to fight infections and cancer.

active travel: The process of being physically active to make a journey. Common forms of active travel are walking and cycling.

acute: A term used to describe something that comes on sharply and is often brief, intense and severe.

acute care: Care provided to patients admitted to hospital that is intended to cure illness, alleviate symptoms of illness or manage childbirth.

acute coronary event: An umbrella term that is used to describe sudden and life-threatening conditions that result in reduced blood flow to the heart. The term includes **acute myocardial infarction** (sometimes referred to as heart attack), unstable angina, and deaths due to acute coronary heart disease.

acute myocardial infarction: Life-threatening emergency that occurs when a vessel supplying blood to the heart muscle is suddenly blocked completely by a blood clot.

adaptation to climate change: Adjusting behaviours and adapting our infrastructure to deal with current and future climate change (IPCC 2022b).

additional diagnosis: Conditions or complaints, either coexisting with the principal diagnosis or arising during the episode of admitted patient care (hospitalisation), episode of residential care or attendance at a health-care establishment that require the provision of care. Multiple diagnoses may be recorded.

adequate consumption of fruit and vegetables: A balanced diet, including sufficient fruit and vegetables, reduces a person's risk of developing conditions such as heart disease and **diabetes**. The National Health and Medical Research Council's 2013 Australian Dietary Guidelines recommend a minimum number of serves of fruit and vegetables each day, depending on a person's age and sex, to ensure good nutrition and health.

ADF personnel: Serving and ex-serving members of the Australian Defence Force; civilian personnel employed by the Department of Defence are excluded.

admission: An admission to hospital. Within the relevant topic summaries, the term **hospitalisation** is used to describe an episode of hospital care that starts with the formal admission process and ends with the formal separation process. The number of separations has been taken as the number of admissions; hence, the admission rate is the same as the separation rate.

admitted care (mental health): A specialised mental health service that provides overnight care in a psychiatric hospital or a specialised mental health unit in an acute hospital. Psychiatric hospitals and specialised mental health units in acute hospitals are establishments devoted primarily to the treatment and care of admitted patients with psychiatric, mental or behavioural disorders. These services are staffed by health professionals with specialist mental health qualifications or training and have as their principal function the treatment and care of patients affected by mental disorder/illness.

admitted patient: A patient who undergoes a hospital's formal admission process.

adult prison: A place administered and operated by a justice department, where individuals are detained while under the supervision of the relevant justice department on a pre-sentence or sentenced detention episode.

affective disorders: A set of psychiatric disorders, also called mood disorders. The main types of affective disorders are **depression**, bipolar disorder, and **anxiety disorder**. Symptoms vary by individual and can range from mild to severe.

age-specific rate: Rate for a specific age group. The numerator and denominator relate to the same age group.

age-standardisation: Method to remove the influence of age when comparing rates between population groups with different **age structures**. This is used as the rate of many diseases vary strongly (usually increasing) with age, and so too can service use, for example, hospitalisations – a population group with an older **age structure** will likely have more hospitalisations. The **age structures** of different populations are converted to the same ‘standard’ structure, and then the relevant rates, such as hospitalisations, that would have occurred within that structure are calculated and compared.

age-standardised rates: are **incidence**, or **prevalence** rates that enable comparisons to be made between populations that have different age structures. The age structures of the different populations are converted to the same 'standard' structure, and then the rates that would have occurred with that structure are calculated and compared. Rates can be expressed in many ways, examples, per 100,000 per population years, per 100,000 population and per 1,000 population.

age structure: The relative number and percentage of people in each age group in a population.

air pollutants: Pollutants that include ozone (O3), nitrogen dioxide (NO2), particulate matter (PM10 or 2.5), carbon monoxide (CO), sulphur dioxide (SO2) and biological allergens.

alcohol-induced deaths: Deaths that can be directly attributable to alcohol use, as determined by toxicology and pathology reports.

alcohol consumption: The average annual consumption of pure alcohol in litres, per person aged 15 and over.

allergic rhinitis: A bodily response triggered by an allergic reaction. The symptoms may include a runny or blocked nose and/or sneezing and watery eyes. Also known as ‘hay fever’.

allied health: A range of services provided by university qualified health practitioners with specialised expertise in preventing, diagnosing and treating a range of conditions and illnesses. The practitioners have autonomy of practice, a defined scope of practice, a regulatory mechanism and a national organisation with clearly defined entrance criteria. Examples include psychologists, optometrists and physiotherapists.

allied health professional: A health professional who is not a doctor, nurse, or dentist. Allied health professionals include (but are not limited to) Aboriginal and Torres Strait Islander health practitioners, chiropractors, occupational therapists, optometrists, osteopaths, pharmacists, physiotherapists, podiatrists, psychologists, sonographers, and speech pathologists.

Alzheimer’s disease: A degenerative brain disease caused by nerve cell death resulting in shrinkage of the brain. A form of **dementia.**

ambulatory care: A specialised mental health service that provides services to people who are not currently admitted to a mental health admitted or residential service. Services are delivered by health professionals with specialist mental health qualifications or training. Ambulatory mental health services include:

- community-based crisis assessment and treatment teams;
- day programs;
- mental health outpatient clinics provided by either hospital or community-based services;
- child and adolescent outpatient and community teams;
- social and living skills programs;
- psychogeriatric assessment services;
- hospital-based consultation-liaison and in-reach services to admitted patients in non-psychiatric and hospital emergency settings;
- same day separations;
- home based treatment services; and
- hospital based outreach services.

anaemia: A condition in which the body lacks healthy red blood cells that carry oxygen to the body’s tissues.

angina: Temporary chest pain or discomfort when the heart's own blood supply is inadequate to meet extra needs, as in exercise.

antenatal: The period covering conception up to the time of birth. Synonymous with prenatal.

antenatal care: A planned visit between a pregnant woman and a midwife or doctor to assess and improve the wellbeing of the mother and baby throughout pregnancy. It does not include visits where the sole purpose is to confirm the pregnancy. Also known as an antenatal visit.

anxiety disorders: A group of mental disorders marked by excessive feelings of apprehension, worry, nervousness and stress. Includes generalised anxiety disorder, obsessive-compulsive disorder, panic disorder, post-traumatic stress disorder and various phobias.

apparent consumption of alcohol: Provides estimates of apparent consumption of alcohol based on availability of alcoholic beverages in Australia. It contains data on the quantity of pure alcohol available for consumption from beer, wine, spirits, ready to drink (pre-mixed) beverages and cider, plus estimates of the total volume of beer and wine available for consumption. Apparent consumption measures the amount of alcohol available for consumption (based on excise, import and sales data), but does not measure actual consumption as it does not account for factors such as waste or storage.

Apgar score: Numerical score used to indicate the baby's condition at 1 minute and at 5 minutes after birth. Between 0 and 2 points are given for each of 5 characteristics: heart rate, breathing, colour, muscle tone and reflex irritability. The total score is between 0 and 10.

arthritis: A group of disorders for which there is **inflammation** of the joints – which can then become stiff, painful, swollen or deformed. The two main types of arthritis are **osteoarthritis** and **rheumatoid arthritis**.

artificial intelligence: The simulation of human intelligence processes by machines, especially computer systems. These processes include learning (the acquisition of information and rules for using the information), reasoning (using rules to reach approximate or definite conclusions) and self-correction.

associated cause(s) of death: All causes listed on the Medical Certificate of Cause of Death, other than the **underlying cause of death.** They include the immediate cause, any intervening causes, and conditions which contributed to the death but were not related to the disease or condition causing the death. See also **cause of death.**

asthma: A common, chronic inflammatory disease of the air passages that presents as episodes of wheezing, breathlessness and chest tightness due to widespread narrowing of the airways and obstruction of airflow.

asthma–COPD overlap: A condition where adults have features of both asthma and **chronic obstructive pulmonary disease** (**COPD**).

at risk of homelessness: A person who is at risk of losing their accommodation or are experiencing one or more factors or triggers that can contribute to homelessness. Risk factors include financial or housing affordability stress, inadequate or inappropriate dwelling conditions, previous accommodation ended, child abuse, family, sexual and domestic violence, and relationship or family breakdown.

attributable burden: The amount of burden that could be reduced if exposure to the risk factor had been avoided.

avoidable burden: The reduction in future burden that would occur if current and/or future exposure to a particular risk factor were avoided. Compare with **attributable burden**.

avoidable deaths: See **potentially avoidable deaths**.

Australian Defence Force personnel: See **ADF personnel**

Australian population: For these topic summaries is the estimated resident population, the official measure of Australia's population based on the concept of usual residence. It refers to all people, regardless of nationality or citizenship, who usually live in Australia, except foreign diplomatic personnel and their families. It includes usual residents who are overseas for less than 12 months. It excludes overseas visitors who are in Australia for less than 12 months (see 'overseas migration' definition below) (Australian Bureau of Statistics, National, state and territory population methodology, 2021).

Australian Standard Geographical Classification (**ASGC**): Common framework defined by the Australian Bureau of Statistics for collecting and disseminating geographically classified statistics. The framework was implemented in 1984 and its final release was in 2011. It has been replaced by the **Australian Statistical Geography Standard** (**ASGS**).

Australian Statistical Geography Standard (**ASGS**): Common framework defined by the Australian Bureau of Statistics for collecting and disseminating geographically classified statistics. It replaced the **Australian Standard Geographical Classification** (**ASGC**) in July 2011.

back problems: A range of conditions related to the bones, joints, connective tissue, muscles and nerves of the back. Back problems are a substantial cause of disability and lost productivity.

binge drinking: The consumption of an excessive amount of alcohol in a short period of time.

birthweight: The first weight of the baby (stillborn or liveborn) obtained after birth (usually measured to the nearest 5 grams and obtained within 1 hour of birth).

blood cholesterol: Fatty substance produced by the liver and carried by the blood to supply the rest of the body. Its natural function is to supply material for cell walls and for steroid hormones, but if levels in the blood become too high this can lead to atherosclerosis (build-up of fatty deposits in the blood vessels) and heart disease.

blood pressure: The force exerted by the blood on the walls of the arteries as it is pumped around the body by the heart. It is written, for example, as 134/70 mmHg, where the upper number is the systolic pressure (the maximum force against the arteries as the heart muscle contracts to pump the blood out) and the lower number is the diastolic pressure (the minimum force against the arteries as the heart relaxes and fills again with blood). Levels of blood pressure can vary greatly from person to person and from moment to moment in the same person. See also **high blood pressure/hypertension**.

bodily pain: an indication of the severity of any bodily pain that the respondent had experienced (from any and all causes) during the last 4 weeks.

body mass index (**BMI**): The most commonly used method of assessing whether a person is normal weight, underweight, overweight or obese (see **obesity**). It is calculated by dividing the person's weight (in kilograms) by their height (in metres) squared – that is, kg ÷ m2. For both men and women, underweight is a BMI below 18.5, acceptable weight is from 18.5 to less than 25, overweight but not obese is from 25 to less than 30, and obese is 30 and over. Sometimes overweight and obese are combined – defined as a BMI of 25 and over. Height and body composition are continually changing for children and adolescents. A separate classification of overweight and obesity based on age and sex is used for children and adolescents.

bronchitis: Inflammation of the main air passages (bronchi). May be **acute** or **chronic**.

built environment: The built environment refers to the human-made surroundings where people live, work and recreate. It includes buildings and parks as well as supporting infrastructure such as transport, water and energy networks (Coleman 2017).

bulk-billing: The process where a medical practitioner or other health practitioner sends the bill for eligible services directly to **Medicare**, so the patient pays nothing. Also known as direct billing.

burden of disease (and injury): The quantified impact of a disease or injury on a population, using the **disability-adjusted life years** (**DALYs**) measure. Referred to as the 'burden' of the disease or injury in this report.

caesarean section: A method of birth in which a surgical incision is made into the mother's uterus via the abdomen to directly remove the baby.

campylobacteriosis: A disease caused by Campylobacter bacteria. It is a one of the most common causes of gastroenteritis in Australia and is a notifiable disease.

cancer (malignant neoplasm): Cancer, also called malignancy, is a term for diseases in which abnormal cells divide without control and can invade nearby tissues. Cancer cells can also spread to other parts of the body through the blood and lymph systems.

cancer incidence: The number or rate of new cases of cancer diagnosed in a population during a given time period.

cancer of secondary site: A cancer that has metastasised (spread) from the place where it first started (primary site) to another part of the body (secondary site). If a secondary cancer is diagnosed but the practitioner is unsure of where it began, the cancer is referred to one of a secondary site or unknown primary cancer

capital expenditure: Spending on large-scale fixed assets (for example, new buildings and equipment) with a useful life extending over several years.

cardiomyopathy: A condition where there is direct and widespread damage to the heart muscle, weakening it. It can be due to various causes, such as viral infections and severe alcohol abuse. It can lead to an enlarged, thickened and dilated heart as well as heart failure.

cardiovascular disease/condition: Any disease of the cardiovascular system, namely the heart (cardio) or blood vessels (vascular). Includes **angina**, **heart**

attack, **stroke** and peripheral vascular disease. Also known as **circulatory disease**.

carer: Carer refers to people who provide any informal assistance (help or supervision) to people with disability or older people. In the Australian Bureau of Statistics (ABS) Survey of Disability, Ageing and Carers (SDAC) for an individual to be considered a carer, the assistance they provide must be ongoing, or likely to be ongoing, for at least 6 months. People who provide formal assistance (on a regular paid basis, usually associated with an organisation) are not considered to be a carer for the purpose of this report. In the ABS SDAC, a carer is either a ‘primary carer’ or an ‘other carer’.

caries: Bacterial disease that causes the demineralisation and decay of teeth and can involve inflammation of the central dental pulp.

cataract: a cloudy area in the lens of the eye that leads to a decrease in vision.

cause of death: The causes of death entered on the Medical Certificate of Cause of Death are all diseases, morbid conditions or injuries that either resulted in or contributed to death, and the circumstances of the accident or violence that produced any such injuries. Causes of death are commonly reported by the **underlying cause of death.** See also **associated cause(s) of death** and **multiple causes of death.**

cerebrovascular disease: Any disorder of the blood vessels supplying the brain or its covering membranes. A notable and major form of cerebrovascular disease is **stroke.**

cervical screening test (**CST**): Consists of a human papillomavirus (HPV) test with partial genotyping and, if the HPV test detects oncogenic HPV, liquid based cytology (LBC).

child: A person aged 0–14 unless otherwise stated.

chlamydia: The most common sexually transmissible infection in Australia, caused by Chlamydia trachomatis bacteria. It is treatable and may not cause symptoms; however, it can lead to serious illness if untreated. It is a notifiable disease.

cholesterol: See **blood cholesterol**.

chronic: Persistent and long-lasting.

chronic diseases/conditions: A diverse group of diseases/conditions, such as heart disease, cancer and arthritis, which tend to be long lasting and persistent in their symptoms or development. Although these features also apply to some **communicable diseases**, the term is usually confined to non-communicable diseases.

chronic kidney disease (**CKD**): Refers to all conditions of the kidney, lasting at least 3 months, where a person has had evidence of kidney damage and/or reduced kidney function, regardless of the specific cause.

chronic obstructive pulmonary disease (COPD): Serious, progressive and disabling long-term lung disease where damage to the lungs, usually because of both **emphysema** and chronic **bronchitis,** obstructs oxygen intake and causes increasing shortness of breath. By far the greatest cause is cigarette smoking.

chronic sinusitis: The inflammation of the lining of one or more sinuses (large air cavities inside the face bones). It occurs when normal draining of the sinuses is obstructed by swelling, excessive mucus or an abnormality in the structure of the sinuses.

circulatory disease: Alternative name for **cardiovascular disease**.

clinical domain: A component of the health system delivering health care to an identifiable patient population.

clinical quality registry: A mechanism for monitoring the quality (appropriateness and effectiveness) of health care, within specific clinical domains, by routinely collecting, analysing and reporting health-related information.

clinical trials: These are controlled investigations on patients and non-patients conducted with the purpose of testing various hypotheses, such as the use of new and existing drugs, treatments or behavioural therapies, to test their safety and effectiveness.

closed treatment episode: A period of contact between a client and a treatment provider, or team of providers. An episode is closed when treatment is completed, there has been no further contact between the client and the treatment provider for 3 months, or when treatment is ceased.

colorectal (bowel) cancer: This disease comprises cancer of the colon, cancer of the rectosigmoid junction and cancer of the rectum (ICD-10 codes C18–C20).

communicable disease: An **infectious disease** or illness that may be passed directly or indirectly from one person to another.

community-based aged care: Support services that assist older people to continue to live independently at home. This may include healthcare and nursing services, home modifications and assistance with daily activities. This report focuses on government-subsidised community-based aged care services.

community health services: Non-residential health services offered to patients/clients in an integrated and coordinated manner in a community setting, or the coordination of health services elsewhere in the community. Such services are provided by, or on behalf of, state and territory governments.

comorbidity: defined in relation to an index disease/condition, comorbidity describes any additional disease that is experienced by a person while they have the index disease. The index and comorbid disease/condition will change depending on the focus of the study. Compare with **multimorbidity**.

condition (**health condition**): A broad term that can be applied to any health problem, including symptoms, diseases and various risk factors (such as high blood cholesterol, and obesity). Often used synonymously with **disorder**.

conduct disorder: Repetitive and persistent behaviour to a degree that violates the basic rights of others, major societal norms or rules – in terms of aggression towards people or animals, destruction of property, deceitfulness or theft, and serious violation of rules.

conductive hearing loss: A deviation of hearing threshold from the normal range associated with reduced conduction of sound through the outer ear, tympanic membrane (eardrum) or middle ear, including the ossicles (middle ear bones).

confidence interval: A range determined by variability in data, within which there is a specified (usually 95%) chance that the true value of a calculated parameter lies.

confidence range: a range that indicates the uncertainty of an estimate from data analysis. A 95% **confidence interval** is a range of values that contain the true value with 95% confidence.

confirmed case of COVID-19: A COVID-19 infection confirmed by a laboratory.

congenital: A condition that is recognised at birth, or is believed to have been present since birth, including conditions inherited or caused by environmental factors.

constant prices: Dollar amounts for different years that are adjusted to reflect the prices in a chosen reference year. This allows spending over time to be compared on an equal dollar-for-dollar basis without the distorting effects of inflation. The comparison will reflect only the changes in the amount of goods and services purchased - changes in the 'buying power' - not the changes in prices of these goods and services caused by inflation. An alternative term is 'real expenditure'.

controlled high blood pressure: Normal blood pressure reading and taking blood pressure medication.

co-payment: The amount the patient pays towards the cost of a Pharmaceutical Benefits Scheme (PBS) or Repatriation Pharmaceutical Benefits Scheme (RPBS) subsidised medicine. Patients have different maximum co-payments based on their level of entitlement and safety net status. This does not take into account brand premiums or pharmacists applying the $1 discount. For under co-payment scripts the amount is based on the dispensed price for the quantity of medicine supplied, but does not account for any additional fees or discounts applied by pharmacies. See the PBS website for current and historical co-payment amounts.

core activity: Term used in discussions of disability that refers to the basic activities of daily living: self-care, mobility and communication.

core activity limitation: A limitation where someone needs help with – or is having difficulty in using aids and equipment for – self-care, mobility and/or communication. See also **disability**, **mild or moderate core activity limitation** and **severe or profound core activity limitation**.

coronary bypass: a surgical procedure to restore normal blood flow to the heart muscle by diverting the flow of blood around a section of a blocked artery in the heart.

coronary heart disease: A disease due to blockages in the heart's own (coronary) arteries, expressed as **angina** or a **heart attack.** Also known as **ischaemic heart disease.**

COVID-19 (Coronavirus disease 2019): an infectious disease caused by the SARS-CoV-2 virus.

COVID-19 related death: Any death that is linked to **COVID-19**. Includes deaths caused by **COVID-19** as well as deaths of people who died with **COVID-19** but where **COVID-19** was not necessarily the cause of death.

critical care: The specialised care of patients whose conditions are life-threatening and who require comprehensive care and constant monitoring, usually in intensive care units.

crude rate: A rate derived from the number of events recorded in a population during a specified time period, without adjustments for other factors such as age (see **age-standardisation**).

current daily smoker: A respondent who reported at the time of interview that they regularly smoked one or more cigarettes, cigars or pipes per day.

current partner: A person with whom the respondent currently (at the time of survey) lives with in a married or de facto relationship.

current prices: Expenditures reported for a particular year, unadjusted for inflation. Changes in current price expenditures reflect changes in both price and volume.

cytology: Cytology means 'study of cells' and, in the context of cervical screening, refers to cells from the cervix that are collected and examined for abnormalities.

daily smoker: reported smoking tobacco at least once a day (includes manufactured (packet) cigarettes, roll-your-own cigarettes, cigars or pipes). Excludes chewing tobacco, electronic cigarettes (and similar) and smoking of non-tobacco products.

DALY: See **disability-adjusted life year.**

data citizenship: The ability of people to engage with and use health data in a meaningful, informed, consented and empowered manner, and understand the ethics, governance and legal requirements for health data management.

data linkage/linked data: Bringing together (linking) information from two or more data sources believed to relate to the same entity, such as the same individual or the same institution. The resulting data set is called linked data. In this report, data linkage is used to bring together information from datasets that indicates a population of interest (such as people with dementia) with other datasets that include information on other characteristics or service usage.

deep vein thrombosis (DVT): Deep vein thrombosis (DVT) is a blood clot that forms in the veins of the leg. Complications include pulmonary embolism (PE), which can be fatal, phlebitis (inflammation) and leg ulcers.

data literacy: The ability of people to access, understand and apply information about data and data systems so as to make decisions that relate to their health and welfare.

dementia: A term used to describe a group of similar conditions characterised by the gradual impairment of brain function. It is commonly associated with memory loss, but can affect speech, cognition (thought), behaviour and mobility. An individual's personality may also change, and health and functional ability decline as the condition progresses.

dementia-specific medications: Prescription medications specifically used to treat the symptoms of dementia. There are 4 dementia-specific medications – Donepezil, Galantamine, Rivastigmine and Memantine – currently subsidised under the Pharmaceutical Benefits Scheme and Repatriation Pharmaceutical Benefits Scheme. These medications can be prescribed to patients with a confirmed diagnosis of **Alzheimer's disease** made by (or in consultation with) a specialist or consultant physician under specific clinical criteria. To continue treatment, patients must demonstrate a clinically meaningful response to the treatment. This may include improvements in the patients' quality of life, cognitive function and/ or behavioural symptoms.

Dental services: preventive, diagnostic and restorative dental services provided by registered dental professionals

deployment: Warlike or non-warlike service overseas by members assigned for duty with a United Nations mission or a similar force.

depression: A mood disorder with prolonged feelings of being sad, hopeless, low and inadequate, with a loss of interest or pleasure in activities and often with suicidal thoughts or self-blame.

depressive disorders: A group of mood disorders with prolonged feelings of being sad, hopeless, low and inadequate, with a loss of interest or pleasure in activities and often with suicidal thoughts or self-blame.

determinant: Any factor that can increase the chances of ill health (risk factors) or good health (protective factors) in a population or individual. By convention, services or other programs that aim to improve health are usually not included in this definition.

developmentally vulnerable: Children who scored in the lowest 10 per cent on one or more of the 5 domains of the Australian Early Development Census. The domains are physical health and wellbeing, **social competence**, **emotional maturity**, language and cognition skills, and communication skills and general knowledge.

diabetes (diabetes mellitus): A chronic condition in which the body cannot properly use its main energy source, the sugar glucose. This is due to a relative or absolute deficiency in insulin, a hormone that is produced by the pancreas and helps glucose enter the body's cells from the bloodstream and then be processed by them. Diabetes is marked by an abnormal build-up of glucose in the blood, and it can have serious short- and long-term effects. For the three main types of diabetes see **type 1 diabetes, type 2 diabetes and gestational diabetes.**

diabetic retinopathy: a complication of **diabetes**, caused by damage to the blood vessels in the tissue at the back of the eye. It can lead to vision loss and blindness.

diagnostic imaging: The production of diagnostic images; for example, computed tomography, magnetic resonance imaging, X-rays, ultrasound and nuclear medicine scans.

dialysis: An artificial method of removing waste substances from the blood and regulating levels of circulating chemicals – functions usually performed by the kidneys.

digital health: The electronic management of health information. This includes using technology to collect and share a person’s health information. It can be as simple as a person wearing a device to record how much exercise they do each day, to health care providers sharing clinical notes about an individual.

direct expenditure: Expenditure directly related to the treatment or provision of services for a specific disease. It does not include indirect expenditure, such as travel costs for patients, the social and economic burden on carers and family, and lost wages and productivity.

disability: An umbrella term for any or all of the following: an impairment of body structure or function, a limitation in activities, or a restriction in participation. Disability is a multidimensional concept and is considered as an interaction between health conditions and personal and environmental factors. See also **core activity limitation**, **mild or moderate core activity limitation** and **severe or profound core activity limitation**.

disability-adjusted life year (**DALY**): A year (1 year) of healthy life lost, either through premature death or equivalently through living with disability due to illness or injury. It is the basic unit used in burden of disease and injury estimates.

dischargee: A full-time prisoner aged at least 18, who expects to be released from prison within the 4 weeks following the time of interview.

discretionary foods: Foods and drinks not necessary to provide the nutrients the body needs, but which may add variety. Many are high in saturated fats, sugars, salt and/or alcohol, and are energy dense.

disease: A physical or mental disturbance involving symptoms (such as pain or feeling unwell), dysfunction or tissue damage, especially if these symptoms and signs form a recognisable clinical pattern.

disease vector: Living organisms that can transmit infectious diseases between humans or from animals to humans; these are frequently blood sucking insects such as mosquitoes.

disorder (health disorder): A term used synonymously with condition.

domestic violence: violent or intimidating behaviours between current or former intimate partners, where a partner aims to exert power and control over the other, through fear. Domestic violence can include **physical violence**, **sexual violence**, **emotional abuse** and **psychological abuse**. See also **family violence**.

drug-induced deaths: Drug-induced deaths are defined as those that can be directly attributable to drug use, as determined by toxicology and pathology reports. They are classified due to their intent – accidental, intentional (including assault and suicide), undetermined intent or other. Further, they include deaths from **illicit drugs** (for example, heroin, amphetamines and cocaine) and licit drugs (for example, benzodiazepines and anti-depressants). Deaths solely attributable to alcohol and tobacco are excluded.

drug-related hospitalisation: Hospital care with selected principal diagnoses of drug use disorder or harm (accidental, intended or self-inflicted) due to selected drugs.

drug-related separations: Hospital care with selected principal diagnoses of a substance misuse disorder or harm.

dwelling density: The number of dwellings divided by the area in hectares.

dyslipidaemia: Out-of-range levels of fats in the blood, such as cholesterol or triglycerides. In the Australian Bureau of Statistics Australian Health Survey, it has been defined as total cholesterol greater than or equal to 5.5 mmol/L, LDL cholesterol greater than or equal to 3.5 mmol/L, HDL cholesterol less than 1.0 mmol/L in men or less than 1.3 mmol/L in women, triglycerides greater than or equal to 2mmol/L, or were taking lipid-modifying medication.

e-cigarette: Electronic cigarettes or e-cigarettes are personal vaporising devices, often referred to as vapes, where users inhale vapour rather than smoke. The vapours usually contain flavourings and may contain nicotine or other chemical constituents.

elective surgery: Elective care in which the procedures required by patients are listed in the surgical operations section of the Medicare Benefits Schedule, excluding specific procedures often done by non-surgical clinicians.

electronic cigarette (e-cigarette): See **e-cigarette**

electronic health records: A longitudinal electronic record of patient health information generated by one or more encounters in any care delivery setting.

elder abuse: Physical, psychological and financial harm to older people.

emergency department presentation: The presentation of a patient at an emergency department is the earliest occasion of being registered clerically and occurs following the arrival of the patient at the emergency department.

emotional abuse: Behaviours or actions that are perpetrated with the intent to manipulate, control, isolate or intimidate, and which cause emotional harm or fear.

emotional maturity: A set of abilities that enable children to understand and manage how they respond when faced with situations that elicit an emotional reaction.

emphysema: A chronic lung disease where over-expansion or destruction of the lung tissue blocks oxygen intake, leading to shortness of breath and other problems.

endemic: regularly found among particular people or in a certain area, with infections occurring at a steady rate without external inputs.

end-stage kidney disease (**ESKD**): The most severe form of **chronic kidney disease** (**CKD**)**,** also known as Stage 5 CKD or kidney failure.

entrant: A person aged at least 18, entering full-time prison custody, either on remand (awaiting a trial or sentencing) or on a sentence. **Prisoners** who have been transferred from one prison to another are not included as entrants.

epilepsy: A common, long-term brain condition where a person has repeated seizures.

equivalised household income: Household income adjusted by the application of an equivalence scale to facilitate comparison of income levels between households of differing size and composition, reflecting that a larger household would normally need more income than a smaller household to achieve the same standard of living. Equivalised total household income is derived by calculating an equivalence factor according to the 'modified Organisation for Economic Co-operation and Development' equivalence scale, and then dividing income by the factor.

estimated resident population (**ERP**)**:** The official Australian Bureau of Statistics estimate of the Australian population. The ERP is derived from the 5-yearly Census counts and is updated quarterly between each Census. It is based on the usual residence of the person. Rates are calculated per 1,000 or 100,000 mid-year (30 June) ERP.

ex-serving ADF members: Australian Defence Force (ADF) members in the serving or reserve population on or after 1 January 1985 and who separated after 1 January 1985.

ex-smoker: A person who has smoked at least 100 cigarettes or equivalent tobacco in his or her lifetime, but does not smoke now.

extreme weather event: An unusual weather event or phenomenon at the extreme of a ‘typical’ historical distribution, such as a violent storm, exceptionally high levels of rainfall, or a heat wave or drought that is longer or hotter than normal.

family violence: Violence between family members as well as current or former intimate partners. Can include acts of violence between a parent and a child. The preferred term used to identify experiences of violence for Aboriginal and Torres Strait Islander people as it encompasses the broad range of extended family and kinship relationships in which violence may occur.

fatal burden: Quantified impact on a population of premature death due to disease or injury. Measured as **years of life lost** (**YLL**).

fetal death (stillbirth): Death, before the complete expulsion or extraction from its mother, of a product of conception of 20 or more completed weeks of gestation or of 400 grams or more **birthweight**. Death is indicated by the fact that, after such separation, the fetus does not breathe or show any other evidence of life, such as beating of the heart, pulsation of the umbilical cord or definite movement of voluntary muscles.

filicide: A homicide where a parent (or step-parent) kills a child.

first trimester: The first 3-months of a pregnancy. Pregnancy is divided into three trimesters: first trimester (conception to 13 weeks), second trimester (13 to 26 weeks) and third trimester (26 to 40 weeks).

forceps: Hand-held, hinged obstetric instrument applied to the fetal head to assist birth.

foreign body: An object which is left inside the human body which is not meant to be there, for example surgical instruments.

Forest Fire Danger Index (**FFDI**)**:** The McArthur Forest Fire Danger Index uses dryness (a product of rainfall and evaporation), wind speed, temperature and humidity to indicate the degree of danger of fire in Australian forests.

full-time equivalent (**FTE**) **workforce or workload:** A standard measure of the size of a workforce that takes into account both the number of workers and the hours that each works. For example, if a workforce comprises 2 people working full time 38 hours a week and 2 working half time, this is the same as 3 working full time – that is, an FTE of 3.

gastrointestinal: A term relating to the stomach and the intestine.

gastrointestinal infection: An infection that occurs when a micro-organism or its toxic product affects the gastrointestinal tract (including the stomach and intestines) causing illness such as pain, vomiting, diarrhoea and other symptoms. Can usually be passed from person to person.

general practice: general practice includes fully-qualified **general practitioners** (GPs). Physicians in training are normally excluded.

general practitioner (GP): A medical practitioner who provides primary comprehensive and continuing care to patients and their families in the community.

gestational age: Duration of pregnancy in completed weeks, calculated either from the date of the first day of a woman's last menstrual period and her baby's date of birth; or via ultrasound; or derived from clinical assessment during pregnancy or from examination of the baby after birth.

gestational diabetes: A form of **diabetes** when higher than optimal blood glucose is first diagnosed during pregnancy (gestation). It may disappear after pregnancy but signals a high risk of diabetes occurring later on.

glycated haemoglobin: is the main biomarker used to assess long-term glucose control in people living with diabetes. Haemoglobin is a protein in red blood cells which can bind with sugar to form HbA1c. It is directly related to blood glucose levels and strongly related with the development of long-term diabetes complications.

gonorrhoea: A common sexually transmissible infection caused by Neisseria gonorrhoeae bacteria. It is treatable; however, if left untreated, it can lead to serious illness. It is a notifiable disease.

gout: A disease brought on by excess uric acid in the blood, causing attacks of joint pain (most often in the big toe) and other problems.

greenhouse gases: gases in the atmosphere such as water vapour, carbon dioxide, methane and nitrous oxide that can absorb infrared radiation, trapping heat in the atmosphere.

greenhouse gas emissions: gases released (such as water vapour, carbon dioxide, methane and nitrous oxide) that can absorb infrared radiation, trapping heat in the atmosphere. These can occur naturally or as a result of human activities.

green space: urban land covered by vegetation of any kind. This covers vegetation on private and public land, irrespective of size and function, and can also include small water bodies such as ponds, lakes or streams ("blue spaces").

gross domestic product (**GDP**)**:** A statistic commonly used to indicate national wealth. It is the total market value of goods and services produced within a given period after deducting the cost of goods and services used up in the process of production but before deducting allowances for the consumption of fixed capital.

haemorrhage (bleeding): The escape of blood from a ruptured blood vessel, externally or internally.

haemorrhagic stroke: A type of stroke caused by the rupture and subsequent bleeding of an artery in the brain or its surroundings.

HbA1c: see **glycated haemoglobin**.

health: Term relating to whether the body (including the mind) is in a well or ill state. With good health, the state of the body and mind are such that a person feels and functions well and can continue to do so for as long as possible.

health-adjusted life expectancy: The average number of years that a person at a specific age can expect to live in full health; that is, taking into account years lived in less than full health due to the health consequences of disease and/or injury.

health and medical research: Research with a health socioeconomic objective, including the prevention of disease, maintenance of health and operation of the health system. It describes a wide range of research activities including laboratory research, public health, epidemiological studies, health services research, clinical research on patient samples as well as clinical trials. It can be conducted in a variety of settings, including tertiary institutions, private non-profit organisations, and government facilities, and is usually approved by a research governance or ethics body.

health indicator: See **indicator.**

health literacy: The ability of people to access, understand and apply information about health and the health care system so as to make decisions that relate to their health.

health outcome: A change in the health of an individual or population due wholly or partly to a preventive or clinical intervention.

health promotion: A broad term to describe activities that help communities and individuals increase control over their health behaviours. Health promotion focuses on addressing and preventing the root causes of ill health, rather than on treatment and cure.

health research: Research with a health socioeconomic objective, which is done in tertiary institutions, private non-profit organisations, and government facilities. It excludes commercially oriented research that private business funds, the costs of which are assumed to be included in the prices charged for the goods and services (for example, medications that have been developed and/or supported by research activities).

health status: The overall level of health of an individual or population, taking into account aspects such as **life expectancy**, level of **disability**, levels of disease **risk factors** and so on.

health-adjusted life expectancy: The average number of years that a person at a specific age can expect to live in full health; that is, taking into account years lived in less than full health due to the health consequences of disease and/or injury.

hearing: The sense for perceiving sounds; includes regions within the brain where the signals are received and interpreted.

hearing loss: Any hearing threshold response (using audiometry – the testing of a person's ability to hear various sound frequencies) outside the normal range, to any sound stimuli, in either ear. Hearing loss in a population describes the number of people who have abnormal hearing. Hearing loss may affect one ear (unilateral) or both ears (bilateral).

heart attack: Life-threatening emergency that occurs when a vessel supplying blood to the heart muscle is suddenly blocked completely by a blood clot. The medical term commonly used for a heart attack is **myocardial infarction.** See also **cardiovascular disease**.

heart failure: When the heart functions less effectively in pumping blood around the body. It can result from a wide variety of diseases and conditions that can impair or overload the heart, such as heart attack, other conditions that damage the heart muscle directly (see **cardiomyopathy**), **high blood pressure,** or a damaged heart valve.

heatwave: A heatwave is defined as 3 or more consecutive days of high maximum and minimum temperatures that are unusual for a location (BOM 2021).

hepatitis: Inflammation of the liver, which can be due to certain viral infections, alcohol excess or a range of other causes.

high blood cholesterol: Total cholesterol levels above 5.5 mmol/L.

high blood pressure/hypertension: Definitions can vary. The Australian Bureau of Statistics National Health Survey 2017–18 measured blood pressure at the time of the interview. High blood pressure was defined as any of the following: systolic blood pressure greater than or equal to 140 mmHg, or diastolic blood pressure greater than or equal to 90 mmHg or receiving medication for high blood pressure. Note that this only refers to the measurement at the time of the interview and does not necessarily indicate a chronic condition. For this survey, this is distinguished from Hypertension which was self-reported as a long-term health condition.

highest educational attainment: Derived from information on the highest year of school completed and level of highest non-school qualification. It can be used as a proxy measure of socioeconomic position. Classified using the ABS Australian Standard Classification of Education (ASCED).

HIV: Human Immunodeficiency Virus. See **acquired immune deficiency syndrome** (**AIDS**).

homelessness: There is no single definition of homelessness.

The Specialist Homelessness Services Collection defines a person as homeless if they are living in either:

- non-conventional accommodation or sleeping rough (such as living on the street)
- short-term or emergency accommodation due to a lack of other options (such as living temporarily with friends and relatives).

The Australian Bureau of Statistics (ABS) defines homelessness, for the purposes of the Census of Population and Housing, as the lack of one or more of the elements that represent home. According to the ABS, when a person does not have suitable accommodation alternatives they are considered homeless if their current living arrangement:

- is in a dwelling that is inadequate
- has no tenure, or if their initial tenure is short and not extendable
- does not allow them to have control of and access to space for social relations.

hospital-acquired complications: A complication for which clinical action may reduce (but not necessarily eliminate) the risk of its occurring – for example, selected infections or pressure injuries

hospitalisation: An episode of hospital care that starts with the formal **admission** process and ends with the formal **separation** process (synonymous with **admission** and **separation**). An episode of care can be completed by the patient’s being discharged, being transferred to another hospital or care facility, or dying, or by a portion of a hospital stay starting or ending in a change of type of care (for example, from acute to rehabilitation).

hospital non-specialist: A subset of medical practitioners that includes doctors in training as interns and resident medical officers, career medical officers, hospital medical officers and other salaried hospital doctors who are not specialists or in recognised training programs to become specialists.

hospital services: Services provided to a patient who is receiving admitted patient services or non-admitted patient services in a hospital, but excluding community health services, health research done within the hospital, non-admitted dental services, patient transport services and public health activities. They can include services provided off site, such as dialysis or hospital in the home.

household: A group of two or more related or unrelated people who usually live in the same dwelling, and who make common provision for food or other essentials for living; or a single person living in a dwelling who makes provision for his or her own food and other essentials for living, without combining with any other person.

housing adequacy: A measure to assess whether a dwelling is overcrowded. The number of bedrooms a dwelling should have to provide freedom from crowding is determined by the Canadian National Occupancy Standard. This standard assesses bedroom requirements based on the following criteria:

- there should be no more than 2 people per bedroom
- children aged under 5 of different sexes may reasonably share a bedroom
- children aged 5 and over of opposite sex should have separate bedrooms
- children aged under 18 and of the same sex may reasonably share a bedroom
- single household members aged 18 and over should have a separate bedroom, as should parents or couples.

housing tenure: Describes whether a household rents or owns an occupied dwelling, or whether it is occupied under another arrangement.

Human papillomavirus (**HPV**): A virus that affects both males and females. There are around 100 types of HPV, with around 40 types known as ‘genital HPV’, which are contracted through sexual contact. Currently, 15 types of HPV are recognised as being associated with cervical cancer, the most common of which are types 16, 18, and 45. Persistent infection with oncogenic (cancer causing) HPV types can lead to cervical cancer, whereas infection with non-oncogenic types of HPV can cause genital warts.

hypertension: See **high blood pressure/hypertension.**

Hysterectomy: a surgical procedure to remove all or part of the uterus.

illicit drugs: Illegal drugs, drugs and volatile substances used illicitly, and pharmaceuticals used for non-medical purposes.

illicit drug use: Includes use of:

- any drug that is illegal to possess or use
- any legal drug used in an illegal manner, such as
    - a drug obtained on prescription, but given or sold to another person to use
    - glue or petrol which is sold legally, but is used in a manner that is not intended, such as inhaling fumes
    - stolen pharmaceuticals sold on the black market (such as pethidine)
- any drug used for 'non-medical purposes', which means drugs used
    - either alone or with other drugs to induce or enhance a drug experience
    - for performance enhancement (for example, athletic)
    - for cosmetic purposes (for example, body shaping).

illness: A state of feeling unwell, although the term is also often used synonymously with disease.

imaging: See **diagnostic imaging**

immunisation: A procedure designed to induce immunity against infection by using an antigen to stimulate the body to produce its own antibodies. See also **vaccination**.

immunisation coverage rate: The percentage of children registered on the Australian Immunisation Register who have had all the vaccines recommended for their age in the National Immunisation Program Schedule.

Immunochemical faecal occult blood test (**iFOBT**): A test used to detect tiny traces of blood in a persons' faeces that may be a sign of bowel cancer. The iFOBT is a central part of Australia's National Bowel Cancer Screening Program.

Impaired fasting glucose: The presence of higher than usual levels of glucose in the blood after fasting, in the range of 6.1 to 6.9 mmol/L but less than diabetes levels (at least 7.0 mmol/L).

impairment: Any loss or abnormality of psychological, physiological or anatomical structure or function.

incidence: The number of new cases (of an illness or event, and so on) occurring during a given period. Compare with **prevalence**.

Index of Relative Socio-Economic Disadvantage (**IRSD**): One of the sets of Socio-Economic Indexes for Areas for ranking the average socioeconomic conditions of the population in an area. It summarises attributes of the population such as low income, low educational attainment, high unemployment and jobs in relatively unskilled occupations.

Index of Relative Socio-economic Advantage and Disadvantage (**IRSAD**)**:** 1 of 4 Socio-Economic Indexes for Areas (SEIFA) compiled by the ABS. The IRSAD has been used in this report to indicate socioeconomic position for five groups (quintiles) – from the most disadvantaged (worst off or lowest socioeconomic area) to the most advantaged (best off or highest socioeconomic area).

indicator: A key statistical measure selected to help describe (indicate) a situation concisely so as to track change, progress and performance; and to act as a guide for decision making.

Indigenous: A person who identifies themselves as being of **Aboriginal and/or Torres Strait Islander** origin.

Indigenous status: A term used to describe whether or not a person identifies as being of **Aboriginal and/or Torres Strait Islander** origin.

infant: A child aged under 1 year.

Infant mortality: the number of deaths of children under 1 year of age in a given year, expressed per 1,000 live births. While some countries (including Australia and Canada) register all live births including very small babies with low odds of survival, several countries apply a minimum threshold of a gestation period of 22 weeks (or a birth weight threshold of 500 g) for babies to be registered as live births.

infectious disease: a disease or illness caused by an infectious agent (bacteria, viruses, parasites and fungi and their toxic products). Many infectious diseases are also **communicable diseases**.

inflammation: heat, swelling and pain. Can also occur when there is no clear external cause and the body reacts against itself, as in auto-immune diseases.

influenza (flu): An acute contagious viral respiratory infection marked by fevers, fatigue, muscle aches, headache, cough and sore throat.

injury cases: Estimated as the number of injury separations, less those records where the mode of admission was ‘Admitted patient transferred from another hospital’. These transfers are omitted to reduce over-counting.

instrumental delivery: Vaginal delivery using forceps or vacuum extraction. See also **instrumental birth**.

instrumental birth: Vaginal birth using forceps or vacuum extraction.

insulin: Hormone produced by the pancreas which regulates the body's energy sources, most notably the sugar glucose. It is an injectable agent that helps lower blood glucose levels by moving glucose into cells to be used as energy.

intentional self-harm: Includes attempts to suicide, as well as cases where people have intentionally hurt themselves, but not necessarily with the intention of suicide (e.g. acts of self-mutilation).

The Intergovernmental Panel on Climate Change (**IPCC**)**:** The United Nations body for assessing the science related to climate change.

International Statistical Classification of Diseases and Related Health Problems (**ICD**): The World Health Organization's internationally accepted classification of death and disease. The 10th Revision (ICD-10) is currently in use. The ICD-10-AM is the Australian Modification of the ICD-10; it is used for diagnoses and procedures recorded for patients admitted to hospitals.

interoperability: The ability of different information systems, devices and applications ('systems') to access, exchange, integrate and cooperatively use data in a coordinated manner.

interoperability (semantic): The capability of two or more systems to communicate and exchange information, and for each system to be able to interpret the meaning of received information and to use it seamlessly with other data held by that system.

interoperability (technical): The use of agreed data exchange specifications to encourage consistency in data structure and format to simplify system interactions and integrations.

intervention (for health): Any action taken by society or an individual that 'steps in' (intervenes) to improve health, such as medical treatment and preventive campaigns.

intimate partner violence: Violent or intimidating behaviours perpetrated by current or former intimate partners, including cohabiting partner, boyfriend, girlfriend or date. Does not include violence by a boyfriend or girlfriend or date. See also **partner violence** and **domestic violence**.

ischaemia: Reduced or blocked blood supply. See also **ischaemic heart disease.**

ischaemic heart disease: Also **heart attack** and **angina** (chest pain). Also known as **coronary heart disease.** See also **ischaemia.**

ischaemic stroke: A type of stroke due to a reduced or blocked supply of blood in the brain. Also known as cerebral infarction.

juvenile arthritis: Inflammatory arthritis in children that begins before their 16th birthday and lasts at least 6 weeks. Also known as juvenile idiopathic arthritis.

Kessler Psychological Distress Scale – 10 items (Kessler-10; K10): A survey device that is used to measure non-specific psychological distress in people. It uses 10 questions about negative emotional states that participants in the survey may have had in the 4 weeks leading up to their interview. The designers recommend using only for people aged 18 and over.

kidney failure: The most severe form of chronic kidney disease (CKD), also known as Stage 5 CKD or end-stage kidney stage (ESKD).

kidney replacement therapy: Having a functional kidney transplant or receiving regular dialysis.

kidney transplant: A healthy kidney is taken from 1 person and surgically placed into someone with kidney failure. The kidney can come from a live or deceased donor.

labour force: People who are employed or unemployed (not employed but actively looking for work). Also known as the **workforce**.

life expectancy: the average number of years that a person at a particular age can be expected to live, assuming that age-specific mortality levels remain constant.

lifetime risk (alcohol): The accumulated risk from drinking either on many drinking occasions, or on a regular (for example, daily) basis over a lifetime. The lifetime risk of harm from alcohol-related disease or injury increases with the amount consumed. For healthy men and women, drinking no more than 2 standard drinks on any day reduces the lifetime risk of harm from alcohol-related disease or injury.

linked disease: A disease or condition on the causal pathway of the risk factor, and therefore more likely to develop if exposed to the risk.

lipids: Fatty substances, including cholesterol and triglycerides, which are in blood and body tissues.

live birth (liveborn): The complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of pregnancy, which, after such separation, breathes or shows any other evidence of life (such as the beating of the heart, pulsation of the umbilical cord or definite movement of voluntary muscles), whether or not the umbilical cord has been cut or the placenta is attached; each product of such birth is considered live born (World Health Organization definition).

Local Health Network: Corporations within defined geographical regions, which have responsibility for managing public hospitals and health institutions in that region, in accordance with the National Health Reform Agreement.

long-term care: Consists of a range of medical, personal care and assistance services that are provided with the primary goal of alleviating pain and reducing or managing the deterioration in health status for people with a degree of long-term dependency, assisting them with their personal care (through help for activities of daily living such as eating, washing and dressing) and assisting them to live independently (through help for instrumental activities of daily living such as cooking, shopping and managing finances).

long-term care recipients at home: People receiving formal (paid) long-term care at home. The services received by long-term care recipients can be publicly or privately financed. Long-term care at home is provided to people with functional restrictions who mainly reside at their own home. It also applies to the use of institutions on a temporary basis to support continued living at home – such as in the case of community care and day care centres and in the case of respite care. Home care also includes specially designed or adapted living arrangements for persons who require help on a regular basis while guaranteeing a high degree of autonomy and self-control.

long-term care recipients in institutions (other than hospitals): People receiving formal (paid) long-term care in institutions (other than hospitals). The services received by long-term care recipients can be financed publicly or privately.

long-term condition: A term used in the Australian Bureau of Statistics National Health Surveys to describe a health condition that has lasted, or is expected to last, at least 6 months. See also **chronic diseases/conditions**.

low birthweight: Weight of a baby at birth that is less than 2,500 grams.

low-income household: A household with an equivalised disposable household income (that is, after-tax income, adjusted for the number of people in the household) that is less than 50% of the national median.

major burns: Burns of any depth that involve more than 20 percent of the total body surface for an adult or more than 10 percent of the total body surface for a child.

malignant: A tumour with the capacity to spread to surrounding tissue or to other sites in the body. See **neoplasms.**

mammogram: An X-ray of the breast. It may be used to assess a breast lump or as a screening test in women with no evidence of cancer.

mandate: An official order.

margin of error: the largest possible difference (due to sampling error) that could exist between the estimate and what would have been produced had all persons been included in the survey, at a given level of confidence (commonly 95%). It is useful for understanding and comparing the accuracy of proportion estimates. Equivalent to the width of a **confidence interval**.

maternal age: Mother's age in completed years at the birth of her baby.

median: is based on the value(s) of the observation(s) at the midpoint of a list of observations ranked from the smallest to the largest.

median age: The age point at which half the population is older than that age and half is younger than that age.

medical practitioner: Under the Health Practitioner Regulation National Law 2009, a medical practitioner is a person who holds registration with the Medical Board of Australia.

medical specialist: A doctor who has completed advanced education and clinical training in a specific area of medicine.

Medicare: A national, government-funded scheme that subsidises the cost of personal medical services for all Australians and aims to help them afford medical care. The Medicare Benefits Schedule (MBS) is the listing of the Medicare services subsidised by the Australian Government. The schedule is part of the wider Medicare Benefits Scheme (Medicare).

Medicare Benefits Schedule (**MBS**) **data collection:** The MBS data collection contains information on services that qualify for a benefit under the *Health Insurance Act 1973* and for which a claim has been processed. The database comprises information about MBS claims (including benefits paid), patients and service providers. MBS claims data is an administrative by-product of the Services Australia administration of the Medicare fee-for-service payment system.

Medicare levy: A 2% tax on taxable income charged to fund **Medicare**. The Medicare levy is reduced if taxable income is below a certain threshold.

Medicare levy surcharge: A levy paid by Australian taxpayers who do not have private hospital cover and who earn above a certain income.

Medicare-subsidised mental health-specific services: Services provided by psychiatrists, general practitioners, psychologists and other allied health professionals. These services are provided in a range of settings – for example, hospitals, consulting rooms, home visits, telephone and videoconferencing – as defined in the **Medicare Benefits Schedule**.

Medicare-subsidised services: Refer to services listed in the **Medicare Benefits Schedule** that resulted in a payment of Medicare benefit.

medications: Benefit-paid pharmaceuticals and other medications. More information can be found in mental health-related prescriptions section of *Mental Health Services in Australia*.

melanoma: A cancer of the body's cells that contain pigment (melanin), mainly affecting the skin. Survival rates are very high for those whose melanoma is detected and removed early, but low if not.

mental health: A state of wellbeing in which the person realises their own abilities, can cope with normal stresses of life, can work productively and can contribute to the community. Mental health is the capacity of individuals and groups to interact with one another and their environment in ways that promote subjective wellbeing, optimal development and the use of cognitive, affective and relational abilities.

mental illness (or **mental health disorder**): A clinically diagnosable disorder that significantly interferes with an individual's cognitive, emotional or social abilities. The term covers a spectrum of disorders that vary in severity and duration, including **anxiety disorders**, affective disorders (such as **depression**), psychotic disorders and substance use disorders.

mesothelioma: An aggressive form of cancer occurring in the mesothelium – the protective lining of the body cavities and internal organs, such as the lungs, heart and bowel.

metadata: Information about how data are defined, structured and represented. It makes data files meaningful by describing the information captured in data, and how it is measured and represented.

Metformin: A medication that lowers blood glucose levels by reducing the amount of stored glucose released by the liver, slowing the absorption of glucose from the intestine, and helping the body to become more sensitive to insulin so that it works better.

microbiology: In the pathology context microbiology is the detection of diseases caused by infectious agents such as bacteria, viruses, fungi and parasites.

midwife: A person who is trained to help women in childbirth.

midwifery: Antenatal, intrapartum and postnatal care provided by a person who is trained to help women in childbirth.

mild or moderate core activity limitation: The limitation of a person who needs no help but has difficulty with core activities (moderate) or has no difficulty (mild) with core activities, but uses aids or equipment, or has one or more of the following restrictions:

- cannot easily walk 200 metres
- cannot walk up and down stairs without a handrail
- cannot easily bend down to pick up an object from the floor
- cannot use public transport
- can use public transport but needs help or supervision
- needs no help or supervision but has difficulty using public transport.

μg/m^3: millionths of a gram of matter per cubic metre of air, water or other fluid.

mitigation of climate change: actions or activities that limit emissions of greenhouse gases from entering the atmosphere and/or reducing levels of atmospheric greenhouse gases (IPCC 2022a).

mixed dementia: Multiple types of dementia affecting the same person. Mixed dementia is common in the population. The most common combination is **Alzheimer's disease** and vascular dementia.

mobile health: The delivery of health care services via mobile communication devices.

moderate physical activity: physical activity at a level that causes the heart to beat faster, accompanied by some shortness of breath, but during which a person can still talk comfortably.

monitoring (of public health): A process of keeping a regular and close watch over important aspects of the public's health and health services through various measurements, and then regularly reporting on the situation, so that the health system and society more generally can plan and respond accordingly. The term is often used interchangeably with surveillance, although surveillance may imply more urgent watching and reporting, such as the surveillance of infectious diseases and their epidemics.

mood (affective) disorders: A set of psychiatric disorders, also called mood disorders. The main types of affective disorders are **depression**, bipolar disorder, and **anxiety disorder**. Symptoms vary by individual and can range from mild to severe.

morbidity: The ill health of an individual and levels of ill health in a population or group.

mortality: Number or rate of deaths in a population during a given time period.

mortality rate: Mortality rates are based on numbers of deaths registered in a year divided by the size of the corresponding population. Causes of death are classified according to the Tenth revision of the International Classification of Diseases (ICD) along with codes from other ICD revisions used in the World Health Organization Mortality Database. For making comparisons internationally, age-standardised rates per 100,000 population for selected causes are often calculated using the total OECD population for 2010 as the reference population. The direct method of standardisation is used for age-standardised calculations.

multimorbidity: the presence of two or more chronic diseases/conditions in a person at the same time. Compare with **comorbidity**.

multiple causes of death: All causes listed on the Medical Certificate of Cause of Death. These include the **underlying cause of death** and all **associated cause(s) of death.** See also **cause of death.**

musculoskeletal: A term that relates to the muscles, joints and bones.

musculoskeletal condition: One of a group of conditions, along with arthritis and other conditions, that affects the bones, muscles and joints. These other conditions include **back problems**, **juvenile arthritis**, **osteoarthritis**, **osteopenia**, **osteoporosis** (low bone density) and **rheumatoid arthritis**.

My Health Record: An online platform for storing a person's health information, including their **Medicare** claims history, hospital discharge information, diagnostic imaging reports, and details of allergies and medications.

natural environment: A setting that includes all vegetation and animal species (including micro-organisms), habitats and landscapes on earth, but excludes aspects of the environment that result from human activities. The natural environment includes air, water and climate.

neonatal death: Death of a liveborn baby within 28 days of birth.

neonatal mortality: the number of deaths of children under 28 days of age in a given year, expressed per 1,000 live births.

neonatal mortality rate: Number of neonatal deaths per 1,000 live births.

neurology: A branch of medicine concerned especially with the structure, function and diseases of the nervous system.

never smoker: A person who does not smoke now and has smoked fewer than 100 cigarettes or the equivalent tobacco in his or her lifetime.

non-admitted patient: A patient who receives care from a recognised non-admitted patient service/clinic of a hospital, including emergency departments and outpatient clinics.

neoplasms: an abnormal mass of tissue that results when cells divide more than they should or do not die when they should. Neoplasms may be benign (not cancer), or malignant (**cancer**). Also called tumour.

non-fatal burden: The quantified impact on a population of ill health due to disease or injury. Measured as **years lived with disability** (**YLD**), which is also sometimes referred to as **years of healthy life lost due to disability**.

non-hospital medical services: Medical services delivered to patients who are not admitted patients.

non-Indigenous: People who have not indicated that they are of **Aboriginal or Torres Strait Islander** descent.

non-medical use: The use of drugs either alone or with other drugs to induce or enhance a drug experience for performance enhancement or cosmetic purposes (this includes pain-killers/analgesics, tranquillisers/sleeping pills, steroids and meth/amphetamines and other opioids such as morphine or pethidine).

non-school qualification: An educational qualification other than that of pre-primary, primary or secondary education. Non-school qualifications comprise a Bachelor degree; a Master degree; a Doctorate; a Diploma; a Graduate Diploma; an Advanced Diploma; a Certificate I, II, III and IV (trade certificates); and a Graduate Certificate.

non-smoker: never smoked or an ex-smoker.

normal weight: Defined as a **body mass index** of 18.5 to less than 25.

notifiable disease: A group of communicable diseases that are reported to state and territory health departments, as required by legislation. The information enables public health responses and the monitoring of disease activity.

nurse practitioner: A Registered Nurse with experience, expertise and authority to diagnose and treat people with a variety of acute or chronic health conditions.

nutrition: The intake of food, considered in relation to the body's dietary needs.

obesity: Marked degree of overweight, defined for population studies as a **body mass index** of 30 or over. See also **overweight**.

obstetrics: The branch of medicine and surgery concerned with childbirth and midwifery.

obstetric trauma: Refers to the tearing of perineum during vaginal delivery of a child. These tears can extend to the perineal muscles and bowel wall, resulting in major surgery. These types of tears are not possible to prevent in all cases, but can be reduced by employing appropriate labour management and high quality obstetric care. Hence, the proportion of deliveries involving higher degree lacerations is a useful indicator of the quality of obstetric care.

occupational disease (work-related disease): Employment or work-related diseases which are the result of repeated or long-term exposure to agent(s) or event(s) where there was a long latency period.

occupational exposures and hazards: Chemical, biological, psychosocial, physical and other factors in the workplace that can potentially cause harm.

occupational injury (work-related injury): Employment or work-related injuries which are the result of a traumatic event occurring where there was a short or no latency period. It includes injuries which are the result of a single exposure to an agent causing an acute toxic effect.

occupational lung diseases: Diseases that result from breathing in harmful dusts or fumes, such as silica, asbestos and coal dust. This exposure typically occurs in the workplace. Pneumoconiosis, or scarring of the lung tissue caused by inhaled dust, is one of the most common forms of occupational lung disease.

opiate/opioid substitution treatment (OST): The provision to opioid drug users of a prescription medicine that replaces their drug of choice (for example, heroin) and helps them to manage their addiction. This medicine is usually supplied in a clinically supervised setting. OST is also called opioid replacement therapy or maintenance therapy. The three medicines most commonly used as OST in Australia are methadone, buprenorphine and buprenorphine-naloxone.

opioid: A chemical substance that has a morphine-type action in the body. Opioids are most commonly used for pain relief, but they are addictive and can lead to drug dependence.

opioid pharmacotherapy treatment: Opioid pharmacotherapy treatment is one of the main treatment types used for opioid drug dependence and involves replacing the opioid drug of dependence with a legally obtained, longer-lasting opioid that is taken orally.

opioid substitution therapy (OST): See **opiate/opioid substitution treatment (OST)**

optometry: The practice of primary eye care, including testing for visual acuity and prescribing treatments for eye disorders.

oral health: The health of the mouth, tongue and oral cavity; the absence of active disease in the mouth.

Organisation for Economic Co-operation and Development (OECD): An organisation of 38 countries, including Australia, that are mostly developed and some emerging (such as Mexico, Chile and Turkey). The organisation’s aim is to promote policies that will improve the economic and social wellbeing of people around the world.

osteoarthritis: A chronic and common form of **arthritis**, affecting mostly the spine, hips, knees and hands. It first appears from the age of about 30 and is more common and severe with increasing age.

osteopenia: A condition when bone mineral density is lower than normal but not low enough to be classified as osteoporosis.

osteoporosis: A condition that causes bones to become thin, weak and fragile, such that even a minor bump or accident can break a bone.

Other Australians: People who have declared that they are not of Aboriginal or Torres Strait Islander descent, and people whose Indigenous status is unknown. Compare with **non-Indigenous**.

other diabetes: A name for less common diabetes resulting from a range of different health conditions or circumstances.

other health practitioner services: Services that health practitioners (other than doctors and dentists) provide. These other practitioners include, but are not limited to, audiologists, chiropractors, dieticians, homeopaths, naturopaths, occupational therapists, optometrists, physiotherapists, podiatrists, practice nurses, practitioners of Chinese medicine and other forms of traditional medicine, and speech therapists.

other medications: Pharmaceuticals for which no Pharmaceutical Benefits Scheme (PBS) or Repatriation Pharmaceutical Benefits Scheme (RPBS) benefit was paid. They include:

- pharmaceuticals listed in the PBS or RPBS, the total costs of which are equal to, or less than, the statutory patient contribution for the class of patient (under co-payment pharmaceuticals)
- pharmaceuticals dispensed through private prescriptions that do not fulfil the criteria for payment of benefit under the PBS or RPBS
- over-the-counter medications, including pharmacy-only medications, aspirin, cough and cold medicines, vitamins and minerals, herbal and other complementary medications, and various medical non-durables, such as condoms, adhesive and non-adhesive bandages.

otitis media: All forms of inflammation and infection of the middle ear. Active inflammation or infection is nearly always associated with a middle ear effusion (fluid in the middle ear space).

outcome (health outcome): A health-related change due to a preventive or clinical intervention or service. (The intervention may be single or multiple, and the outcome may relate to a person, group or population, or be partly or wholly due to the intervention.)

out-of-pocket costs/expenditure: The total costs incurred by individuals for health care services over and above any refunds from the Medicare Benefits Schedule or the Pharmaceutical Benefits Scheme (PBS)/Repatriation Pharmaceutical Benefits Scheme (RPBS).

overnight hospitalisation: An admitted patient who received hospital treatment for a minimum of 1 night (that is, admitted to, and has a separation from, hospital on different dates).

overnight patient: An admitted patient who receives hospital treatment for a minimum of one night (that is, is admitted to, and has a separation from, hospital on different dates).

over-the-counter medicines data: Payments for non-prescription medications purchased in pharmacies.

overweight: Defined for the purpose of population studies as a **body mass index** of 25 or over. See also **obesity.**

overweight but not obese: Defined for the purpose of population studies as a **body mass index** between 25 and less than 30.

palliative care: Treatment given primarily to control pain or other symptoms. Consequent benefits of the treatment are considered secondary contributions to quality of life.

pandemic: A new infectious disease that is rapidly spreading across a large region, or worldwide, and affecting large numbers of people. Such as a new influenza virus or **COVID-19.**

pap test: See **papanicolaou smear (pap smear)**.

papanicolaou smear (pap smear): A procedure to detect cancer and precancerous conditions of the female genital tract, which is the screening test of the National Cervical Screening Program. During a Pap test, cells are collected from the transformation zone of the cervix – the area of the cervix where the squamous cells from the outer opening of the cervix and glandular cells from the endocervical canal meet. This is the site where most cervical abnormalities and cancers are detected. For conventional cytology, these cells are transferred onto a slide, and sent to a pathology laboratory for assessment. Collected cells are then examined under a microscope to look for abnormalities.

parricide: A homicide where a child kills a parent or step-parent.

partner violence: Violent or intimidating behaviours perpetrated by a current or former cohabiting partner. See also **domestic violence** and **intimate partner violence**.

pathology: A general term for the study of disease, but often used more specifically to describe diagnostic services that examine specimens, such as samples of blood or tissue.

patient days: The number of full or partial days of stay for patients who were admitted to hospital for an episode of care and who underwent separation during the reporting period. A patient who is admitted and separated on the same day is allocated 1 patient day.

patient-centred care: An approach to health care which places the patient at the centre of the care model, with an emphasis on collaboration between the patient and health-care providers when making decisions about their health and treatment approaches.

patient contribution: See **co-payment**.

Patient Reported Experience Measures (**PREMs**)**:** Used to obtain patients' views and observations on aspects of health care services they have received. This includes their views on the accessibility and physical environment of services (for example, waiting times and the cleanliness of consultation rooms and waiting spaces) and aspects of the patient–clinician interaction (such as whether the clinician explained procedures clearly or responded to questions in a way that they could understand).

Patient Reported Outcome Measures (**PROMs**)**:** Used to obtain information from patients on their health status, usually using standardised and validated questionnaires. They measure aspects such as overall health and wellbeing (or 'health-related quality of life'), the severity of symptoms such as pain, measures of daily functioning (activities required for self-care and to support social interactions) and psychological symptoms.

patient transport services: The services of organisations primarily engaged in transporting patients by ground or air – along with health (or medical) care. These services are often provided for a medical emergency, but are not restricted to emergencies. The vehicles are equipped with lifesaving equipment operated by medically trained personnel.

peer worker: A person employed (or engaged via contract), either part time or full time, on the basis of their lived experience, to support others experiencing a similar situation.

perceived health status: a measure that reflects people’s overall perception of their health. Survey respondents are typically asked a question such as: “How is your health in general?”. Caution is required in making cross-country comparisons of perceived health status for at least two reasons. First, people’s assessment of their health is subjective and can be affected by cultural factors. Second, there are variations in the question and answer categories used to measure perceived health status across surveys and countries. The response scale used in the United States, Canada, New Zealand, Australia and Chile is asymmetric (skewed on the positive side), including the following response categories: “excellent, very good, good, fair, poor”. In Israel, the scale is symmetric but there is no middle category related to “fair health”. Such differences in response categories bias upwards the results from those countries that are using an asymmetric scale or a symmetric scale but without any middle category.

perinatal: Describes something that pertains to, or that occurred in, the period shortly before or after birth (usually up to 28 days after).

perinatal death: A fetal or neonatal death of at least 20 weeks gestation or at least
400 grams birthweight.

perinatal mortality: the ratio of deaths of children within one week of birth (early neonatal deaths) plus foetal deaths of minimum gestation period 28 weeks or minimum foetal weight of 1,000 g, expressed per 1,000 births.

peripheral vascular disease: A disease characterised by pain in the extremities, often the legs, due to an inadequate blood supply to them.

permanent ADF members: A term that describes Australian Defence Force (ADF) members serving in a regular capacity in the Navy, Army or Air Force on continuous full-time service, or participating in the gap year program.

personal stressors: Events or conditions that occur in a person's life that may adversely impact on the individual's or their family's health or wellbeing.

pertussis: A highly infectious bacterial disease of the air passages marked by explosive fits of coughing and often a whooping sound on breathing in. It is preventable by vaccination. Also known as whooping cough.

Pharmaceutical Benefits Scheme (**PBS**)**:** A national, government-funded scheme that subsidises the cost of a wide range of pharmaceutical drugs for all Australians. The Schedule of Pharmaceutical Benefits (schedule) lists all the medicinal products available under the PBS and explains the uses for which they can be subsidised.

Pharmaceutical Benefits Scheme (**PBS**) **data collection:** The PBS data collection contains information on prescription medicines that qualify for a benefit under the National Health Act 1953 and for which a claim has been processed. The database comprises information about PBS scripts and payments, patients, prescribers and dispensing pharmacies. PBS data is an administrative by-product of the Services Australia administration of the PBS Online system.

Pharmaceutical Reform Arrangements: Bilateral arrangements that support the access to **Pharmaceutical Benefits Scheme** medicines in the public hospital setting for non-admitted, day-admitted or patients being discharged from hospitals, are in place between the Commonwealth and all jurisdictions except New South Wales and the Australian Capital Territory.

pharmaceutical sales: sales of pharmaceuticals on the domestic market, in total and by selected Anatomic Therapeutic Chemical (ATC) groups, based on retail prices (which means the final price paid by the customer).

pharmacotherapy: The treatment of disease and illnesses using pharmaceutical drugs.

physical abuse: Non-accidental physical act inflicted on a person by another person. Behaviours can include slaps, hits, punches, being pushed down stairs or across a room, choking and burns, as well as the use of knives, firearms and other weapons. For some data sources, physical abuse refers only to incidents that occurred before a certain age. For example, in the PSS, physical abuse refers only to incidents that occurred before the age of 15, non-accidental physical acts after this age are referred to as assault.

physical activity: Australia's Physical Activity and Sedentary Behaviour Guidelines (2014) recommend that:

- Young people (13–17 years) accumulate at least 60 minutes of moderate to vigorous physical activity every day, from a variety of activities including some vigorous.
- Adults (18–64 years) should be active most days of the week, accumulate 150 to 300 minutes moderate intensity physical activity or 75 to 150 minutes of vigorous

intensity physical activity (or an equivalent combination each week), and do muscle strengthening activities on at least two days each week.
- Older Australians (65 years and over) should accumulate at least 30 minutes of moderate intensity physical activity on most, preferably all, days.

physical therapy: The treatment or management of physical disability, malfunction, or pain using therapeutic exercises, physical modalities such as massage and hydrotherapy, assistive devices, and patient education and training. Often referred to as physiotherapy.

physical violence: Behaviours that can include slaps, hits, punches, being pushed down stairs or across a room, choking and burns, as well as the use of knives, firearms and other weapons, or threats of such acts.

PM2.5: Atmospheric particulate matter (PM) that have a diameter of 2.5 micrometres (0.0025 millimetres) or less.

pneumonia: Inflammation of the lungs as a response to infection by bacteria or viruses. The air sacs become flooded with fluid, and inflammatory cells and affected areas of the lung become solid. Pneumonia is often quite rapid in onset and marked by a high fever, headache, cough, chest pain and shortness of breath.

population health: Typically, the organised response by society to protect and promote health, and to prevent illness, injury and disability. Population health activities generally focus on:

- prevention, promotion and protection rather than on treatment
- populations rather than on individuals
- the factors and behaviours that cause illness.

It can also refer to the health of particular subpopulations, and comparisons of the health of different populations.

post-traumatic stress disorder (PTSD): The development of a set of reactions in people who have experienced a traumatic event that might have threatened their life or safety, or others around them. Examples of traumatic events can include war or torture, serious accidents, physical or sexual assault, or disasters. A person who has PTSD can experience feelings of helplessness, horror or intense fear.

potentially avoidable deaths: Deaths among people younger than age 75 that are avoidable in the context of the present health care system. They include deaths from conditions that are potentially preventable through individualised care and/or treatable through existing primary or hospital care. They are a subset of premature deaths. The rate of potentially avoidable deaths in Australia is used as an indicator of the health system's effectiveness. Potentially avoidable deaths are classified using nationally agreed definitions. (A revised definition was adopted in the National Healthcare Agreement 2015 leading to differences in the counts and rates of potentially avoidable deaths published previously.).

potentially preventable hospitalisations (**PPHs**): Hospital separations for a specified range of conditions where hospitalisation is considered to be largely preventable if timely and adequate care had been provided through population health services, primary care and outpatient services. The PPH conditions are classified as vaccine preventable, chronic and acute. Respective examples include **influenza** and **pneumonia**, **diabetes** complications and **chronic obstructive pulmonary disease (COPD),** and dental and kidney conditions. The rate of PPHs is currently being used as an indicator of the effectiveness of a large part of the health system, other than hospital inpatient treatment.

practising doctors: Medically qualified physicians who provide services to patients. Does not include students who have not graduated, unemployed or retired doctors, those working outside the country, dentists, stomatologists, dental or maxillofacial surgeons.

practising nurses: Professional nurses enrolled to practice in a particular country. Excludes those who are students, those who are unemployed retired or no longer practicing, and midwives unless they work most of the time as nurses.

pre-eclampsia: A condition that complicates pregnancy and is characterised by high blood pressure, fluid retention and protein in the urine. The placental function may be compromised.

Pre-Exposure Prophylaxis (PrEP): An anti-retroviral treatment taken daily to prevent HIV infection in people who do not have HIV but are at medium or high risk of being infected.

premature deaths (or **premature mortality**): Deaths that occur at a younger age than a selected cut-off. The age below which deaths are considered premature can vary depending on the purpose of the analysis and the population under investigation. In this report, deaths among people aged under 75 are considered premature.

prescription pharmaceuticals: Pharmaceutical drugs available only on the prescription of a registered medical or dental practitioner and available only from pharmacies.

prescription: An authorisation issued by a medical profession for a patient to be issued a particular medication. For dementia-specific medications, typically a prescription (script) authorises a person to receive one month’s supply of medication.

pre-term birth: Birth before 37 completed weeks of gestation.

prevalence: The number or proportion (of cases, instances, and so forth) in a population at a given time. For example, in relation to cancer, refers to the number of people alive who had been diagnosed with cancer in a prescribed period (usually 1, 5, 10 or 26 years). Compare with **incidence**.

prevention (of ill health or injury): Action to reduce or eliminate the onset, causes, complications or recurrence of ill health or injury.

previous partner: A person with whom the respondent lived with at some point in a married or de-facto relationship and from whom the respondent is now separated, divorced or widowed.

primary care: The first point of contact an individual has with the health system and relates to the treatment of non-admitted patients in the community. A subset of primary health care.

primary carer: A primary carer is the carer who provided the most informal, ongoing assistance for a person with a disability. In the Australian Bureau of Statistics Survey of Disability, Ageing and Carers, for a person to be considered a primary carer they must be aged 15 or over and assist with 1 or more core activity tasks (mobility, self-care or communication). Their assistance must be ongoing, or likely to be ongoing, for at least 6 months. In this report, the primary carer had to be living in the same household as their care recipient.

primary health care: These are services delivered in many community settings, such as general practices, community health centres, Aboriginal health services and allied health practices (for example, physiotherapy, dietetic and chiropractic practices) and come under numerous funding arrangements. Expenditure on primary health care includes **recurrent expenditure** on health goods and services, such as on medical services, dental services, other health practitioner services, pharmaceuticals and community and public health services.

Primary Health Network: Primary Health Networks were established on 1 July 2015. These networks are intended to play a critical role in connecting health services across local communities so that patients, particularly those needing coordinated care, have the best access to a range of health care providers, including practitioners, community health services and hospitals. Primary health networks work directly with general practitioners, other primary care providers, secondary care providers and hospitals.

principal diagnosis: The diagnosis established after study to be chiefly responsible for occasioning an episode of patient care (**hospitalisation**), an episode of residential care or an attendance at the health care establishment. Diagnoses are recorded using the relevant edition of the International statistical classification of diseases and related health problems, 10th revision, Australian modification (ICD-10-AM).

principal drug of concern: The main substance that led the client to seek treatment from an alcohol and drug treatment agency.

prison: Place administered and operated by a justice department, where individuals are detained while under the supervision of the relevant justice department on a pre-sentence or sentenced detention episode.

prisoner: Adult prisoners (aged 18 and over) held in custody whose confinement is the responsibility of a correctional services agency. Includes sentenced prisoners and prisoners held in custody awaiting trial or sentencing (remandees). Does not include youth offenders, persons in psychiatric custody, police cell detainees, those in periodic detention, asylum seekers or Australians held in overseas prisons.

private hospital: A privately owned and operated institution, catering for patients who are treated by a doctor of their own choice. Patients are charged fees for accommodation and other services provided by the hospital and by relevant medical and allied health practitioners. The term includes acute care and psychiatric hospitals as well as private freestanding day hospital facilities.

private patient: A person admitted to a private hospital, or a person admitted to a public hospital who decides to choose the doctor(s) who will treat them or to have private ward accommodation – this means they will be charged for medical services, food and accommodation.

private prescriptions data: Payments for prescriptions for which no benefit is payable are estimated using the Pharmacy Guild of Australia and historical data.

procedure: A clinical intervention that is surgical in nature, carries a procedural risk, carries an anaesthetic risk, and requires specialist training and/or special facilities or equipment available only in the acute-care setting.

protective factors: Factors that enhance the likelihood of positive outcomes and lessen the chance of negative consequences from exposure to risk.

psychological abuse: Behaviours that include limiting access to finances, preventing the victim from contacting family and friends, demeaning and humiliating the victim, and any threats of injury or death directed at the victim or their children.

psychological distress: Unpleasant feelings or emotions that affect a person's level of functioning and interfere with the activities of daily living. This distress can result in having negative views of the environment, others and oneself, and manifest as symptoms of mental illness, including anxiety and **depression** (see also **Kessler Psychological Distress Scale – 10 items**).

psychosocial: Involving both psychological and social factors.

psychotic disorders: 'A diverse group of illnesses that have their origins in abnormal brain function and are characterised by fundamental distortions of thinking, perception and emotional response.' (Slade et al. 2009).

public health: Activities aimed at benefiting a population, with an emphasis on prevention, protection and health promotion as distinct from treatment tailored to individuals with symptoms. Examples include the conduct of anti-smoking education campaigns, and screening for diseases such as cancer of the breast and cervix. See also **population health**.

public hospital: A hospital controlled by a state or territory health authority. In Australia, public hospitals offer free diagnostic services, treatment, care and accommodation to all eligible patients.

public hospital services expenditure: Services provided by public hospitals from the balance of public hospital expenditure remaining after costs of community health services, public health services, non-admitted dental services, patient transport services, and health research activities conducted by public hospitals have been removed and reallocated to their own expenditure categories.

public patients: Patients who are admitted to hospital at no charge and are mostly funded through public sector health or hospital service budgets.

pulmonary embolism (**PE**)**:** A blockage in the arteries that supply blood to the lungs caused by one or more blood clots. A blood clot can form in the veins of the legs, pelvis, abdomen (tummy) or in the heart. The clot can then dislodge from where it first forms and travel in the blood stream to lodge in one of the pulmonary arteries, the arteries that send blood to the lungs.

quality: The degree to which health services for individuals and populations increase the likelihood of desired health outcomes, and are consistent with current professional knowledge.

quintile: A group derived by ranking the population or area according to specified criteria and dividing it into five equal parts. The term can also mean the cut-points that make these divisions – that is, the 20th, 40th, 60th and 80th percentiles – but the first use is the more common one. Commonly used to describe socioeconomic areas based on socioeconomic position.

rate: One number (numerator) divided by another number (denominator). The numerator is commonly the number of events in a specified time. The denominator is the population 'at risk' of the event. Rates (crude, age-specific and age-standardised) are generally multiplied by a number such as 100,000 to create whole numbers. In some instances, for example with prescription volumes or expenditure amounts in magnitude, a multiplier of 100 is used to aid comprehension.

recent user (alcohol and other drugs): Someone who has used in the last 12 months.

recommended guidelines for fruit and vegetable consumption: A balanced diet, including sufficient fruit and vegetables, reduces a person's risk of developing conditions such as heart disease and diabetes. The National Health and Medical Research Council's 2013 Australian Dietary Guidelines recommend a minimum number of serves of fruit and vegetables each day, depending on a person's age and sex, to ensure good nutrition and health.

recurrent expenditure: Spending (expenditure) on goods and services that are used during the year (for example, salaries). Compare with **capital expenditure**.

recurrent spending: Spending on health goods and services that are consumed within a year, and that does not result in the creation or acquisition of fixed assets.

referred medical services: Non-hospital medical services that are not classified as primary health care. See also **unreferred medical service**.

refugee: A person who is subject to persecution in their home country and in need of resettlement. The majority of individuals considered to be a refugee are identified by the United Nations High Commissioner for Refugees (UNHCR) and referred by the UNHCR to Australia.

relative income poverty: A situation where a family's income is low compared with that of other families. It is assessed by the proportion of households with an equivalised income that is less than 50% of the national median equivalised household income.

relative risk: This measure is derived by comparing two groups for their likelihood of an event. It is also called the risk ratio because it is the ratio of the risk in the 'exposed' population divided by the risk in the 'unexposed' population. It is also known as the rate ratio.

relative standard error: The standard error (SE) is a measure of the dispersion of estimates calculated from all possible random samples from the same population. This can be estimated using the achieved single sample. The relative standard error (RSE) is the SE expressed as a percentage of the estimate, and provides an indication of the size of the SE relative to the size of the estimate.

relative survival (cancer): A measure of the average survival experience of a population of people diagnosed with cancer, relative to the 'average' Australian of the same sex and age, at a specified interval after diagnosis.

remoteness areas: these regions are defined by the **Australian Statistical Geographical Standard (ASGS)** and based on the Accessibility/Remoteness Index of Australia which uses the road distance to goods and services (such as general practitioners, hospitals and specialist care) to measure relative accessibility of regions around Australia. See **remoteness classification**.

remoteness classification: Each state and territory is divided into 5 classes of remoteness based on their relative accessibility to goods and services (such as to general practitioners, hospitals and specialist care) as measured by road distance. These regions are based on the Accessibility/Remoteness Index of Australia and defined as Remoteness Areas by the **Australian Statistical Geographical Standard (ASGS)** (from 2011 onwards) in each Census year. The 5 Remoteness Areas are *Major cities*, *Inner regional*, *Outer regional*, *Remote* and *Very remote.* See also **rural**.

renal disease: A general term for when the kidneys are damaged and do not function as they should.

remuneration: the average gross annual income, including social security contributions and income taxes payable by the employee.

Repatriation Pharmaceutical Benefits Scheme (**RPBS**)**:** An Australian Government scheme that provides a range of pharmaceuticals and wound dressings at a concessional rate for the treatment of eligible veterans, war widows/widowers, and their dependants.

reserve/reservist ADF members: Australian Defence Force (ADF) members in the active or inactive reserve forces for the Navy, Army or Air Force. Most members leaving full-time service make the transition to the inactive reserve forces, unless there are medical or other grounds preventing this.

residential long-term care facilities: establishments primarily engaged in providing residential long-term care that combines nursing, supervisory or other types of care as required by the residents. In these establishments, a significant part of the production process and the care provided is a mix of health and social services, with the health services being largely at the level of nursing care, in combination with personal care services. The medical components of care are, however, much less intensive than those provided in hospitals.

respiratory condition: A chronic respiratory condition affecting the airways and characterised by symptoms such as wheezing, shortness of breath, chest tightness and cough. Conditions include **asthma** and **chronic obstructive pulmonary disease** (**COPD**) – which includes **emphysema** and chronic bronchitis.

restraint: The restriction of an individual's freedom of movement by physical or mechanical means.

restraint (mechanical): The application of devices (including belts, harnesses, manacles, sheets and straps) on a person's body to restrict his or her movement. This is to prevent the person from harming himself/herself or endangering others or to ensure the provision of essential medical treatment. It does not include the use of furniture (including beds with cot sides and chairs with tables fitted on their arms) that restricts the person's capacity to get off the furniture except where the devices are used solely for the purpose of restraining a person's freedom of movement.

The use of a medical or surgical appliance for the proper treatment of physical disorder or injury is not considered mechanical restraint.

restraint (physical): The application by health care staff of ‘hands-on’ immobilisation or the physical restriction of a person to prevent the person from harming himself/herself or endangering others or to ensure the provision of essential medical treatment.

resuscitation of baby: Active measures taken shortly after birth to assist the baby's ventilation and heartbeat, or to treat depressed respiratory effort and to correct metabolic disturbances.

rheumatoid arthritis: A chronic, multisystem disease whose most prominent feature is joint **inflammation** and resulting damage, most often affecting the hand joints in symmetrical fashion. It can occur in all age groups but most commonly appears between ages 20–40. Its causes are not certain but involve auto-immune processes.

risk: The probability of an event's occurring during a specified period of time.

risk factors: Any factor that represents a greater risk of a health disorder or other unwanted condition or event. Some risk factors are regarded as causes of disease; others are not necessarily so. Along with their opposites (protective factors), risk factors are known as **determinants**.

rural: Geographic areas outside urban areas such as towns and cities. In this report, 'rural and remote' encompasses all areas outside Australia's *Major cities* according to the **remoteness classification** of the **Australian Statistical Geographic Standard** (**ASGS**). In many instances, the term 'rural and remote' is used interchangeably with the classification terms 'regional and remote'.

safety: The avoidance or reduction to acceptable limits of actual or potential harm from health care management or the environment in which health care is delivered.

safety and quality standards: A set of statements which describe the level of care consumers can expect from a health service. They aim to protect the public from harm and improve the quality of care provided.

salaried: health professionals who are employees and who receive most of their income via a salary.

same-day hospitalisation: A patient who is admitted to, and has a separation from, hospital on the same date.

same-day patient: A patient who is admitted to, and has a separation from, hospital on the same date.

schooling restriction: A person is defined has having a schooling restriction if they have one or more disabilities and, because of their disability, they:

- are unable to attend school

- attend a special school
- attend special classes at an ordinary school
- need at least one day a week off school on average
- have difficulty at school.

screen time: Activities done in front of a screen, such as watching television, working on a computer, or playing video games.

screening (for health): A systematic method of detecting risk factors or suspicious abnormalities among people who are symptom free, so that health problems can be either prevented or followed up, diagnosed and treated as early as possible. Screening is usually done through special programs aimed at higher risk groups in the population. A variant of screening, often known as case-finding, is where clinicians opportunistically look for risk factors or abnormalities in people when seeing them for other reasons; for example, when many doctors routinely measure blood pressure in all patients consulting them.

seclusion: The confinement of the consumer at any time of the day or night alone in a room or area from which free exit is prevented.

Key elements include that:

1. The consumer is alone.
2. The seclusion applies at any time of the day or night.
3. Duration is not relevant in determining what is or is not seclusion.
4. The consumer cannot leave of their own accord.

The intended purpose of the confinement is not relevant in determining what is or is not seclusion. Seclusion applies even if the consumer agrees or requests the confinement.

The awareness of the consumer that they are confined alone and denied exit is not relevant in determining what is or is not seclusion. The structure and dimensions of the area to which the consumer is confined is not relevant in determining what is or is not seclusion. The area may be an open area, for example, a courtyard. Seclusion does not include confinement of consumers to High Dependency sections of gazetted mental health units, unless it meets the definition.

self-assessed health status: self-assessed health status is a commonly used measure of overall health which reflects a person's perception of his or her own health at a given point in time.

self-employed: health professionals who are primarily non-salaried. That is, they are either self-employed, or operate independently, usually receiving (mainly) either capitation or fee-for-service reimbursement.

self-regulated: Where a health professionals accreditation process is managed by the professional association for that profession, rather than under the National Registration and Accreditation Scheme (NRAS) for health practitioners.

separation (from hospital): The formal process where a hospital records the completion of an episode of treatment and/or care for an admitted patient – in this report, described by the term hospitalisation.

service (Australian Defence Force): The three broad arms of the Australian Defence Force – the Navy, Army and Air Force.

severe or profound core activity limitation: The limitation of a person who needs help or supervision always (profound) or sometimes (severe) to perform activities that most people undertake at least daily – that is, the core activities of self-care, mobility and/or communication. See also **core activity limitation** and **disability**.

severe, moderate and mild mental disorders: In the Young Minds Matter survey the impact of mental disorders were classified into three levels of impact on functioning by applying the national mental health service planning standard ratio of severity for mental disorders to the standardised score (1:2:4 for severe, moderate and mild cases). In addition suicide plans or attempts in the past 12 months were considered. The three levels are:

- *Severe:* A positive diagnosis plus an impact score greater than or equal to 1.75 and/or a history of suicide attempt in the 12 months prior to interview
- *Moderate:* A positive diagnosis plus an impact score greater than or equal to 0.95 or a history of suicide plans in the 12 months prior to interview
- *Mild:* All other cases with a positive diagnosis.

severe or profound core activity limitation: The limitation of a person who needs help or supervision always (profound) or sometimes (severe) to perform activities that most people undertake at least daily – that is, the core activities of self-care, mobility and/or communication. See also **disability**.

service contact (community mental health care) the provision of a clinically significant service by a specialised mental health service provider for patient/clients, other than those admitted to psychiatric hospitals or designated psychiatric units in acute care hospitals and those resident in 24-hour staffed specialised residential mental health services, where the nature of the service would normally warrant a dated entry in the clinical record of the patient/client in question. Any one patient can have one or more service contacts over the relevant financial year period. Service contacts are not restricted to face-to-face communication but can include telephone, video link or other forms of direct communication. Service contacts can also be either with the patient or with a third party, such as a carer or family member, and/or other professional or mental health worker, or other service provider.

sexual abuse: Undesired sexual behaviour by one person upon another. Sexual abuse of a child refers to any act by a person having the care of a child that exposes the child to, or involves the child in, sexual processes beyond the child's understanding, or contrary to accepted community standards. It includes, but is not limited to sexual assault. Other behaviours include forcing a child to watch or hear sexual acts, taking sexualised photos of a child, and sexually explicit talk.

sexual assault: Sexual act carried out against a person's will through the use of physical force, intimidation or coercion. Includes rape, attempted rape, aggravated sexual assault (assault with a weapon), indecent assault, and penetration by objects, forced sexual activity that did not end in penetration and attempts to force a person into sexual activity. These acts are an offence under state and territory criminal law.

sexual harassment: Includes indecent phone calls, text messages, emails or social media posts; indecent exposure; inappropriate comments; and unwanted sexual touching.

sexually transmissible infection: An infectious disease that can be passed from one person to another by sexual contact. Examples include **chlamydia** and **gonorrhoea** infections.

sexual violence: Behaviours of a sexual nature carried out against a person's will using physical force or coercion (or any threat or attempt to do so). Can be perpetrated by partners in a domestic relationship, former partners, other people known to the victims, or strangers.

siblicide: A homicide where one sibling kills another sibling.

significant: Data are described as significant where statistical significance has been determined for results. Statistical significance is determined by the mean and standard deviation of the data sample. This indicates the result is due to a factor of interest rather than chance or other confounding variables.

single-occasion risk (alcohol): A single-occasion risk, in the context of alcohol, is defined as the risk of alcohol-related injury arising from having a sequence of drinks without the blood alcohol concentration reaching zero in between them. The risk of an alcohol-related injury arising from a single occasion of drinking increases with the amount consumed. For healthy men and women, drinking no more than 4 standard drinks on a single occasion reduces the risk of alcohol-related injury from that occasion.

skeletal muscles: The most common type of muscle in the body, skeletal muscles are attached to bones by tendons, produce the movement of all body parts in relation to each other and can be voluntarily controlled.

smartphone: A mobile phone built on a mobile operating system, with more advanced computing capability and connectivity.

smartwatch: A mobile device, consisting of a package that includes a computer and display, attached to a bracelet.

smoker: Someone who reports smoking daily, weekly or less than weekly.

smoker status: Smoker status refers to the frequency of smoking of tobacco, including manufactured (packet) cigarettes, roll–your–own cigarettes, cigars and pipes, but excluding chewing tobacco, electronic cigarettes (and similar) and smoking of non–tobacco products.

Respondents to the National Health Survey were asked to describe smoking status at the time of interview, categorised as:

- **daily smoker:** a respondent who reported at the time of interview that they regularly smoked one or more cigarettes, cigars or pipes per day;
- **ex–smoker:** a respondent who reported that they did not currently smoke, but had regularly smoked daily, or had smoked at least 100 cigarettes, or smoked pipes, cigars, etc. at least 20 times in their lifetime; and
- **never smoked:** a respondent who reported they had never regularly smoked daily, and had smoked less than 100 cigarettes in their lifetime and had smoked pipes, cigars, etc. less than 20 times.

The 2019 National Drug Strategy Household Survey uses the following smoking definitions:

- **current smoker:** reported smoking daily, weekly or less than weekly at the time of the survey.
- **daily smoker:** reported smoking tobacco at least once a day (includes manufactured (packet) cigarettes, roll-your-own cigarettes, cigars or pipes). Excludes chewing tobacco, electronic cigarettes (and similar) and smoking of non-tobacco products.

- **ex-smoker**: a person who has smoked at least 100 cigarettes or equivalent tobacco in his or her lifetime, but does not smoke at all now.
- **never smoker:** a person who does not smoke now and has smoked fewer than 100 cigarettes or the equivalent tobacco in his or her lifetime.
- **non-smoker:** never smoked or an ex-smoker.

social capital: the institutions, relationships, voluntary activity, and communications that shape the quality and quantity of social interaction within a community.

social competence: A set of abilities that enable children to independently navigate their social world, to interact with peers and adults, to form friendships, and to understand the needs of others.

social determinants of health: The circumstances in which people are born, grow up, live, work and age, and the systems put in place to deal with illness. These circumstances are in turn shaped by a wider set of forces: economics, social policies and politics.

social exclusion: Where people do not have the resources, opportunities and capabilities they need to learn, work, engage with or have a voice in their communities. Composite measures of social exclusion weight indicators such as income level, access to education, unemployment, poor English, health services and transport, and non-material aspects such as stigma and denial of rights. These measures are typically divided into three levels: marginal exclusion, deep exclusion and very deep exclusion.

socioeconomic areas: Based on the **Index of Relative Socio-Economic Disadvantage**, part of the **Socio-Economic Indexes for Areas (SEIFA)** created from Census data, which aims to represent the socioeconomic position of Australian communities and reflect the overall or average level of disadvantage of the population in an area.

Socio-Economic Indexes for Areas (**SEIFA**): A set of indexes, created from Census data, that aim to represent the **socioeconomic position** of Australian communities and identify areas of advantage and disadvantage. The index value reflects the overall or average level of disadvantage of the population of an area; it does not show how individuals living in the same area differ from each other in their socioeconomic group.

socioeconomic position: An indication of how 'well off' a person or group is. Socioeconomic position is often reported using the **Socio-Economic Indexes for Areas**, typically for five groups (quintiles) – from the most disadvantaged (worst off or lowest socioeconomic area) to the least disadvantaged (best off or highest socioeconomic area).

solar ultraviolet (**UV**) **radiation:** High-energy rays from the sun which are invisible to the human eye. UV radiation is divided into three types according to wavelength (UVA, UVB and UVC). UVA, and to a lesser extent UVB, are not wholly absorbed by atmospheric ozone and therefore are of interest for human health.

specialist attendance: A specialist attendance usually requires a referral from a general practitioner. A specialist attendance is a referred patient-doctor encounter (with Medicare funding benefits), such as a visit, consultation and attendance (including a video conference) with a medical practitioner who has been recognised as a specialist or consultant physician for the purposes of Medicare benefits.

specialist homelessness services: Assistance provided by a specialist homelessness agency to a client aimed at responding to or preventing homelessness. Includes accommodation provision, assistance to sustain housing, domestic/family violence services, mental health services, family/relationship assistance, disability services, drug/alcohol counselling, legal/financial services, immigration/cultural services, other specialist services and general assistance and support.

specialist services: Services that support people with specific or complex health conditions and issues, who are generally referred by **primary health care** providers. They are often described as ‘secondary’ health care services. In many cases, a formal referral is required for an individual to be able to access the recommended specialist service.

specialists: fully-qualified physicians who have specialised and work primarily in areas other than general practice. Physicians in training are normally excluded.

stage (cancer): The extent of a cancer in the body. Staging is usually based on the size of the tumour, whether lymph nodes contain cancer, and whether the cancer has spread from the original site to other parts of the body.

stalking: Unwanted behaviours, such as following or unwanted contact, that occur more than once and cause fear or distress. Stalking is a crime in every state and territory of Australia.

standard drink (alcohol): A serve that contains 10 grams of alcohol (equivalent to 12.5 millilitres of alcohol). It is also referred to as a full serve.

statistical significance: A statistical measure indicating how likely the observed difference or association is due to chance alone. Rate differences are deemed to be statistically significant when their confidence intervals do not overlap, since their difference is greater than what could be explained by chance.

stillbirth: See **fetal death (stillbirth)**.

stroke: An event that occurs when an artery supplying blood to the brain suddenly becomes blocked or bleeds. A stroke often causes paralysis of parts of the body normally controlled by that area of the brain, or speech problems and other symptoms. It is a major form of **cerebrovascular disease**.

substance misuse: Use of **illicit drugs** (illegal drugs, drugs and volatile substances used illicitly, and pharmaceuticals used for non-medical purposes).

substance use disorder: A disorder of harmful use and/or dependence on illicit or licit drugs, including alcohol, tobacco and prescription drugs.

substantiation of notification (child protection): Child protection notification made to relevant authorities between 1 July and 30 June that was investigated (with the investigation finalised by 31 August), and where it was concluded there was reasonable cause to believe the child had been, was being, or was likely to be, abused, neglected or otherwise harmed. Substantiation does not necessarily require sufficient evidence for a successful prosecution, and does not imply that treatment or case management was provided. Substantiations may also include cases where there is no suitable caregiver, such as children who have been abandoned, or whose parents are deceased.

suicide: An action intended to deliberately end one’s own life.

suicidal behaviours: The collective term for suicidal ideation, suicide plans and suicide attempts.

suicidal ideation: Serious thoughts about ending one’s own life.

syphilis (infectious): A sexually transmitted infection, which if untreated can cause irreversible damage. It is caused by Treponema pallidum bacteria. It is a notifiable disease.

telehealth: Health services delivered using information and communication technologies, such as videoconferencing or through other communication technologies.

telemedicine: The remote delivery of health care services, such as health assessments or consultations, over the telecommunications infrastructure.

thunderstorm asthma: is the triggering of an asthma attack by environmental conditions directly caused by a local thunderstorm.

total burden: The sum of fatal burden (YLL) and non-fatal burden (YLD).
See **burden of disease (and injury)**.

trachoma: an infectious disease of the eye caused by *Chlamydia trachomatis* bacteria. If left untreated, follicles (small groups of cells) form on the upper eyelids and grow larger until they invade the cornea, eventually causing blindness.

trauma: A severe and often life-threatening injury that suddenly develops when the entire body or a part of it has been hit by a blunt object or due to sudden impact.

treatment episode: The period of contact between a client and a treatment provider or a team of providers. In the context of alcohol and other drug treatment, each treatment episode has 1 principal drug of concern and 1 main treatment type. If the principal drug or main treatment changes, a new episode is recorded.

treatment type: In the context of alcohol and other drug treatment, the type of activity that is used to treat the client's alcohol or other drug problem. Examples include assessment only, counselling, information and education only, pharmacotherapy, rehabilitation, support and case management only, and withdrawal management (detoxification).

triage category: A category used in the emergency departments of hospitals to indicate the urgency of a patient's need for medical and nursing care. Patients are triaged into 1 of 5 categories on the Australasian Triage Scale. The triage category is allocated by an experienced registered nurse or medical practitioner.

triglyceride: A compound made up of a single molecule of glycerol and three molecules of fatty acid. Triglycerides are the main constituents of natural fats and oils.

tumour: An abnormal growth of tissue. Can be benign (not a cancer) or malignant (a **cancer**).

type 1 diabetes: A form of **diabetes** mostly arising among children or younger adults (but can be diagnosed at any age) and marked by a complete lack of insulin. Insulin replacement is needed for survival. It is a lifelong disease, for which the exact cause is unknown, but believed to be the result of an interaction of genetic and environmental factors. See **diabetes** (**diabetes mellitus**).

type 2 diabetes: The most common form of diabetes, is a condition in which the body becomes resistant to the normal effects of insulin and gradually loses the capacity to produce enough insulin in the pancreas. The condition has strong genetic and family-related (non-modifiable) risk factors and is also often associated with modifiable risk factors. See **diabetes (diabetes mellitus)**.

ultraviolet (**UV**) **radiation**: is part of the electromagnetic spectrum emitted by the sun. It has major importance to human health, particularly in relation to vitamin D production, the functioning of the immune system, and the formation of skin cancers and cataracts.

uncontrolled high blood pressure: Measured systolic blood pressure of 140 mmHg or more, or diastolic blood pressure of 90 mmHg or more, whether or not they were taking blood pressure medication.

underlying cause of death: The disease or injury that initiated the train of events leading directly to death, or the circumstances of the accident or violence that produced the fatal injury. See also **cause of death** and **associated cause(s) of death.**

underweight: A category defined for population studies as a **body mass index** less than 18.5.

unreferred medical service: A medical service provided to a person by, or under the supervision of, a medical practitioner – being a service that has not been referred to that practitioner by another medical practitioner or person with referring rights. In this report, these are medical services that are classified as primary health care (see referred medical services).

unstable angina: A form of angina that is more dangerous than normal angina but less so than a heart attack. It can feature chest pain that occurs at rest; and in someone who already has angina it can be marked by new patterns of onset with exertion or by pain that comes on more easily, more often or for longer than previously.

urban Heat Islands: Urban areas that are significantly warmer than surrounding rural or natural areas due to human activities and land uses.

$US purchasing power parity (**PPP**): purchasing power parities (PPPs) are the rates of currency conversion that equalise the purchasing power of different countries by eliminating the differences in price levels between countries. In their simplest form, PPPs show the ratio of prices in national currencies of the same good or service in different countries. This indicator is measured in terms of the national currency per US dollar.

vaccination: The process of administering a vaccine to a person to produce immunity against infection. See **immunisation**.

vaccine: A substance used to stimulate the production of antibodies and provide immunity against one or several diseases. It is prepared from the causative agent of a disease, its products, or a synthetic substitute, and treated to act as an antigen without inducing the disease.

vacuum extraction: A procedure to assist birth using traction or rotation on a suction cap applied to the baby's head.

vector-borne diseases: diseases that are spread between humans or animals by a vector such as mosquitoes.

victimisation rate: The number of victims per 100,000 of the Estimated Resident Population (ERP).

vigorous physical activity: Physical activity at a level that causes the heart to beat a lot faster and shortness of breath that makes talking difficult between deep breaths.

virus: An infective agent that typically consists of a nucleic acid molecule in a protein coat, is too small to be seen by light microscopy, and can multiply only within the living cells of a host.

walkability: A measure of how conducive an area is to walking.

wellbeing: A state of health, happiness and contentment. It can also be described as judging life positively and feeling good. For public health purposes, physical wellbeing (for example, feeling very healthy and full of energy) is also viewed as critical to overall wellbeing. Because wellbeing is subjective, it is typically measured with self-reports, but objective indicators (such as household income, unemployment levels and neighbourhood crime) can also be used.

whooping cough: See **pertussis**.

workforce: People who are employed or unemployed (not employed but actively looking for work). Also known as the **labour force**.

years lived with disability (**YLD**): A measure calculated as the prevalence of a condition, multiplied by a disability weight for that condition. YLD represent **non-fatal burden**. Sometimes referred to as **years of healthy life lost due to disability** (**YLD**).

years of healthy life lost due to disability: See **years lived with disability** (**YLD**).

years of life lost (**YLL**): For each new case, years of life lost equals the number of years between premature death and the standard life expectancy for the individual.

years of potential life lost (**YPLL**)**:** Years of life lost due to premature death, which is assumed to be any death between the ages of 1–78 inclusive. YPLL represent fatal burden.

younger onset dementia: Dementia that develops in people aged under 65.

zoonotic diseases: diseases that are naturally transmissible between humans and animals.

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Steering committee

Fadwa Al-Yaman

Michael Frost

Louise Gates

Rob Heferen

Matthew James

Richard Juckes

Andrew Kettle

Gabrielle Phillips

Adrian Webster

Louise York

Project management team

Simone Brown

Elyse Kambisios

Darryl Miller

Alex Ness

Mark Petricevic

Authors and content developers

Hussam Ajamieh

Josh Alexander

Jane Akhurst

Jennifer Allison

Georgie Amoyal

Tiarne Allen

Michelle Barnett

Eleanor Bateman

Tylie Bayliss

Patrick Bell

Louise Blunden

Harriet Boyd-Taylor

Ruby Brooks

Willow Bryant

Alison Budd

Brent Bufton
Jessica Cargill
Thomas Cherian
Alex Chiddy
Pooja Chowdhary
Elena Cutmore
Kristina Da Silva
Khoi Dang
Michael de Looper
Heidi Dietz
Tracy Dixon
Carey Doyle
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Melanie Dunford
Martin Edvardsson
Fiona Elliot
Mardi Ellis
Amy Ferriday
Emma Gearon
Siamak Gholizadehsangersaraki
Frances Gibson
Vara Goluguri
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Jacinta Henry
Wendy Ho
Davis Hopkins
Tim Hourigan
Maddie Howlett
Elizabeth Hynes
Callin Ivanovici
Clara Jellie
Duncan Jones
Sarah Jones
Elyse Kambisios
Sarah Kamppi
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Sushmitha Kasturi
Carol Kubanek
Ashna Kumar
Paula Laws
Claire Lee-Khoo
Caleb Leung
Sophie Lindquist
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Yolanda Lovie-Toon
Lucinda Macdonald
Janet Maccora
Kalijah Madsen-Guarini
Chelsea Maher
Tara Mann
Peter Marlton
Carol McInerney
Jane McIntyre
Moira McLoughlin
Clare McMath
David Meere
Jennaya Montgomery
Kirsten Morgan
Andy Morrison
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Alex Ness
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Eileen Patterson
James Pearce
Katie Penfold
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Micaella Watson
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